Enabling Exercise Prescription: Developing a Comprehensive Intervention Strategy for Exercise Counseling and Prescription in Family Medicine

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

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2011

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Abstract

**Background:** The prevalence of physical inactivity among American adults is high. Physical inactivity is a major contributor to morbidity and mortality associated with chronic medical conditions. Exercise counseling and prescription provided by physicians in the office setting has been proposed as a strategy for improving exercise participation among patients. Multi-component office based exercise interventions have shown the most promise toward increasing patient exercise participation. An effective comprehensive intervention strategy for exercise counseling and prescription in Family Medicine is not presently available.

**Objective:** To develop a comprehensive intervention strategy for exercise counseling and prescription to be used in the Family Medicine outpatient office setting.

**Methods:** A literature review was undertaken to evaluate the current understanding of exercise and physician office based exercise interventions as they relate to disease prevention and chronic disease management. American Board of Family Medicine certified physicians were interviewed using a semi-structured format to explore their views regarding exercise counseling and prescription. Transcribed interview data was analyzed using abductive analysis.

**Results:** Exercise counseling and prescription is important and underutilized in Family Medicine. Family Medicine physicians accept the role of being a leader in promoting
exercise among their patients. The 5 A’s of behavior change were well conceptualized and viewed as a suitable framework for an office based exercise intervention. Physician time constraints and the absence of a standardized process were the most significant barriers to exercise counseling and prescription in the Family Medicine setting.

**Conclusion:** The literature review and themes derived from interview data analysis provided insight into the development of a comprehensive intervention strategy for exercise counseling and prescription in Family Medicine. The intervention is consistent with the scientific understanding of exercise as it relates to health and chronic disease processes. Its design is representative of current recommendations for interventions aimed at healthy lifestyle behavior modification and is tailored specifically for Family Medicine physicians. This intervention is also proposed as the basis for future research.
Acknowledgments

I am grateful for the opportunity to humbly acknowledge the support of all those who made this journey of personal and scientific discovery possible and more importantly worthwhile.

I would first like to thank my wife, Laura, who has been constantly willing to endure my schedule of long days and longer nights through medical school, graduate school, and residency. Her devotion and dedication to our little boys Jax and Tyce have allowed our family to flourish during this very busy time in our lives. I am also grateful to my parents and extended family for their love and support. I am thankful for my father Dr. Bryant A. Miner for teaching me that love of the sciences is about more than memorization, that by seeking for understanding one is able to unveil the powers of creation and eternity.

I would like to thank my advisor Dr. Steven T. Devor for facilitating my development as a scientist. His passion for exercise and health promotion provided me an ideal mentor and a dear and trusted friend. Thank you Steve, for everything. I would also like to thank Dr. Randy Wexler and Dr. Linda Stone for sharing their love of Family Medicine with me and for their countless hours of council and teaching over the past many years. Also, to my brother Dr. David B. Miner, thank you for helping me to understand that the purpose of medicine really is in changing lives.
I would like to thank Dr. Tim Kirby, Kay Yeager, my professors, research group, and the students in the school of PAES for each of your individual contributions and support along the way. As well, my sincere thanks to my partners at the Utah Valley Family Medicine Residency. I am particularly grateful to Dr. Bob Anderson for his tireless review of this manuscript; to Dr. Sarah Daly for a listening ear; and to Dr. Michael Rhodes for facilitating a remarkable program.

A special thanks to the dedicated Family Medicine physicians who participated as subjects and models for this work. Thank you for your help in this research and for your dedication to your patients. Ours truly is the greatest specialty.

To The Ohio State University, thank you and Go Bucks!
Dedicated to Laura, Jax, and Tyce
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Chapter 1: Introduction

Preface

This chapter provides the necessary background information and rationale for the processes undertaken which have ultimately lead to the development of a comprehensive intervention strategy to enable exercise counseling and prescription within the scope of a standard Family Medicine office visit. Detailed objectives and hypotheses are also provided within this introductory chapter to guide readers as to the underpinning purposes and goals of this work.

Chapter two details the qualitative interview process that was designed to elicit Family Medicine physicians’ views and understanding related to the utilization of exercise counseling and prescription in daily practice. The subsequent analysis of physicians’ beliefs and preferences relative to the subject of exercise counseling and prescription are also presented in detail in this chapter.

Chapter three details a model of a comprehensive intervention strategy designed to integrate exercise counseling and prescription into standard of care practices within the scope of Family Medicine. This model enables Family Medicine physicians to facilitate the regular employment of exercise prescription and counseling as a legitimate and necessary treatment modality for disease prevention and management.
Background and Rationale

National physicians’ organizations and scientific societies including the American College of Sports Medicine and the American Academy of Family Physicians have authored or supported position stands on the integral role for regular exercise in the primary prevention and management of chronic disease conditions. In recent years there has been increasing pressure from both the scientific community and from many health care organizations in favor of the development of standardized exercise recommendations for the public based on the best available observational and experimental data. In 2008, a national initiative titled “Exercise is Medicine” was jointly undertaken by the American College of Sports Medicine (ACSM) and the American Medical Association (AMA). The initiative urged physicians to regularly promote exercise in daily practice. The Exercise is Medicine initiative called on physicians to “assess and review every patient’s [exercise] program at every visit.”

The American Heart Association’s (AHA) has long recognized physical inactivity as an independent major modifiable risk factor for coronary artery disease (CAD). Additionally, the AHA recommends exercise as a primary therapeutic modality in the management of four of the five remaining major modifiable risk factors: dyslipidemia, diabetes, obesity, and hypertension (HTN). The American Academy of Family Physicians (AAFP), the American College of Preventive Medicine (ACPM), the American Medical Society for Sports Medicine (AMSSM), the President’s Council on Fitness, Sports and Nutrition (PCFSN), the National Strength and Conditioning Association (NSCA), and dozens of other highly regarded professional health and fitness
organizations have supported the ACSM, AMA, and AHA exercise recommendations
and exercise promotion initiatives \(^2,^3\).

The U.S. National Activity Plan was introduced in 2010 \(^4\). The plan is a private-
public sector collaborative that created a comprehensive set of policies, programs, and
initiatives aimed at increasing exercise participation in the American population \(^4\). The
greatest significance of this plan is that it brings together, for the first time, a consensus
plan for exercise recommendations and promotion supported by nearly all of the major
governmental, public, and private organizations.

The purpose of the following review will be to examine the epidemiology,
economic burden, and disease morbidity and mortality attributed to physical inactivity.
The role of physician driven exercise counseling and prescription regarding this
important national health care issue will also be reviewed.

**National Exercise Guidelines – Population Characteristics**

Physical inactivity is recognized as a major contributor to morbidity and mortality
among American adults \(^5\). Physical inactivity and poor diet are a leading cause of death
associated with modifiable risk factors, second only to tobacco \(^6\). It is estimated that even
moderate levels of exercise would reduce the number of premature deaths from coronary
artery disease, colon cancer, and type 2 diabetes mellitus by 250,000 annually \(^7\).

Recognizing the positive health benefits of regular exercise, the American
College of Sports Medicine (ACSM) issued the first dose-specific exercise
recommendation for the general public in 1978 \(^8\). In 1995, the ACSM was joined by the
Centers for Disease Control and Prevention (CDC) in issuing the following revised and expanded recommendation: “Every U.S. adult should accumulate 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week” ⁹.

Using new research published since 1995 supporting the health benefits of regular exercise, the ACSM and the American Heart Association (AHA) updated and clarified prior exercise recommendations in 2007 ¹. The consensus statement of import to all physicians and patients is the following: “To promote and maintain health, all healthy adults aged 18 to 65 yr need moderate-intensity aerobic (endurance) physical activity for a minimum of 30 min on five days each week or vigorous-intensity aerobic physical activity for a minimum of 20 min on three days each week; in addition, every adult should perform activities that maintain or increase muscular strength and endurance a minimum of two days each week” ¹.

Despite more than three decades of exercise promotion by the ACSM and the combined support of governmental, independent, and professional organizations adequate exercise participation rates among American adults remains low. Government reports estimate that 39% of American adults accumulate no leisure-time exercise. This high rate of physical inactivity has been static from 1996-2006 ¹⁰. The number of adults meeting the minimum recommended level of exercise has remained at or below 31% over the same period ¹⁰. The social and financial consequences of physical inactivity in America are enormous. The direct cost of physical inactivity independently accounts for 2.4% of all U.S. health care expenditures ¹¹. The total U.S. health care expenditures for the year
2011 are projected at $2.71 trillion with physical inactivity directly accounting for over $65 billion of this total cost \textsuperscript{11,12}.

**Support and Recommendations – Physical Activity in Chronic Disease Management**

Chronic disease conditions account for 76% of all U.S. health care expenditures \textsuperscript{13}. The aggregate cost for chronic disease care using current estimates could exceed $2.06 trillion for the year 2011\textsuperscript{12,13}. Chronic disease conditions are persistent, long lasting, and require ongoing care for effective long-term management. Chronic disease management is most often provided in the setting of primary care and frequently constitutes the chief complaint in Family Medicine office encounters \textsuperscript{14,15}.

Hypertension, diabetes mellitus, overweight and obesity, dyslipidemia, cardiovascular disease, cancer, arthritis, osteoporosis, depression, and age-related physical decline are representative of the nature of chronic disease conditions and constitute the most common diagnosis treated in Family Medicine \textsuperscript{14,15}. These chronic conditions were present in patients in more than 87% of all ambulatory physician office visits in 2007 \textsuperscript{15}.

In addition to chronic disease care, primary preventive visits constitute a significant component of Family Medicine practice and are themselves integral to chronic disease prevention \textsuperscript{14}. Primary preventive visits include those for general medical screening, routine prenatal and gynecological care, and well adult physicals. Together these constitute the primary reason for visits to physician offices greater than 10% of the time \textsuperscript{15}. 
Chronic disease management and patient desires for primary prevention overwhelmingly dominate physician-patient encounters in the outpatient setting. An examination of these chronic disease conditions and the role of exercise in disease management and prevention was thus warranted.

Hypertension

Hypertension (HTN) is a leading cause of morbidity and mortality in the United States. HTN is the most common diagnosis encountered in Family Medicine and accounts for nearly 11 million office visits annually 16.

In 2003, the National High Blood Pressure Education Program (NHBPEP) Coordinating Committee released the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC-7) 17. The JNC-7 established clear and concise clinical guidelines for the diagnosis and treatment of HTN 17. HTN was defined by the JNC-7 as a systolic blood pressure greater than or equal to 140 mmHg or a diastolic blood pressure greater than or equal to 90 mmHg 17.

The JNC-7 report identified a new prehypertension classification characterized by a SBP reading of 120-139 mmHg or a DBP reading of 80-89 mmHg 17. Prehypertension is not a disease category but rather designates high risk individuals who warrant aggressive non-pharmacological intervention by physicians to prevent or to delay the development of HTN. According to the JNC-7 classification, 29% of US adults, more than 67 million, are classified as being hypertensive with an additional 37% of US adults,
86 million, meeting criteria for prehypertension\textsuperscript{18,19}. The prehypertensive designation places these individuals at great risk for developing hypertension in the future\textsuperscript{18,19}.

The prehypertensive class was created in response to a meta-analysis of 61 studies covering over 1 million individuals. This meta-analysis indicated the absence of a threshold at which even small, seemingly insignificant, increases in blood pressure did not result in an increased risk for cardiovascular disease\textsuperscript{20}.

SBP reductions ranging from 4-9 mmHg have been associated with exercise levels in line with the ACSM/AHA minimum standards and are well documented\textsuperscript{21,22}. Population wide adoption of the ACSM/AHA minimum exercise recommendations could be expected to result in annual reductions of at least 7\% in all cause mortality, 14\% in deaths due to stroke, and a 9\% decrease in CAD related deaths by decreasing HTN associated morbidity and mortality\textsuperscript{23}.

Aggressive exercise prescription for the management and prevention of HTN is vital. The JNC-7 guidelines explicitly state that all hypertensive and pre-hypertensive patients should have exercise along with other health-promoting lifestyle behaviors included as part of their management plan\textsuperscript{17}.

Nearly 60\% of American adults presently warrant the therapeutic application of exercise counseling and prescription for managing or preventing hypertension\textsuperscript{18,19}. The residual lifetime risk of developing HTN in adults age 65 or older who reach their 80’s is 90\%\textsuperscript{24}. It appears that HTN alone justifies the universal application of exercise counseling and prescription for all Family Medicine patients\textsuperscript{24}.
Diabetes Mellitus

Diabetes mellitus (DM) management accounts for more than 7.5 million Family Medicine visits each year ranking second behind HTN. Diabetes cost the US economy $174 billion in 2007. The vast majority of this cost, $116 billion, was for direct medical expenditures for the treatment of DM. Nearly 2 million U.S. adults were newly diagnosed with DM in 2010. Diabetes mellitus prevalence among American adults age 20 years or older is estimated to be 11%, afflicting 25.6 million individuals. Another 70 million Americans are classified as pre-diabetic and at significant risk for developing the disease. This number represents more than 46% of the adult population in America. Experts estimate that by the year 2050 diabetes prevalence will have increased to 33%, afflicting 1 in 3 U.S. adults.

Primary prevention of DM through lifestyle interventions including regular exercise has been achieved with sustained long term efficacy. In treating existing disease, physical activity has been shown to improve the hallmark metabolic dysfunctions associated with DM which are impaired insulin sensitivity and impaired glucose tolerance. The positive impact of exercise in the treatment and prevention of DM is independent of weight loss. Exercise independently provides intrinsic value to clinicians in the management and prevention of DM.

The consensus statement authored by the American Diabetes Association (ADA) addressing exercise participation and its role in type 2 DM management and prevention supports the current ACSM/AHA exercise recommendations as important adjunct
therapy to be employed in diabetes management and prevention for all adults with diabetes or at risk for developing the disease\textsuperscript{1,34}.

\textit{Overweight and Obesity}

The prevalence of overweight and obesity in America represents one of the greatest social and health crisis facing America today. From 1980-2000 the prevalence of obesity among American adults has more than doubled\textsuperscript{35}. Currently 29\% and 37\% of Americans over the age of 18 are respectively classified as being overweight or obese\textsuperscript{35}. Three out of four Americans are projected to be overweight or obese by the year 2020\textsuperscript{36}. Obesity accounts for an estimated 111,000-325,000 deaths annually\textsuperscript{37,38}. The number of ambulatory office visits for obesity exceeded 68.5 million in 2006, accounting for between 7.6\% and 8.4\% of all physician office visits from 1996 to 2006\textsuperscript{39}. Seven percent of total direct health care expenditures annually are attributed to the direct effects of obesity, with a projected cost greater than $190 billion in 2011\textsuperscript{11,12}.

Two out of three American adults stand to reap significant health benefits from therapeutic weight loss that can be facilitated by regular exercise participation. The patient population who would benefit more than most from exercise is the estimated 11 million Americans who are morbidly obese (BMI >40)\textsuperscript{35}.

Regular exercise is recommended by the ACSM and AHA as an integral lifestyle change necessary for promoting healthy weight loss and in preventing excessive weight gain\textsuperscript{1}. The Institute of Medicine of the National Academies of Science has advocated in favor of doubling of the minimum exercise recommendations published in the
ACSM/AHA guidelines in order facilitate weight loss or to maintain a healthy body weight in adults \(^{40}\). This Institute of Medicine recommendation is also supported by the ACSM/AHA position stand on exercise \(^{1,40}\).

Individual variations in energy intake and energy expenditure are likely responsible for the different levels of exercise required by two individuals to maintain similarly healthy weights. The National Weight Control Registry (NWCR) has published a body of literature on weight loss and subsequent weight loss maintenance \(^{41}\). Among NWCR registrants who achieved and maintained significant weight loss, 94% reported exercise as being integral to their success \(^{41}\). Results from a multicenter European study of weight loss and weight maintenance supports the vital role of exercise in successful weight management \(^{42}\). Even in the absence of significant weight loss, regular exercise participation among overweight and obese individuals has been shown to significantly decrease the overall disease burden associated with overweight and obesity \(^{5,43}\).

**Dyslipidemia**

The prevalence of dyslipidemia among American adults is 16%. Dyslipidemia affects 50% more individuals than does diabetes mellitus \(^{44}\). The most recent data available shows the presence of the diagnosis of dyslipidemia in 12% of all ambulatory medicine visits with cholesterol measures being ordered or provided at 7.6% of visits \(^{15}\).

Dyslipidemia is recognized as one of six major modifiable risk factors for coronary heart disease (CHD) along with hypertension, diabetes mellitus, obesity and overweight, and physical inactivity \(^{45}\). Like the other major modifiable risk factors
discussed previously, dyslipidemia is positively impacted when patients regularly exercise\textsuperscript{46}.

Dyslipidemia as an inclusive diagnosis that encompasses the following: hypercholesterolemia (elevated total serum cholesterol), hyperlipoproteinemia (elevated serum LDL cholesterol), hypolipoproteinemia (low serum HDL cholesterol), and hypertriglyceridemia (elevated serum triglycerides). Any of these subsets, in isolation or in combination, increase patients’ risk of developing coronary heart disease\textsuperscript{45}.

Exercise is repeatedly endorsed as a primary preventive and effective treatment option for managing all classes of dyslipidemia by the Third Report of the National Cholesterol Education Program, commonly referred to as the Adult Treatment Panel III\textsuperscript{46}. Strong experimental evidence supports the employment of regular exercise in the management of all types of dyslipidemia\textsuperscript{47-49}. Patients specifically affected by low serum HDL cholesterol levels have been shown to reap the greatest benefits from regular exercise\textsuperscript{49}.

\textit{Cardiovascular Disease}

Cardiovascular disease (CVD) is a class of diseases that involve the heart and/or blood vessels, and is usually used to refer to arterial disease caused by atherosclerosis. This class of diseases includes coronary heart disease, cerebrovascular disease, and peripheral arterial disease. CVD remains the leading cause of death among American adults\textsuperscript{50}. It is also the leading cause of premature death in America\textsuperscript{50}. Currently 34.3\% of all U.S. deaths are directly attributed to CVD\textsuperscript{51}. It is estimated that 1 in 3 American
adults are living with CVD, making it a significant cause of disease morbidity among the population 50.

The economic cost of CVD was estimated in 2010 at more than half a trillion dollars 51. More than 79 million doctor visits and nearly 6 million hospitalizations each year occur because of CVD 51. CVD is a major threat to American’s health and has devastating economic effects. It is also a genuine threat to the financial sustainability of our health care system and presents an almost overwhelming burden on physician practices.

Major modifiable risk factors for CVD include hypertension, diabetes mellitus, overweight and obesity, dyslipidemia, and physical inactivity. CVD remains the most serious sequale associated with these conditions. These conditions, which increase one’s risk for developing CVD, have other associated morbidities that are known to be moderated by exercise intervention.

Hypertension associated morbidities are significant. These include cardiomyopathy, retinopathy, nephropathy, encephalopathy, and aneurism, in addition to cardiovascular diseases. Diabetes mellitus affects multiple organ systems. Hypoglycemia related syncope and falls, hyperglycemic coma, nephropathy, retinopathy, and neuropathy are common complications of diabetes. Overweight and obesity lead to increased incidence of degenerative joint disease, obstructive sleep apnea and associated respiratory conditions, gastroesophageal disease, cancer, depression, and general disability. The metabolic derangements of dyslipidemia can lead to liver failure while directly affecting vascular structure and function. The interplay of these co-morbid CVD
risk factors results in compounding effects accelerating the progression of individual
disease states and often leading to a self-perpetuating cascade of multi-organ system
disease and multi-organ failure.

As a recognized major modifiable risk factor for cardiovascular disease, physical
inactivity contributes significantly to both CVD and the aforementioned pathological
cascade \(^{45}\). Unlike the discussion of other risk factors where exercise represents one
management option, when employed in accordance with accepted recommendations,
regular exercise participation singly eliminates the risk factor of physical inactivity in the
development of CVD \(^{45}\). In addition to primary prevention of CVD, exercise intervention
is advocated for both secondary prevention and post-event recovery in CVD
conditions \(^{52-55}\).

In the specific case of stroke, American Heart Association and American Stroke
Association guidelines emphasize physical inactivity as a well-documented and
modifiable risk factor for stroke \(^{53}\). Exercise is advocated because it is associated with an
overall reduction in risk of stroke. Exercise also contributes significantly to the reduction
in risk of stroke associated with other modifiable risk factors \(^{53}\). Among the 6.4 million
Americans who are stroke survivors, exercise has been shown to improve strength,
endurance, and function \(^{52,53}\). Exercise has also been shown to contribute positively in
rehabilitative parameters. Exercise participation among stroke survivors significantly
decreases the incidence of recurrent stroke, making it an important key in secondary
prevention. Regular exercise also protects against cardiac disease which is known to
disproportionately affect survivors of stroke \(^{52}\).
Cancer

Cancer is second only to heart disease as a leading cause of death in the United States. Cancer incidence and mortality remain high despite decades of aggressive research and interventions aimed at treatment and prevention. In 2006, cancer killed more than half a million Americans. Cancer is a major financial burden on individuals, families, and state and national governments. In 2008, the economic cost of cancer in the United States was estimated at being $228 billion for the fiscal year.

Exercise is hypothesized to influence the development and progression of cancer in a number of ways. Exercise improves energy balance. Exercise modulates hormonal cascades including sex hormones, insulin, and prostaglandins. Exercise also affects direct mechanical processes such as circulation, ventilation, and bowel transit time. In addition, exercise can improve overall immune system function.

One-third of cancer deaths each year are attributed to poor diet and insufficient levels of exercise. The American Cancer Society cancer prevention guidelines support the most recent exercise recommendations set forth by the ACSM/AHA as beneficial in preventing cancer.

Prostate, lung, and colon cancer are the most prevalent cancers diagnosed in American males. Lung, prostate, and colon cancer are also responsible for the majority of cancer mortality among men. Among women breast, lung, colon, and uterine cancers predominate. The majority of cancer deaths in women are attributed to lung, breast, and colon cancers.
The USDHHS classifies the evidence for the utilization of exercise in cancer prevention as “strong” for colon and breast cancers and “moderate” in lung and uterine cancer prevention \(^60\). The ACS has proposed the mechanisms by which exercise protects against site-specific cancers. The colon is protected by reducing fecal transit time and by improving insulin, prostaglandin, and bile acid levels all of which influence cell growth. Breast and uterine protection is accomplished by modulating the production, metabolism, and excretion of endogenous sex hormones. The prostate is protected by similarly effecting endogenous sex hormones. Lung protection occurs by improving ventilation and perfusion to decrease concentration and duration of carcinogenic agent interaction with sensitive lung tissues \(^57\).

In addition to the direct benefits derived from regular exercise there is a significant link between overweight and obesity and cancer risk. Overweight and obesity account for between 14% and 20% of all cancer-related deaths \(^61\). A clear association exists between overweight and obesity and increased risk for breast, colon, and uterine cancers while observational evidence indicates an increased risk for prostate cancer among overweight and obese men \(^61\).

The role of exercise in cancer is not limited to prevention. The lifetime risk of being diagnosed with cancer of all types is around 40%, while the lifetime risk of dying from cancer is approximately 21% \(^62\). Cancer mortality has decreased nearly 9% in the past 60 years with 66% of cancer patients surviving greater than 5 year \(^62\). There are approximately 11,700,000 Americans living with the diagnosis of cancer at present \(^62\). Many of these patients are undergoing active treatment, are in remission, or have been
cured of their disease. Exercise during cancer treatment has been shown to improve physical functioning by reducing sarcopenia and osteopenia as well as by improving quality of life measures. After treatment, cancer survivors are at increased risk for developing co-morbid conditions such as obesity, cardiovascular disease and diabetes making regular exercise participation paramount for all cancer survivors.

Arthritis

Arthritis is the number one cause of disability in America. The statistics indicate that 49.9 million, 22.2% of American adults, suffer from arthritis with 21.1 million, or nearly one in ten, experiencing some degree of arthritis-attributable activity limitation.

Arthropathies and spinal disorders, if combined, would overtake hypertension as the leading primary diagnosis in ambulatory medicine. In 2007 over 59 million physician office visits were attributed to joint related pathologies. The overall costs associated with arthritis are estimated at $128 billion annually, accounting for $88.8 billion in direct medical expenditures.

As the U.S. population ages, and the prevalence of overweight and obesity continue to rise, so will the burden of arthritis. It is estimated that by 2030 one in four, nearly 67 million, Americans will be adversely affected by arthritis. In the face of these statistics, lifestyle modification such as regular exercise participation has the potential to improve individual quality of life while lessening the burden of arthritis related costs on both patients and health care systems in general.
Exercise participation among arthritis sufferers decreases pain, improves function, delays disability, and provides other physical and psychological benefits. Despite these benefits, exercise participation among individuals with arthritis remains low at 37%. This percentage is similar to rates of exercise participation among those without arthritis. Both groups fail to meet national guideline recommendations for exercise.

The American College of Rheumatology (ACR) recommends regular exercise participation of moderate intensity for people with arthritis. They call upon physicians to assess exercise participation and to recommend exercise as a self-management strategy for arthritis.

Back pain is a particularly vexing and difficult to treat diagnosis that is common in Family Medicine. Nearly 29 million physician office visits annually list spinal disorders as the primary diagnosis. Among adults, 30.2% of females and 26% of males report experiencing back pain lasting a day or more in the past three months. A recent analysis of the cost-effectiveness of different treatments for back pain listed exercise as one of five cost-effective management strategies. Notably absent was evidence supporting the cost-effectiveness of medications in the treatment of back pain.

Osteoporosis

Osteoporosis affects 10 million Americans. Nearly 34 million are at significant risk for developing the condition due to low bone mineral density. The direct health care costs due to osteoporosis exceeded $19 billion in 2005. Osteoporosis associated costs and fractures are projected to increase by as much as 50% by the year 2025 when
one in two Americans over the age of 50 is expected to have osteoporosis or decreased bone mineral density.\textsuperscript{71,72} The number of physician office visits attributed to osteoporosis care and management is currently 3.7\% of all visits for patients age 65-74 years and 6.2\% of all visits for patients age 75 years and older.\textsuperscript{15} These percentages are expected to increase significantly in the future.\textsuperscript{15}

Regular exercise participation, especially strength training and weight-bearing activities, is a key component in osteoporosis prevention. Exercise promotion will be increasingly important in the future in moderating the prevalence and morbidity associated with osteoporosis as the number of individuals affected by this disease continues to rise.\textsuperscript{72} Exercise participation is particularly important for young adults to promote adequate bone mineralization which is believed to peak around age 30.\textsuperscript{73} Among older adults, regular exercise participation decreases the scale of bone loss associated with aging.\textsuperscript{73} The ACSM and USDHHS support the current ACSM/AHA exercise recommendations for helping people to achieve and to maintain adequate bone mass.\textsuperscript{72,73}

\textit{Depression}

As many as 6.6-9.0\% of U.S. adults may experience a depressive disorder in a given year.\textsuperscript{74,75} The prevalence of depression is such that the U.S. Preventive Services Task Force recommends routine physician screening for depression in all adults.\textsuperscript{76} According to National Ambulatory Medical Care Survey statistics, depression was present in 8.6\% of ambulatory care office visits in which a chronic condition was
present. A total of 8.5 million ambulatory care visits in 2005-2006 listed depression as the primary diagnosis. Depression is a common diagnosis in Family Medicine and is the fifth most common chronic medical condition reported in physician office visits.

The evaluation and management of depression includes a careful examination of multiple domains of physical function and activities. Exercise is a prominent theme throughout the American Psychiatric Association’s (APA) practice guidelines for depression management. Exercise has been shown to improve mood symptoms in patients with clinical depression and in the general adult and elderly populations. The APA specifically endorses exercise as an initial treatment option in patients suffering from mild depression who wish to delay initiating pharmacologic or psychotherapeutic treatments. As with other chronic diseases, the effects of exercise on depression are believed to be dose specific with greater benefits achieved with increasing intensity, frequency, and duration of the exercise.

Exercise functions as an integral part of treatment plans for more severe depressive disorders. Exercise provides intrinsic benefit to improve mood along with secondary benefits such as pain reduction, functional improvement, and in helping to prevent medication induced weight gain. It is recommended that the ACSM/AHA exercise guidelines be employed as an initial preventive and treatment option for all depressive disorders.
Aging

More than 37.8 million Americans are 65 years or older. This demographic is expected to nearly double reaching 71 million by the year 2030. In 2030, those 65 years or older will account for approximately 20% of the U.S. population. The elderly are disproportionately affected by chronic disease with an estimated 80% being afflicted by at least one chronic disease condition. Current health care costs are 3 to 5 times greater for an elderly individual than for younger counterparts due in part to the increased incidence of chronic disease conditions among the elderly. The aging American population will present increasing challenges with regard to health care spending as this population continues to grow. Medicare spending in 2010 reached $519 billion. Medicare spending is projected to increase to an estimated cost of $929 billion in 2020. Between 1997 and 2006, chronic disease spending accounted for more than one third of increased Medicare spending with this trend expected to accelerate in the future.

The ACSM/AHA guidelines for older adults do not differ significantly from the recommendations for younger adults. The exceptions for older adults include lower exercise frequency, duration, and intensity at the onset of an exercise program and a more gradual progression should be followed in individuals limited by deconditioning or functional/disease limitations.

In addition to the enormous financial costs of chronic disease among the elderly, this group is disproportionately affected by conditions that significantly impact quality of life. These conditions include cognitive decline, physical disability, and loss of function and independence.
The pathophysiology of chronic disease exacerbates the physiological deterioration that results from normal aging. Maximal aerobic capacity, skeletal muscle performance, cardiovascular and pulmonary function, and body composition are all adversely affected by aging even in healthy individuals. While it is beyond the scope of this dissertation to review in detail the specific research and findings relating to the beneficial effects of exercise in aging, a comprehensive review published recently by the ACSM presents a detailed literature review of the physiological and psychosocial effects of exercise in older adults. The ACSM found that exercise increases life expectancy by decreasing chronic disease burden and progression. Exercise diminishes the degree of physiological aging. Long-term aerobic and resistance training preserve cardiovascular reserve and slow the changes in body composition that are associated with aging. Previously sedentary individuals can increase aerobic capacity, muscular strength and power, reduce total body fat to favorably impact body composition, and improve bone mineral density even in advanced age. Regular exercise has a positive impact on overall psychological wellbeing, treatment of depression, and in reducing the risk of cognitive decline and dementia.

The positive impact of regular exercise on general health and in the prevention and management of chronic disease is clear. Family Medicine physicians are therefore uniquely positioned to provide patient education and counseling in this regard.
Healthcare Innovation

In 1978 the American College of Sports Medicine issued its first inclusive exercise recommendations. The recommendations called for all adults to exercise at least 3-5 days per week for a total of 15-60 minutes per day at a target heart rate of between 50-85% of their maximum predicted heart rate during the activity. These recommendations have since been adjusted to be in line with evolving scientific discovery. The most recent revisions were issued in 2007. Key changes in the revised recommendations include: clarifications with regard to specificity involving the frequency, intensity, and duration of aerobic exercise recommended; an emphasis on the dose-response relationship of exercise and health; and the inclusion of recommendations for muscle strengthening activities.

The ACSM/AHA exercise guidelines are the cornerstone of the U.S. National Activity Plan. In the 30 years since the ACSM issued the first exercise recommendations, little to no progress has been made to positively impact the prevalence of physical inactivity among American adults.

In the time since the ACSM issued the first exercise guidelines adult obesity rates in America have more than doubled. From 1999 to 2006 the prevalence of hypertension among U.S. adults has not improved significantly. The number of U.S. adults diagnosed with DM from 1980 to 2005 has nearly tripled from 5.6 to 15.8 million. Dyslipidemia now affects 50% more individuals than does diabetes mellitus. Cardiovascular disease and cancer remains the leading causes of death among American adults. There has been a disproportionate aging of the U.S.
population with corollary increases in the incidence of arthritis, osteoporosis, and debility affecting older Americans. And, depressive disorders remain an increasingly prevalent health challenge.

By contrast, over the same 30 year period, the prevalence of tobacco use among American adults has declined from 34.1% in 1978 to 20.8% in 2006. This decline represents one of the most significant successes in health care since the advent of antibiotic therapy and routine vaccinations. Tobacco cessation programs have been so successful that physical inactivity and poor nutrition are projected to surpass tobacco as the most common modifiable risk factors associated with cause of death in the near future.

The success of tobacco cessation programs in mediating behavioral change stands in contrast to the failure of previous programs directed at improving exercise participation among Americans. These ineffectual programs have come from governmental, non-profit, and public health sources.

The escalating prevalence of chronic disease is fiscally unsustainable. U.S. per capita spending for health care is nearly 40% higher than any other country in the world. Major indicators of population health in America lag behind the rest of the world. America is ranked 27th in the world in total years of life expectancy.

The success of tobacco cessation initiatives in the U.S. have been the result of a collaborative effort of governmental, mass media, school, worksite, and primary care interventions. This collective group effort has been driven by documented evidence of the detrimental effects of tobacco use and the benefits of tobacco cessation. The efforts
of Family Medicine and other primary care physicians in tobacco cessation programs have resulted in remarkable positive outcomes\(^8^6\). Only recently, with the advent of the U.S. National Physical Activity Plan, has such a collaborative effort been created to address the problem of physical inactivity in America\(^4\).

The body of evidence supports the integral role of exercise in chronic disease prevention and in disease management. As was noted in the success of smoking cessation programs, Family Medicine physicians are uniquely positioned to advocate on behalf of exercise participation among their patients. Often, they fail to do so. As few as 28% of patients report ever having been counseled by their physician about exercise\(^9^1\). Of those who reported having received counsel, only 38% and 42% respectively were assisted by their physician in formulating a specific activity plan or were provided with follow-up support\(^9^1\).

The American College of Preventive Medicine has adopted a position stating, “primary care providers should incorporate physical activity counseling into routine patient visits\(^9^2\).” The ACSM and the AMA have created the joint national initiative, Exercise is Medicine\(^2\). A central aim of the Exercise is Medicine initiative is to encourage physicians to incorporate exercise evaluation, counseling, and prescription into every patient visit\(^2\). The Exercise is Medicine initiative has been endorsed by the American Academy of Family Physicians\(^2\). Further, the U.S. National Activity Plan aims to make exercise a “vital sign” to be routinely assessed in the office and regularly discussed between patients and physicians in the health care setting\(^4\).
In 2006, the most recent year where statistics were available, exercise related health education services were ordered or provided in only 9.5% of ambulatory office visits. This number includes the more than 200 million patient visits to Family Medicine offices which collectively comprised 23.1% of all ambulatory visits that year. In contrast, at least one pharmaceutical agent was provided or prescribed in an estimated 70.6% of ambulatory office visits that same year. In 26.4% of these cases the pharmacological therapy was provided or prescribed by a Family Physician.

**Physician and Patient Factors – Influence on Exercise Counseling and Prescription**

Many factors undoubtedly contribute to the failure of the U.S. health care system to appropriately adopt the scientific evidence that supports exercise as an integral therapy in chronic disease management and in prevention based medicine. These factors include both physician centered and patient centered characteristics.

Clinical inertia is a significant physician centered problem in chronic disease management. It represents a primary factor to be overcome in the encouragement of physicians to utilize exercise counseling and prescription appropriately. Clinical inertia is the failure to initiate or to intensify treatment in a patient who has not achieved evidence-based standard of care goals for disease management. Physician factors contributing to clinical inertia with regard to exercise counseling and prescription include: reactive care practices, insufficient time taken or available, failing to initiate treatment, and failing to set and follow-up on appropriate treatment goals.
There are a number of examples of clinical inertia hindering the appropriate management of chronic disease conditions. Hypertension is accepted as the number one attributable cause of death worldwide. Yet, it is estimated that only 70% of Americans with hypertension are aware of their condition, only 59% of those are receiving any treatment, and only 34% are controlled at goal levels set by the JNC-7 guidelines. Glycemic management in patients with DM is comparable with only 33% of treated patients achieving the ADA recommended hemoglobin A1c goal level of <7%.

Goals for therapeutic management in chronic diseases such as hypertension, diabetes mellitus, overweight and obesity, dyslipidemia, cardiovascular disease, cancer, arthritis, osteoporosis, depression, and age-related physical decline are well defined. Consensus guideline recommendations and clinical practices are broadly available as are effective treatments and therapies. Yet, rates of successful management remain low. Behavioral modification, and more specifically exercise, represents a universally available and clinically effective therapeutic modality that should be employed as the primary therapy or as adjunctive therapy in all such patients.

Analysis of National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS) statistics indicate the likelihood of an adult patient receiving exercise counseling from their Family Physician in a given visit is low, 14%. NSMCS/NHAMCS data indicate that the percentage of physician visits where exercise counseling was reported as part of chronic disease management planning during office visits for hypertension, diabetes, coronary heart disease, dyslipidemia, and obesity were respectively 20%, 20%, 24%, 33%, and 35%. The
frequency of exercise counseling by physicians during office visits among individuals at low risk for CVD is estimated at 8% ⁹⁸. These statistics indicate that the employment of exercise counseling for primary prevention is rare.

Inadequate knowledge and lack of experience are reported by physicians as barriers to exercise counseling and prescription in practice ⁹⁹-¹⁰¹. Inadequate knowledge of, and experience in, exercise counseling and prescription possessed by physicians make it difficult to communicate recommendations and goals with patients in a time efficient manner and likely contributes to clinical inertia ⁹³. These barriers to appropriate exercise counseling and prescription are rooted in traditional medical training and persist into professional practice.

The number of practicing physicians who have ever participated in a college-level course that focused on exercise physiology or exercise prescription may be as low as 3% ¹⁰². Information collected from deans and directors of medical education at 72 of the nation’s 128 allopathic schools of medicine found that only 10% of school administrators believed that their graduates could formulate an adequate or appropriate exercise prescription ¹⁰³. Only 6% of these training institutions reported having a core course that addressed the ACSM guidelines for exercise testing and prescription as part of their curriculum ¹⁰³. Forty-six percent of these medical school administrators were not sure if the ACSM guidelines were addressed in any course offered at their medical school ¹⁰³.

An evaluation of internal medicine residents revealed similar outcomes. Twelve percent of doctors in training reporting adequate enough knowledge of the ACSM guidelines to enable the creation of an exercise plan for patients of moderate intensity ¹⁰⁰.
Six percent reported confidence in utilizing the ACSM guidelines for vigorous exercise\textsuperscript{100}. Physician awareness of ACSM guideline recommendations for exercise among practicing physicians may be as low as 23\%\textsuperscript{102}.

Knowledge proficiency in exercise counseling and prescription is an expectation of patients who accept physicians as the primary and preferred resource on exercise\textsuperscript{101, 104}. Studies indicate that patients do respond positively to exercise counseling and prescription by increasing physical activity in response to advice from their Family Physician\textsuperscript{105, 106}.

The lack of structured coursework addressing exercise in undergraduate and graduate medical education appears to run counter to patient expectations and positive outcomes. This knowledge base is likely to be gained not through formal education but only through individual physician and institutional efforts\textsuperscript{100, 102, 103}.

Inadequate time with patients is the most frequently cited obstacle to counseling and prescribing exercise among Family Physicians\textsuperscript{99, 107}. A lack of formal training in exercise counseling and prescription appears to contribute to low physician confidence in these areas which may contribute to the physicians’ perceived lack of time for such\textsuperscript{103, 108}.

In most cases exercise counseling provided by physicians is conveyed only as oral instruction. Written materials were presented as part of the counseling process in only 14\% to 16\% of physician patient interactions\textsuperscript{99, 109}. Based on direct observation, the frequency and duration of exercise counseling by Family Physicians in the office setting was noted in 22.3\% of patient visits with the average discussion duration lasting just over
45 seconds\textsuperscript{110}. In these same visits, only 13.3\% of the patients reported having even discussed exercise with their physician\textsuperscript{110}. These statistics indicate that brief, unstructured, verbal office exchanges involving exercise do not appear to leave a lasting impact on patients. It follows that such exchanges will have little chance of successfully impacting chronic disease management and prevention in Family Medicine.

Sixty-one percent of physicians report time constraints as the primary reason for omitting exercise counseling and prescription in practice\textsuperscript{99}. However, it is unknown whether a better knowledge base and a more structured clinical process would enable more time efficient exercise counseling and prescription and favorably impact physician perception and practice. This considered, time constraints are a legitimate barrier to exercise counseling and prescription in the Family Medicine setting. When questioned regarding the duration of exercise counseling and prescription in office practice, 43\% of physicians reported spending at least 1 to 2 minutes while another 40\% reporting spending 3 to 5 minutes on the topic\textsuperscript{99}. Only 10\% of physicians self-reported spending less than 1 minute discussing exercise with their patients\textsuperscript{99}. Physician reports of the amount of time spent with patients when counseling and prescribing exercise tend to be overestimated compared to observed averages which are closer to 45 seconds in such encounters\textsuperscript{99,110}.

Reasonable estimates of the time available for such intervention in Family Medicine visits, assuming a goal of 100\% penetration, range from between thirty seconds to two minutes\textsuperscript{2,99,110}. The legitimacy of both perceived and actual temporal constraints
support the necessity for the development of a comprehensive intervention strategy to enable exercise counseling and prescription at every Family Medicine office visit. 

Brief, unstructured, verbal physician-patient exchanges on exercise are often not acknowledged by patients and are therefore likely to have very little influence on patient exercise habits. In 2002, a systemic review directed by the U.S. Preventive Services Task Force (USPSTF) evaluated the effectiveness of primary care office based exercise counseling interventions based on their ability to improve exercise participation among patients. This review resulted in the following summary recommendation: “The U.S. Preventive Services Task Force concludes that the evidence is insufficient to recommend for or against behavioral counseling in primary care settings to promote physical activity.” It should be understood that the context of this statement is based on an insufficient quantity and/or quality of clinical trial data and does not in any way constitute a USPSTF recommendation against exercise counseling by primary care physicians in the office setting.

Patient characteristics also influence clinical inertia and the rates of exercise counseling and prescription among Family Physicians. Ninety-one percent of patients indicate that they would be interested in discussing exercise with their physician as part of disease management and prevention. Similarly, patient disinterest or noncompliance is reported as a barrier to exercise education in the office setting by only 11% of physicians. These findings are in conflict with the low rates of exercise counseling and prescription that have been observed in patient-physician interactions.
Healthy lifestyle behaviors, such as exercise, are integral in preventing or delaying the onset of chronic disease conditions and represent the only widely accepted and available modalities supported in the primary prevention of chronic disease. National data indicate that individuals suffering from chronic disease conditions are 2 to 4 times more likely to receive exercise counseling and prescription from their physician when compared to unaffected counterparts. The employment of exercise in secondary prevention is consistently more common than the utilization of exercise in a primary preventive role. The utilization of exercise predominantly as a modality in secondary prevention is not consistent with national exercise guideline recommendations. Affected by clinical inertia, Physicians tend to focus on reactive rather than proactive care. The reactive mode often delays the appropriate utilization of exercise counseling and prescription in the primary prevention of chronic diseases.

Clinical inertia, as discussed previously, is a significant problem that leads to under treatment of chronic disease across a wide spectrum of conditions. Among physicians, several key issues are contributory to clinical inertia and are associated both directly and indirectly with failure to adequately and appropriately utilize exercise counseling and prescription in Family Medicine. First, it is reasonable to assume that the commonality of clinical inertia surrounding chronic disease conditions in general is at least in part responsible for the specific under utilization of exercise counseling and prescription in Family Medicine. Second, physicians often overestimate the quantity or lack confidence in the quality of service that they are able to provide when managing
physical inactivity among patients\textsuperscript{39, 110}. Third, a lack of formal education and training in exercise counseling and prescription are in part responsible for these actual and perceived inadequacies and perceptions\textsuperscript{100, 102, 103}.

**Elements of Behavioral Intervention – Successful, Physician Driven**

To develop a successful exercise intervention, it is instructive to examine interventions strategies that have lead to successful behavior modification with regard to other lifestyle choices. Tobacco cessation interventions represent the most comprehensively evaluated and successful examples of physician driven interventions aimed at lifestyle behavior modification presently available. Tobacco use surveillance and subsequent cessation counseling have become integral components at nearly every Family Medicine office visit. Physician surveillance and cessation counseling is helpful and cost effective in identifying and eliminating tobacco use\textsuperscript{117, 118}. Physician directed efforts have had a positive impact in decreasing tobacco utilization among patients and have contributed to the significant decrease in disease burden associated with this unhealthy behavior\textsuperscript{6, 86}. Successful strategies and practices, such as the 5 A’s of behavior change, employed by physicians in tobacco cessation offer valuable insights when considering the development of Family Medicine based processes aimed at increasing exercise participation among patients\textsuperscript{90}.

Positive deviance is an approach often employed by behavioral scientists to uncover the special characteristics in individuals or programs that allow them to function and produce change more effectively than others given a similar set of circumstances and
Positive deviance can be applied to evaluate interventions aimed at producing positive lifestyle changes among patients. The approach of positive deviance, as it relates to the patient-physician encounter, seeks to uncover the elements and characteristics of physician based exercise counseling and prescription interventions that have positively impacted exercise participation among patients. By using this approach, it is possible to uncover the characteristics most likely to be successful if applied to novel intervention strategies for modifying patients’ exercise habits.

The Physician-based Assessment and Counseling for Exercise (PACE) program is a widely cited intervention. In the PACE program patients received brief three to five minutes of structured counseling on exercise from their primary care provider. Research concluded that such an intervention was effective at increasing levels of moderate exercise participation among patients. Several other office based counseling interventions have yielded similar positive results.

In issuing its recommendation on the effectiveness of primary care office based exercise counseling interventions the USPSTF also offered the following clinical consideration: “Multi-component interventions combining provider advice with behavioral interventions to facilitate and reinforce healthy levels of physical activity appear the most promising. Such interventions often include patient goal setting, written exercise prescriptions, individually tailored physical activity regimens, and mailed or telephone follow-up assistance provided by specially trained staff. Linking primary care patients to community-based physical activity and fitness programs may enhance the effectiveness of primary care clinician counseling.”
Standardized processes, consistent and thorough evaluation, interval surveillance, and regular follow-up are all elements that aid in overcoming clinical inertia in chronic disease management \(^9\). The incorporation of adaptability into management strategies is an important component and allows for appropriate individualization of care on a patient by patient basis \(^9\).

A successful approach to incorporate adaptability into management strategies is the 4 A’s construct. The 4 A’s construct of ask, advise, assist, and arrange was first developed by the National Cancer Institute to help guide physicians in providing effective behavioral change counseling for smoking cessation \(^12\). The 4 A’s construct, which proved successful in initial tobacco cessation efforts, has since been expanded to create a 5 A’s framework. The 5 A’s include, assess, advise, agree–include patient input, assist, arrange/adjust \(^1\). The 5 A’s framework has been used as a basis for office based exercise interventions \(^9, 11, 12, 12\). Below is a brief, literature based, interpretation of the 5 A’s framework: assess, advise, agree, assist, arrange/adjust \(^1\).

Assess

A thorough assessment in the context of exercise counseling and prescription has three main components. First, a health risk assessment is made to determine in which patients an exercise intervention may be contraindicated or would require additional screening for appropriate risk-stratification before initiating a structured exercise program \(^1\).
Second, the patient’s current exercise habits must be evaluated. This step includes eliciting information regarding patient beliefs and preferences to allow for individualization of the exercise prescription 126.

Third, the level of the patient’s interest in exercise needs to be clearly defined. This step should include the identification of individuals who would most benefit from office based exercise counseling and prescription and who are ready to make concrete changes in their exercise behavior 129, 130.

Advising includes providing patient education regarding the health benefits of increased exercise participation. This education should be tailored to fit individual patient circumstances and health conditions i.e. hypertension, diabetes mellitus, overweight and obesity, dyslipidemia, cardiovascular disease, cancer, arthritis, osteoporosis, depression, and age-related physical decline 128. Advice should be patient specific and focus of concrete goals and objectives 119, 131.

Advice should be delivered in such a way as to encourage a healthy dialog and to create a positive doctor patient relationship encouraging patient participation and respecting patient preferences in management planning and execution. In interventions that involve lifestyle changes such as modifying a patient’s exercise behavior particular
attention should be paid to engaging patients to be active participants in their own care planning and administration.

**Assist**

Assisting includes helping patients to identify individual barriers to exercise and to assist in developing strategies to overcome such barriers. It is also important to help patients to identify and determine the utility and applicability of available resources such as community activity programs and exercise facilities \(^{124, 132}\).

On occasion it may be beneficial to assist patients by providing appropriate referrals for cash pay services. It is also important to incorporate patient self-management and evaluation as part of the overall exercise intervention strategy by providing structured advice and appropriate educational materials.

**Arrange/Adjust**

Physical inactivity is a chronic disease and should be managed on a long term longitudinal basis. Patients of primary care physicians who employ tools to identify and track health behaviors such as exercise and who receive specific referrals to exercise specialists are 80% more likely to report regular exercise than patients in practices where neither of these services is provided \(^{133}\).

Regular, meaningful follow-up is integral to any chronic disease management strategy. As part of regular follow-up with patients, periodic adjustments in therapy should be incorporated as with any other chronic disease management plan.
Chapter 2: A Qualitative Study of Family Medicine Physicians’ Views of Exercise Counseling and Prescription

Introduction

The prevalence of physical inactivity among the American adult population is high \(^{10}\). Physical inactivity is estimated to account for 2.4% of all U.S. health care expenditures \(^{11}\). According to projections for 2011, physical inactivity will independently account for greater than $65 billion in direct medical costs this year alone \(^{11,12}\).

Physical inactivity is also a leading contributor in the development of chronic disease conditions such as hypertension, diabetes mellitus, overweight and obesity, dyslipidemia, cardiovascular disease, cancer, arthritis, osteoporosis, depression, and age-related physical decline. These chronic disease conditions constitute the most common diagnosis treated in the Family Medicine setting \(^{14,15}\).

Most patients view their physician as the primary and preferred resource for advice on exercise \(^{101,104}\). Studies indicate that patients do respond positively to exercise counseling and prescription by increasing physical activity in response to advice from their Family Physician \(^{105,106}\). In one study as many as 91% of patients indicated that they would be interested in discussing exercise with their physician as a part of disease management and prevention \(^{112}\).
Unfortunately, the employment rate of exercise counseling and prescription during a given visit in the Family Medicine setting is low, 14% \(^97\). The U.S. National Activity Plan was recently created and calls upon physicians to routinely assess and discuss exercise with patients \(^4\). This plan is supported by the American Academy of Family Physicians and the American College of Sports Medicine \(^4\).

Qualitative research methods have been used successfully in past studies to explore the views of primary care physicians relative to the employment of behavioral modification to patient management \(^134-137\). This chapter will describe how the qualitative research interview was employed to elicit physician opinion and preferences regarding design characteristics, qualities, and implementation methods for a comprehensive intervention strategy aimed at enabling exercise counseling and prescription within the context of a routine patient-physician encounter in Family Medicine.

**Methods**

Purposeful sampling was employed in the recruiting of interview subjects so that interview data would yield the most relevant information related to the research question \(^138\). By utilizing purposeful sampling a relatively homogenous physician population was targeted to participate in the study.
Participants

Only physicians who were board certified in Family Medicine by the American Board of Family Medicine, and who were actively managing patient care in the ambulatory setting, were eligible to participate. The target population consisted of Family Medicine physicians, M.D. or D.O., who practice medicine in the patient catchment area of Utah County, Utah.

A total of 103 potential physician subjects were identified using a publicly available physician database. This group consisted of physicians whose primary practices were community based ambulatory clinics and included a small number of physicians whose ambulatory clinics were affiliated with a graduate medical education program in Family Medicine.

Each physician was contacted directly using a standard recruiting letter sent to their work address via standard mail. The investigator’s phone number and a self-addressed postage-paid envelope were provided with the letter to facilitate subject replies.

Follow-up contact with interested subjects took place via e-mail, phone, or in person. Subjects who meet the inclusion criteria were asked to arrange an interview time that was mutually convenient for the physician and the interviewer. The scheduling process was conducted on a first-come basis until a total of 10 interviews were conducted.
Interviews

Data collection was by semi-structured interview. The semi-structured interview uses a formalized question set but provides for flexibility by allowing the interviewer to insert additional questions to be inserted based on interviewee responses. These additional questions are employed to provide the interviewee an opportunity to clarify responses and to expound on thematic ideas. The interview design was qualitative in nature and discovery oriented. The study and interviews were conducted according to guidelines for conducting qualitative investigations in primary care that have been proposed by Creswell et. al. and the National Institutes of Health Office of Behavioral and Social Sciences Research \(^{141,142}\). The qualitative research interview was chosen for data collection in order to provide in-depth information about physician and patient beliefs and attitudes \(^{138,143}\).

The semi-structured interviews were conducted using a set of predetermined, open-ended questions. The questions were specifically designed to elicit information regarding physician opinions, preferences, and perceptions related to the employment of exercise counseling and prescription in Family Medicine practice \(^{138}\). The 5 A’s of behavior change including assess, advise, agree, assist, arrange/adjust, informed the construction of a number of the questions used in the qualitative interview process \(^{126}\). These questions were specifically developed to elicit physician opinion relative to the 5 A’s elements and how to best incorporate them as part of a comprehensive exercise counseling and prescription intervention strategy. Interview questions regarding the physician’s role in promoting physical activity, the role of physical activity in disease
management, and the barriers to the utilization of physical activity in routine practice were also included to provide further guidance during the intervention design process. Appendix A is the interview discussion guide used during the interview process.

In addition to the initial open-ended questions, a number of probing questions were also employed during the interviews. Open-ended interview questions provided thematic organization for the interviews with probing questions being employed as follow-up questions when necessary to facilitate the conversational flow of the interview 138, 142.

**Data Analysis**

Interviews were recorded using an electronic recording device after appropriate consent was obtained from the physician subject. Each digital recording was transcribed verbatim by the interviewer. Following transcription the interviewer listened to each recording while reading the transcript to ensure the contextual accuracy of the transcripts 138. All digital recordings were destroyed following the generation of accurate transcripts to ensure interviewee anonymity and to protect the personal and professional privacy of the participating physicians.

Abductive analysis was employed in the analysis of the interview transcript. Abductive analysis was chosen since this form of analysis is designed to allow themes to arise without predetermined theories in place 144.

Interview transcripts were initially aggregated into major sections according to the interview question guide to facilitate handling of interviewee responses. The aggregated
responses were analyzed according to the major sections of the interview guide to establish individual themes within the data \cite{145}. Appendix B is a compilation of the aggregated interview responses.

After all interview responses were analyzed, similar responses were merged to create a structure of general themes. For the purposes of reporting the results of the abductive analysis and the resultant themes, de-identified quotations were selected which were representative of themes derived from each major section of the interview guide.

When the last few interview transcripts were analyzed, no novel themes were emerging indicating that thematic saturation had been reached. No additional interviews were scheduled.

Results

Participant Characteristics

A total of 16 physicians, 15.5\% of those who were originally contacted, replied and agreed to participate in the interview portion of the study. Scheduling of interviews took place on a rolling basis dependent on physician and interviewer availability. Ten physician subjects were interviewed. This was roughly 10\% of eligible physicians meeting the study demographic.

There were eight male and two female physician participants. Clinical practice experience ranged from one to 36 years with the mean being 11 years. Eight physicians held a Doctor of Medicine degree and two held Osteopathic Doctorate degrees. Three had received additional fellowship training, two in Sports Medicine and one in Medical
Informatics. All physicians interviewed were board certified in Family Medicine by the American Board of Family Medicine.

*Interview Characteristics*

All study interviews were conducted face-to-face and one-to-one. All interviews were conducted by the same facilitator who holds a Doctor of Medicine degree. The interviews took place between July 1, 2010 and December 1, 2010. Interviews were conducted at the physician’s clinical office or personal residence per physician request and convenience. More than six hours of interviewing was conducted by the interviewer. The interview script was designed to last between 30 and 40 minutes. The average interview lasted between 34 and 35 minutes with the longest being nearly 40 minutes and the shortest lasting just over 23 minutes. Individual physician responses varied in both length and speed and accounted for the variation in overall interview length observed.

The results from thematic analysis of the aggregate interview data are presented here. The information is presented in categories numbered 1-12 which correspond with interview questions 1-12 from the interview discussion guide. Actual interviewee responses are denoted by quotation marks and have been italicized.

*Category 1: Assess – patient health risk evaluation –*

When discussing determinants of fitness for exercise participation among their patients most physicians focused on general health screening and general physical exam
components. Most physicians interviewed saw screening and risk assessment as being important with regard to patient safety. They also viewed exercise as a reasonable therapeutic option for most if not all of their patients.

“All patients are healthy enough to exercise; it’s just finding the right exercise for them.”

Special attention regarding personal health history and in particular risk stratification for cardiovascular disease were common themes. Cardiovascular, pulmonary, and musculoskeletal systems were the most frequently noted for specific evaluation. Two physicians noted the importance of a thorough neurologic and psychiatric evaluation.

“It would depend on their age, gender, what type of activity they have been doing, [and] what type of intensity of exercise are [they] going to be doing.”

“[Assess] any heart problems, respiratory problems, orthopaedic problems in particular. ... Find out if they’ve had symptoms that would point to problems with their heart or lungs [or] joint pains that would make it difficult for them to exercise.”

“A lot of getting to exercise has to do with where you are at ... mentally [psychologically] ... .”
Many physicians interviewed indicated the need for general screening labs such as a complete blood count, a complete metabolic panel, or a fasting lipid panel based upon individual patient circumstances. Suggestions for ancillary testing to be pursued included EKG, treadmill stress testing, and spirometry depending again on individual patient circumstances. No concrete processes for determining the necessity or indication for laboratory or ancillary testing was proposed by the study physicians. Physicians viewed laboratory studies and testing primarily within the context of risk stratifying patients and to evaluate for any indication for specialist referral for exercise clearance. Cardiology, cardiac rehabilitation, and orthopaedics were the most commonly cited specialty referrals.

“Take a look at each person individually and see what they might be at risk for. ... What workup is being done and what follow-up is being done with [specialists to determine] whether or not you’d order anything else. ... [Look] at the specific labs ... that that individual needed to have to help assess where they’re at.”

“If I find something on physical exam that’s concerning or [in their] history ... a pacemaker in place ... intermittent a-fib ... knee pain and they’re obese ... . I might send them to [a specialist] ... .”

Most physicians described a general, experience based gestalt as the guiding influence for assessing patient fitness for exercise participation. While history, physical,
general laboratory studies, ancillary testing, or referral were common themes none described a specific process or rationale for determining the appropriateness of each. When asked probing questions specifically on the utility of a standardized protocol for pre-participation evaluation there was a general consensus that a systematic approach would be preferable to standard practice.

Category 2: Assess – patient exercise habits –

The assessment of current exercise habits among patients is important in determining both interest and capacity. The general consensus among physicians was that direct questioning was the most effective means of assessing current exercise habits among patients.

“History, just a discussion with the patient. If they are willing to change or if they are willing to discuss [exercise], they are usually very honest about where they’ve been.”

“Just [ask] what they do for activity: How many minutes they exercise a day; How many days a week; What they like to do for exercise.”

A few physicians reported having used standardized screening tools successfully to evaluate patient habits in other health measures such as diet. Most physicians did not have personal experience in using standardized screening in exercise evaluation. Those who did have experience with exercise specific measurement instruments had not
incorporated their use into regular clinical practice. Overall screening tools were viewed favorably by physicians, particularly if the instrument is designed for completion by physician extenders such as nursing staff.

“I do find it useful if my nurses have ... done some sort of screening based on certain criteria. ... It would be helpful to ... walk in the room with some information from a standard screening test that assessed all sorts of things ... where people are with their exercise, what their willingness to change is, what their awareness level of the health benefits would be ... .”

The infrequency of physician inquiry about patient exercise habits appears to be indicative of the lack of standardized process to do so. Stated averages for inquiry ranged from 5-30% of visits. Physicians were more likely to assess patient exercise habits during visits for general health maintenance or chronic disease management.

“It’s embarrassing. Probably not enough now that I think about it ... . For it to come directly from me just asking without them prompting me at all; maybe thirty percent of the time if that ... .”

“On diabetic patients I inquire probably most of the time about what their exercise habits are. In non-diabetic patients ... it’s infrequently ... maybe one out of twenty or less.”
With regard to tracking exercise participation among patients on a longitudinal basis, physician preference was centered on two themes, patient self-monitoring and electronic charting. Most physicians reported having a reasonable means for tracking exercise participation but lacked a standardized process for such tracking.

“On my physicals there’s actually a spot on our charting that allows you to put how much exercise, how many times a week, how many hours per day or minutes per day that they do it.”

“People are not always aware of how often they are really doing something or for how long unless they do a journal of it or diary or something.”

Category 3: Assess – patient interest in exercise and readiness for change –

Physician views on assessing patient interest in exercise and readiness for change were highly variable. Some had well developed processes in mind to approach the subject while others had never considered the question as part of an exercise assessment. The most common theme centered on the concept of a general gestalt based on the physician’s past experience of working with and setting goals with patients.

“The level of readiness for change; the stages of change. … If they’re precontemplative, contemplative, ready to act, actively acting ... as I interview them [I] try to figure out ... where they are in those boxes, and then try to use the ... methods that I’ve learned over
the years that are most effective for people who are precontemplative or contemplative for change.”

“I’ve never thought about that, to tell you the truth. I’d ask them particularly if it has to do with their particular condition like heart failure, diabetes ... weight loss or if they’re coming in for a physical where it directly pertains to what we’re talking about ....”

“It’s different than asking what are you doing versus what are you willing or what are you hoping to do. ... The best way is just to talk to the patient. You can get a sense as you’ve gone along whether they’re just ... nodding to appease you or whether they’re actually motivated. ... That may sound kind of strange and very non-objective but I ... find that the easiest way is when you’re talking to them about it ... just assess where they seem to be and their willingness.”

Only one physician specifically identified the Transtheoretical Model of Behavior Change as the basis for his patient readiness evaluation with regard to exercise. The Transtheoretical Model measures readiness to change and provides a structure for helping patients progress toward the adoption of healthy lifestyle behaviors such as regular exercise\textsuperscript{129, 130}.

“[The Transtheoretical Model of Behavior Change] has been an effective tool to help people realize that there is a next step that they need to take and move them along that
path more quickly. ... It’s been helpful to me emotionally as a physician ... to realize that if I have someone who’s precontemplative, I’m not going to get them to a plan today. ... You’ve got to get them to move along. ... It’s helpful in keeping up the relationship, a therapeutic relationship, a respectful relationship, but it also helps them move along much more quickly than they would if I just didn’t pay attention to it or if I said, “Oh you ought to exercise, that’d be good for you.” It’s helpful to have some specific things to do to move them from where they’re at to the next step.”

When asked probing questions regarding the utilization of the stages of change concept in practice most physicians endorsed its utility and tried to apply it to some degree when evaluating patients and managing their care.

“I use the principles there. I’m not sure that I would formally think about it or make an assessment of what level they’re at but I am familiar enough with it [that] I would probably use those principles. ... If I can tell somebody is in the precontemplative stage the evidence there kind of shows that it’s probably not the right thing to council them on action ... . I’d find something that they are ready to do. ... Then I would try to set an appropriate goal for them and basically kind of meet them where they’re at.”

“That’s basically what I’m doing when I ask them, ‘What are you doing? How interested are you in exercise? Are you willing to make a change? Where are you at? Have you thought about exercising more?’ ... Like with smoking or quitting drinking ... that same
principle can be used with exercise and activity. ... It works well. ... If they’re not motivated to exercise ... I just have to ... plant the seed instead of coming up with a prescription. If they’re really wanting to exercise but aren’t sure what to do then I can move forward with making some recommendations.”

Of those interviewed, one physician seemed opposed to employing the principles of the Transtheoretical Model in practice. This physician voiced frustration regarding the feasibility and utility of physician directed evaluation of patient readiness to change.

“For me as a physician to sit there and try to assess someone’s readiness ... it becomes a psychological issue ... that takes forever. ... It’s like trying to decide ... who’s ready to start eating better and not be overweight. ... Most of the time, the least important aspect of exercise and health is the ... twenty minutes I spend with the doctor. ... Once I walk out of there it’s back to my life and unless I have someone I can regularly see and report to ... I don’t think any physician is, from a business perspective ... the right person.”

Physicians generally viewed their patient’s interest in exercise as being favorable. At the same time they questioned the sincerity of this interest in action.

“The majority of patients are interested in exercise, but, it is not very many that will follow through and do it. They express an interest and a desire but their commitment is small.”
“It depends on what you mean by interested. How many recognize they should; probably the vast majority. How many people are really motivated to do it; the minority.”

Category 4: Advise – exercise promotion during health maintenance visits –

Physicians had clearly defined views regarding the importance of exercise in overall health and its specific utility in managing chronic disease. Most physicians endorsed exercise evaluation and counseling as an important component of health maintenance visits. In the health maintenance setting, most physicians seemed to limit their role to raising the issue of exercise with patients.

“Just discuss it with patients. I don’t know what the evidence would say the best way is, but I know that if they hear it from their physician they are more likely ... to do something about it than if they hear it from other sources.”

Physician views of exercise promotion in the setting of chronic disease focused on two major themes. The first was finding patient motivation. The second was educating patients on disease processes.

“You ... have to tailor it to what the patients want. ... You can rattle off benefits and studies and information and things like that about how exercise is going to help them, but
... finding out what they want out of life and letting them know how exercise can help out in that is probably, realistically, what’s going to be more helpful for them to change.”

“I try to make it important for them and then ... try and sell them on it a little bit. ... The best way to discuss it ... is just using a disease process model and ... to help them through that disease process.”

Physicians admitted that patient characteristics did influence the likelihood of their engaging of a particular patient on exercise. Patient characteristics that positively influenced the likelihood of an exercise discussion included overweight, obesity, diabetes, hypertension, sleep apnea, coronary artery disease, metabolic syndrome, and perceived patient interest in exercise. Thin stature, perceived health, and status as a current exerciser were viewed differently by different physicians. For some, these characteristics encouraged them to engage in exercise discussion as a behavior to be encouraged to promote primary prevention. Others viewed these characteristics as a sign that patients did not need assistance in health promotion and were less likely to engage in discussion on exercise.

Category 5: Advise – exercise goals and recommendations –

Physicians’ responses regarding the provision of advice on exercise goals and recommendations to their patients were non-specific. Their advice was based on the physician’s perceptions of the patient’s willingness and interest.
“What needs to be recommended is what is ... possible and what they will be willing to do.”

“Walking or whatever their fitness level can tolerate and then ... build it up from there. ... It’s quite variable depending on where the patient is at initially.”

A significant degree of clinical inertia on the part of physicians with regard to exercise goals and recommendations was evident in physician responses. On initial questioning, only one physician identified a recommendation in line with the current ACSM and national standards.  

“For the general public, the guidelines that are based as a minimum for physical activity that the CDC put out I believe ... was thirty minutes a day, 5 days a week, of moderate intensity exercise ....”

Other physician responses indicated a reluctance to support, or even suggest, levels of exercise consistent with the guideline recommendations supported by the ACSM and the U.S. Physical Activity Planning Committee.

“What I am trying to get them up to eventually is at least thirty minutes three times a week of aerobic exercise and some sort of weight bearing exercise ... . Once I get them to that level I’m not trying to get them to go to five times a week or seven times a week....”
“If someone’s working out three days a week I’m excited for them because that’s kind of the exception. ... For a routine recommendation ... the reality is [that] three days a week for most people is more than they’re doing and probably [is] not too bad.”

“What I’d like them to do is an hour a day five days a week, but ... the recommendation would be thirty minutes a day for three days a week.”

Probing questions were asked to address the specifics of what intensity, duration, and frequency of exercise the physicians in this study would recommend to patients. Most physicians did not endorse exercise recommendations consistent with national standards set by the ACSM and governmental bodies when counseling patients.

Category 6: Agree – patient engagement in care planning and administration –

Physicians endorsed a variety a strategies to engage patient’s in active participation in care planning and administration. The major theme that emerged as the preferred strategy among physicians focused on education and respecting patient autonomy.

“It’s very important ... to make certain that they understand that the ball is in their court; that they have choices that they can make. ... It’s important to give them options ... real world options, between exercising and not exercising and what the outcomes of that will be.”
“I tell them that it’s their responsibility. … I’m there to counsel but it’s ultimately their decision on what they need to do. … Making sure that they feel empowered to actually make ... changes ... in their health ... is important.”

“So, making the choice ... they’re going to be more likely to follow through. ... My job as a physician is to guide them to make a choice that’s ... not going to be detrimental and that’s going to help them.”

A second strategy of engagement represented a paternalistic approach on the part of the physician. Though there was less support for this approach.

“It’s very useful always to say, ‘I’m your physician. I recommend this. If you don’t do this, this is what’s going to happen.’”

“Compliance is essentially based upon ... [the patient’s] own personal investment in the treatment. ... Unfortunately, I tend to use more ... strategies that are based on fear and threatening; in a kind ... passive sort of way.”

“Scaring them a little bit is good. ... With diabetes ... you talk about the way that you die from diabetes and how it’s not a sudden death, it’s a slow, bit by bit, cut off your feet, kind of thing and dialysis. ... Painting a negative picture ....”
Physician utilization of written verses verbal instruction, when counseling patients in general and specifically with regard to exercise, was extremely variable. The range spanned from one-hundred percent of the time to a few times in a month. The transition to electronic medical records and electronic prescribing had both a positive and a negative impact on the utilization of written instructions.

“There [are] a bunch of handouts within [our EMR] that we routinely use.”

“We don’t have script pads any more. ... In the past you’d write ... ‘Exercise three to four times [weekly]’ and hand it to them in some kind of ritual. ... If I open up my medication module in my EMR I can’t write exercise and it comes up with a blank template and I fill it in.”

Most physicians viewed written counsel and patient educational materials favorably. Utilization of written materials was largely dependent on whether these were on hand or readily accessible electronically.

“Something written is probably more helpful because it’s something physical that they can look at ... they can think back to the conversation and maybe they get a little foggy on the details or want to change the details themselves. ... Having it written down ... is helpful.”
Regarding exercise prescription, physicians endorsed the utility of having a structured tool for exercise prescription that could be readily provided to patients. Whether written communication and reinforcement was employed as part of exercise counseling and prescription seemed to have more to do with availability and standard process than it did with physician preference.

“[Written instructions] would be very useful. ... I [just] don’t have them conveniently there to give the patient.”

“The biggest thing is that it just hasn’t been part of my routine and so it’s just something I need to do more. ... I have a fair understanding of it; I just haven’t incorporated it in a formal way into what I do with patients. Mine’s much more kind of informal counseling than a formal exercise prescription. ... [A standardized framework would be helpful].”

“[A standardized framework] would be really helpful, because that’s how my well childs are ... we have the paper that’s printed out ... . I can add anything and just hand it to them and so if I had that ... then of course I’m going to talk about [exercise] ....”

Category 7: Assist – patient barriers to exercise as perceived by physicians –

There were three common themes identified by physicians as perceived barriers to patient participation in exercise. These included lack of time, desire, and commitment.
“The time, the desire, and the hardness of it.”

“The biggest barrier is their commitment to do it. ... They have a desire but they fail many times on follow through.”

Physicians also identified multiple intrinsic factors that they viewed as barriers to exercise participation among patients. These barriers related to patient background and included inertia, inhibitory mental constructs, and low levels of education. One physician felt that getting patients to take the first step was the most important part of exercise counseling and prescription.

“Inertia is probably number one. ... The mental constructs that they’ve built in their mind about why they can’t exercise are really important to identify and take down.”

Physicians noted that the inner life of their patients often acted as a barrier to beginning and sustaining an exercise program. Mental constructs were viewed as being founded in part on one’s upbringing as well as changing psychosocial variables in society as a whole. These constructs included changing social norms related to familial preferences, concerns for safety, and the move toward electronic forms of entertainment and socialization.
“The things that make it harder for them to change are ... what they’re used to ... where they grew up; what their parents were like ... the types of lifestyle changes that their parents instilled [in] them ... the activities that their kids are involved in; their understanding or knowledge of the importance of exercise.”

“I’d have a hard time right now as a parent letting my kid just take off for two or three miles in one direction and then cross my fingers and hope they come back. That’s probably paranoid on my part. ... There’s some media paranoia that’s created ... a different parent-child culture ....”

“As far as adults go ... there’s a lot more available that keeps us in the house. It’s unusual for people just to go for walks ... or bike rides now. We’re changing on how we socialize. I don’t want to blame everything on Facebook or the internet but that does affect things.”

The patient’s educational level was also identified as an important barrier. The physicians in the study saw educational level as a predictor of exercise success.

“My more knowledgeable patients tend to be better exercisers than my patients that are less aware of themselves and ... who they are in society. ... I feel like people that probably have a better social IQ are people that are better exercisers.”
Category 8: Assist – helping patients overcome barriers to exercise –

Some physicians were pessimistic about the feasibility of engaging patients in an attempt to assist them in overcoming actual and perceived barriers to exercise participation. Time and lack of financial incentive were cited as major hindrances for physicians in assisting patients to overcome personal barriers to exercise.

“That sort of thing is very time intensive. ... Sitting and spending your time brainstorming with the patient: Where are they going to exercise and when; how they can organize it with child care and so forth? ... I don’t see a lot of doctors doing that to be honest.”

“Unfortunately ... it requires time to ask them questions about their lives. ... We don’t get reimbursed for that. ... We’d have to create an incentive for us to get reimbursed for that. I hate to say that but ... that’s probably in the real world what will have to happen. ... There’ll have to be something set up so that having an exercise consultation would be a reimbursed event. ... I don’t think that it is right now.”

Some of the physicians surveyed were concerned that physicians may lack the appropriate training and interview skills to engage patients in this sort of discovery exercise. Improving communication skills was cited as a suggestion to help physicians better assist patients in overcoming barriers to exercise.
“As physicians … we tend to take the easy way out and it is much easier to prescribe a pill than it is to work on motivating a patient to make basic changes in their lifestyle.”

“Greater knowledge of behavioral modification, motivational interviewing techniques, probably is the thing that would be most helpful to us generally as physicians and me specifically in getting patients to follow through.”

Other physicians were optimistic about the role of physicians in assisting patients in identifying and overcoming barriers to exercise. They endorsed the utility of such efforts. There was a consensus among the physicians surveyed that identifying and overcoming barriers to exercise would be enhanced by materials provided to the patient, though interaction with office staff, or through outside referrals.

“Physicians need to be aware of what the barriers are … what the real-world reasons are that people don’t exercise.”

“Physicians … need to set up in their practices means to get this done outside of that seven minute practice [visit]. … I’d probably be more effective to put that in somebody else’s hands than to try to train my partners.”

“Handouts that a patient can look at on their own is going to be more effective for the patient and … also the doctor.”
“Provide either an education system so they can pick from something to go do or provide someone to again, sit down with them for an hour and get a good feel for them and hold their hand through it.”

Physicians were asked probing questions regarding their familiarity with available exercise resources in the communities where they practiced. These probing questions came as a result of the study physicians’ perceived reluctance to engage in barrier specific based dialogue with patients. Many physicians were very generic in their responses regarding the referral resources that they recommended to patients. Some admitted never having referred a patient anywhere for exercise counseling or prescription.

“Gyms and facilities ... or a similar kind of place if they have access to them.”

“I’m sure there [are] things, [recreation] centers and so forth, and obviously at commercial gyms there are resources.”

“Just say, ‘Walk in the [recreation] center and see what you find.’ I don’t know what’s available at any of those for someone for general instruction ... . I’m sure they could direct you somewhere.”

“I don’t think I’ve ever referred anybody to somebody special for [exercise].”
Other physicians surveyed were better able to identify specific facilities, trainers, and programs. The nature of their responses indicated that their familiarity with these resources was mostly superficial and not of the degree that would be expected if one had a pattern of actively referring patients for services.

“Brigham Young University would be a resource that I might look to as well. I don’t know how publicly available some of the resources at BYU are.”

Many excellent resources for exercise require fees. There was a general reluctance on behalf of physicians in this survey to endorse specific resources or services where patients may be required to accrue out of pocket expenses.

“I’m sure there are things, recreation centers and so forth, and obviously at commercial gyms there are resources. ... Depending on the person; people don’t have money for those types of things.”

“We don’t have clear resources that I’m aware of that insurance pays for. ... Other than just physical therapy and you’ve got to have an injury to access that.”

Category 9: Arrange/Adjust – longitudinal follow-up of patient exercise –

Physician opinion regarding follow-up and monitoring of patient’s exercise habits on a longitudinal basis tended to follow the types of processes they already had in place
to track and manage other chronic disease conditions. The most common recommendation given was simply to follow-up on exercise progress at subsequent office visits.

“There needs to be some type of reporting system, and I don’t have a great plan for that other than the follow-up visits in clinic.”

The recommended frequency of such follow-up was highly variable. Recommendations suggested by study physicians ranged from annually to once monthly.

“Every time you have a physical, which is of course something that insurance does cover, so that makes it nice to use that opportunity to follow-up.”

“If they had someone on a monthly basis to check in with ... that would be a realistic follow-up situation for a lot of people that they could probably afford.”

The incorporation of exercise monitoring as a component of schedule follow-up visits for disease management or health maintenance visits was suggested. This suggestion represented the most logical opportunity for longitudinal exercise follow-up in the minds of the physicians interviewed.
“Any preventative visit ... [and] most chronic illness visits ... . It should probably just be readdressed in other follow-up visits [also]. So pretty much every time.”

“Every time you have a physical ... it nice to use that opportunity to follow-up. ... There [are] a lot of ... diagnoses that would really benefit from exercise in terms of a treatment plan that insurance already pays for. ... Every time you see them for that, you just make it ... a part of your questions you normally ask, ‘How’s your exercise?’”

A non-specific approach for exercise monitoring as a component of scheduled follow-up visits for disease management or health maintenance visits was viewed with a certain degree of uncertainty as to its effectiveness. The idea of a more structured follow-up process for monitoring patient exercise habits was viewed favorably by study physicians.

“I use ... my assessment and plan to do that. ... I always write at the end ... what is it that I’m going to do with you the next time ... . What I know about that is, that even though in my mind I tell myself I’m very good ... if I did a chart review I wouldn’t be. ... To really be successful ... this would have to be ... sort of an extra-physician workflow process. ... That’s probably true of all the chronic diseases.”
The physicians interviewed endorsed the need for a system of monitoring exercise participation and progress among patients. It was felt that this system would need to include a degree of objectivity and structure in order to be effective.

“I always try to challenge my patient to come back with evidence, written evidence … of exactly what they’ve done ….”

“You need to have some kind of system that is computer based or paper based where you know the individuals that have set goals, what the goals are, and when they are supposed to have some follow-up.”

“A goal-directed reporting type system is mostly what I … have done in the past.”

The possibility of monitoring exercise participation and progress outside of regular office appointments was posed. Interviewed physicians were skeptical about the feasibility of monitoring exercise participation and progress outside of the context of regular office visits.

“If we wanted to, we could create a tracking system … . Ideally it would be … some sort of life coach that would call them every week and say, ‘How are you doing?’ ‘How many times did you work out this week?’ ‘How did it go?’ ‘How do you feel?’ It comes back to paying for that.”
“You’re begging to spend a lot of time on a problem that is not reimbursable and has a very low success rate. ... In an ideal world it would be useful to have someone, my activity coordinator ... probably fifty to eighty percent of my patients need it ... we just spend too much time putting out fires to try to figure out who’s doing their exercises or not.”

**Category 10: Health implications of physical inactivity –**

The effect of physical inactivity on the health of patients was appreciated by the Family Medicine physicians interviewed. These physicians universally viewed physical inactivity as having a major impact on patient disease burden.

“**It’s one of the single biggest contributors to the illnesses, the diseases that we treat; with high blood pressure, and diabetes, and depression, and just injuries, and all of it. ... Lack of exercise is ... probably one of the biggest problems we face in the community at large and in America and especially in my ... patients.”**

“**Poor sleep, high stress levels, headaches, all sorts of physical complaints, depression, anxiety, relationship issues. ... So many physical ailments that people come in with that are vague, that aren’t specific conditions that are causing problems ... are caused by poor ... lifestyle choices. ... The disease conditions they do have like diabetes or rheumatoid arthritis are just incredibly affected by a lack of exercise ....”**
“[Lack of exercise] is a major factor in the so-called obesity epidemic that we are facing with the rising incidence of diabetes and hypertension and osteoarthritis; a lot of things are impacted by inactivity. ... [The impact of inactivity] is very significant.”

Physicians in this study viewed physical inactivity as a contributing factor in the development of a number of chronic disease conditions including hypertension, diabetes mellitus, overweight and obesity, dyslipidemia, cardiovascular disease, arthritis, osteoporosis, depression, and disability. Regular exercise was viewed by physicians as an important and underutilized management strategy in the prevention and treatment of these conditions.

“I still am amazed by the learning that we have put into ... a number of our different types of medications. ... We have so under-focused on non-medication assisted health, on diet and exercise health. ... I just view [exercise] as extremely powerful.”

“Exercise is ... your best drug.”

Category 11: The role of the Family Physician in exercise –

Physicians interviewed for this study expressed strong opinions on the topic of the role of the Family Physician in exercise counseling and prescription. The majority of those who were interviewed felt that Family Physicians should take the primary role in providing exercise counseling and prescription for patients.
“It ought to be the role of every family physician to be prescribing it for every patient. Or at least finding out ... if they’re participating already. I can’t think of a more important thing ... that they could be doing.”

“The role ... is ideal as a primary care physician and it’s ... the most appropriate place to start for exercise prescription and for exercise counseling.”

“The Family Physician has the biggest role in promoting [exercise]. ... This is terrible because I just said that I don’t do it very much ....”

“It really should be our duty and obligation to promote healthy lifestyles; that’s our job.”

Advocating in favor of Family Physicians adopting a more active role in exercise counseling and prescription was a common theme among interviewees. Many of the physicians interviewed lamented not having placed enough emphasis on exercise counseling and prescription in their practices.

“We could do better. I don’t know that it’s emphasized enough, primarily because [of] time ... . We don’t get paid to teach preventative medicine as much as ... we should. ... The role ... is ideal as a primary care physician and it’s ... the most appropriate place to start for exercise prescription and for exercise counseling.”
“The role of the family doctor ... is to be the doctor for the family. ... We fortunately get to see people on a longitudinal basis ... . There are very small opportunities that we don’t take all the time that we can either give them a brochure or give them a handout at least to then get things started. ... It’s our role to at least bring it up. ... It should be clear that that is what we are recommending.”

“We really should have a huge preventative part of our practice, which I do, but I just have not been ... making it a priority to tell people to exercise. Maybe it is because I’m struggling to exercise so I can’t tell them to?”

**Category 12: Barriers to exercise counseling and prescription in practice** –

Physicians in this study identified a number of specific barriers that contributed to the under utilization of exercise counseling and prescription in routine practice. When the interview transcripts were analyzed the most common thematic elements were insufficient time and a lack of reimbursement for exercise counseling and prescription.

“Time ... that’s number one. The time that it takes to do the thing right ... that’s especially true of people who are on production. ... That method of reimbursing physicians is completely antagonistic to exercise counseling.”
“Cost and time. ... In order to ... pay for your overhead and keep yourself above water it’s important to see a lot of patients during the day. But unfortunately, some of those exercise counseling moments are going to suffer.”

The interviewed physicians indicated that the realistic time interval available for exercise counseling and prescription in a typical encounter was brief. The time interval ranged from between thirty seconds and three minutes.

“On average, 30 seconds is probably what I would spend on a routine health maintenance visit on exercise and activity.”

“In a typical encounter, probably 2 or 3 minutes.”

The interview transcripts revealed that a more liberal time interval was endorsed by study physicians when lifestyle counseling was viewed as the central component of disease management. Overweight and obesity in particular were viewed as conditions that would warrant greater time and attention to exercise counseling and prescription being paid by the managing physician.

“If I have someone coming specifically only for weight-loss management ... you’re spending fifteen, twenty minutes talking only about weight loss, exercise, [and] diet, which is ... what you need.”
Insufficient knowledge of exercise physiology in general was viewed by physicians in this study as a barrier to exercise counseling and prescription. Lack of understanding of exercise programming and progression was one area of concern.

“Knowledge to some extent. I don’t think a lot of physicians understand exercise as much as we should. ... I don’t know that I understand it as well as I’d like to, to be able to come up with specific solutions with patients.”

“Comfort level is a barrier, as far as knowledge of the information.”

The surveyed physicians were questioned about personal confidence in their ability to effectively use exercise counseling and prescription in practice. Most physicians in this study expressed at least a moderate level of self-confidence in their ability.

“Moderately confident. ... I know what I want my patients to do. I wouldn’t say it’s my greatest area of knowledge and probably not always my biggest priority ... . It just hasn’t been always worked into the system of what I do with patients.”

Physicians who were part of this study with more personal exercise experience expressed a greater degree of confidence in being able to provide effective exercise
counseling and prescription. Physicians who exercise regularly were also viewed by their peers as having a higher degree of proficiency in exercise counseling and prescription.

“I’m very comfortable. ... It’s something that I do a lot ... . Because of my history, my experience exercising myself and training people ... I feel like it is something that I can do.”

“It’s guys that are heavy into cycling or triathlons, body building, or weight lifting ... they’re probably the best physicians out there to specifically come up with workouts and ... activity intervention[s] ....”

The study revealed that physician confidence in exercise counseling and prescription were partially dependent upon the physician’s base knowledge of exercise. Significant exercise specific training does not appear to have been a part of their overall medical education.

“[Knowledge base] depends on [a physician’s] background ... . It’s more just people who have had that interest in their life and then have incorporated it into their medicine.”

“Knowledge or experience with it. ... Our education in medical school certainly doesn’t [prepare us] ... . I don’t think there’s any [exercise] education [in medical school]... .”
Unless you have experience already where you yourself have done weight lifting or done exercise ... I don’t know where you would get that knowledge.

“I don’t really remember anything formal in any of my medical school training.”

“They didn’t teach [exercise principles] in residency, it was more self-driven.”

“It’s mostly just been stuff that I’ve done on my own. I don’t think I was specifically trained very well for exercise counseling.”

Family Medicine physicians interviewed thought there was a correlation between their knowledge of exercise principles and their prescribing confidence. A better understanding of exercise principles was thought to be important in improving physician confidence in utilizing exercise counseling and prescription for disease management and prevention.

“I certainly would like to be more comfortable with [providing a patient specific exercise prescription] ... . I am fairly comfortable in doing that. ... Greater knowledge of some of the alternatives they might have in activity and better knowledge of training schedules about how they can increase and improve their levels of activity and fitness [would improve my confidence].”
“It would be nice if there was … CME or different things like that that could help. ... I don’t think it would take ... that long to give them some information even just an afternoon.”

An adequate understanding of motivational interviewing and counseling technique were also areas of concern among the physicians interviewed. These were seen to influence physician employment of exercise counseling.

“Most people understand the principles. ... A lot of it is the counseling issue. ... We’re trained as physicians to be objective thinkers and diagnosers. ... [Counselors and psychologists] have an added benefit of how to turn things so the patient sees the benefits and motivating them to do it.”

“Understanding a person’s motivation, helping them get motivated to do the things that they should and probably want to do ... that’s where I lack ... more of the counseling side.”

Standard office practices were seen as important to helping physicians overcome barriers to exercise counseling and prescription. Office practices geared to facilitate exercise counseling and prescription were viewed as additional means to further improve physician confidence.
“To be more confident would be to have an ideal protocol already in place ... . You could do actually a pretty good job if you had a set thing. ... Like with my obstetric patients ... I just have a set thing for each visit and it used to be that it would take me forever to do these types of visits but now it’s quick. ... Of course they have questions but ... you could actually be pretty efficient ... especially if you had good follow-up.”

Physicians viewed the absence of standardized processes for exercise counseling and prescription negatively. Not having a standardized process in place was seen as a significant barrier to utilizing exercise counseling and prescription efficiently and effectively in practice.

“A lack of standardized process.”

“A lack of a good consistent way to make a prescription; understanding how to do it ... how to tailor it to ... a patient.”

“Familiarity with how to do it efficiently; having a system, basically.”

Intrinsic physician characteristics were also seen as barriers with regard to exercise counseling and prescription. Some physicians questioned whether self-consciousness on the part of physicians limited their utilization of these in practice.
“Some people feel uncomfortable with their body habitus and are afraid to emphasize the importance of it ... . The hypocrisy of it has ... a little bit to play into it.”

“I just have not been ... making it a priority to tell people to exercise. Maybe it is because I’m struggling to exercise so I can’t tell them to?”

“Lack of exercising themselves. ... It’s hard for physicians who don’t exercise to say, ‘Oh, you’ve really got to exercise .... ’ They may feel a little hypocritical ....”

“Physicians have to do it too, in order to believe in it. I don’t think you can not exercise and then preach it. You have to ... be committed to that too, to maintain your own health and ... then you’re better able to share that.”

Physicians also felt that they or their colleagues lacked motivation to use exercise as a therapeutic or preventive modality. This lack of motivation was based in the perception that physicians can do little to motivate patients to make lifestyle changes.

“If I had had a lot of success in making lifestyle changes in patients I’d be ... more motivated to try to work with them in lifestyle modification. I haven’t found that to be very successful.”
“It is a lot easier to prescribe a pill than to motivate someone to change their habits that have been established for 10 or 20 or 50 or 70 years.”

“The expectation that most patients will walk out of your office and not do much about what you just talked about … . Physician apathy.”

Discussion

Summary of Main Findings

The results of this study suggest that the Family Medicine physicians sampled view exercise counseling and prescription as important and underutilized components of patient management. Lack of exercise is viewed as a very significant problem in contributing to the development of many disease conditions. While endorsing the importance of exercise and its contribution to overall patient health the results of the physician interviews demonstrate the absence of an acceptable framework to enable the integration of exercise counseling and prescription as standard office practice in disease prevention and management.

In assessing patient readiness for exercise participation, physicians endorsed eight key components related to patient health risk assessment. One, physicians supported general interval screening of patient health history, social history, and physical exam. Two, laboratory studies, diagnostic tests, and specialty referral were of value to Family Medicine physicians when assessing patient fitness for exercise participation. Three, physicians indicated a preference for having a more systemic approach to health risk
assessments than is common in current standard practice. Four, physician assessment of patient exercise habits were infrequent, inconsistent, and relied on immediate rather than longitudinal assessment. Five, physicians were more inclined to assess exercise participation in patients during health maintenance visits or when managing chronic disease conditions. Six, physicians identified multiple barriers to exercise among their patients including insufficient time, desire, and commitment. Seven, psychosocial and socioeconomic factors such as inhibitory mental constructs, competing cultural norms, lack of education, insufficient financial means, and scarce or inadequate community resources were also seen by physicians as barriers to regular exercise participation among their patients. Eight, the principles of the Transtheoretical Model of Behavior Change were viewed positively by physicians.

While delineating these eight key components relating to the assessment of their patients’ health risk assessment, objective measurement of patient interest in exercise or readiness to initiate or improve exercise participation was not regularly employed in practice by those interviewed. Interview participants primarily relied on subjective gestalt in determining patient interest in and motivation to exercise.

The Family Medicine setting was viewed by the physicians in this study as an ideal environment for exercise counseling and prescription due to the closeness and the longitudinal nature of patient-physician relationships in Family Medicine. They advocated for an expanded and more active role for exercise counseling and prescription in Family Medicine. Health maintenance and chronic disease focused visits were those most commonly endorsed as being appropriate for exercise counseling and prescription.
Patient characteristics such as overweight, obesity, diabetes, hypertension, sleep apnea, coronary artery disease, and interest in exercise made it more likely for physicians to discuss exercise with patients. Patients who were current exercisers, of thin stature, or were in good health as perceived by their physician were less likely to trigger a physician initiated exercise discussion. The provision of specific exercise recommendations and the assisting of patients in setting personal goals for exercise participation were viewed by study physicians as important elements of exercise counseling and prescription.

Physicians were able to identify six specific barriers to regular exercise counseling and prescription in the office setting. These included: one, a lack of adequate physician time; two, poor reimbursement for providing these services; three, insufficient physician knowledge of exercise and applicable counseling techniques; four, inadequate exercise participation by physicians themselves; five, physician apathy due to negative perceptions regarding patient self-efficacy in exercise; and six, the lack of standard processes in place to facilitate timely and effective exercise counseling and prescription. These barriers were seen by the author as contributing to clinical inertia in the management of physical inactivity by Family Medicine physicians. Clinical inertia in relation to exercise counseling and prescription results in inadequate utilization of exercise counseling and prescription in practice and failure to press patients past elementary levels of exercise participation when such counseling and prescription are employed.

The provision of specific exercise recommendations and helping patients to set personalized goals for exercise participation were viewed by physicians as key elements
for collaborating with patients on exercise counseling and prescription. Patient education and respect for patient autonomy were important to physicians in this study though some admitted struggling to provide both without succumbing to paternalistic tendencies to scare patients with disease consequences or to impose their views on patients.

Verbal instruction was the basis for most exercise counseling and education among the physicians sampled. Written instructions were viewed by these physicians as both ways to engage patients in discussion as well as to educate them. Incorporation of handouts into electronic medical record systems or standardized educational materials for common disease states increased the utilization of written materials by the physicians in this study for exercise counseling and prescription. Written instructions and educational materials were viewed favorably by the majority of the physicians interviewed but were often not utilized due to physicians not having them conveniently on hand or having had them integrated into standard practice.

The physicians in this study identified lack of time, desire, and commitment as the major personal barriers for exercise participation among their patients. They also revealed the belief that patient efforts were subverted by emerging cultural norms such as the increasing availability of in home cinema and electronic based media. Increasing concern for personal safety was also seen as impediments among patients leading to decreased spontaneous recreational exercise activities in adults. The physicians sampled also perceived higher education level and more favorable socioeconomic status as characteristics that made exercise participation more likely.
Assisting patients in identifying personal barriers to exercise and in identifying strategies to overcome these barriers were valued by those physicians interviewed. And yet, four themes emerged that worked against physician assistance in mitigating these barriers. One, insufficient time with patients and poor reimbursement for these services inhibited physicians from engaging patients in this way. Two, study physicians lacked confidence in their personal proficiency in motivational interviewing and counseling techniques seen as necessary skills to aid patients in initiating or increasing exercise participation. Three, inadequate knowledge of community resources available to assist patients in improving exercise participation resulted in low referral rates. Four, the physicians interviewed expressed reluctance to refer patients to resources and facilities where expenses for services would not be covered by the patient’s insurance benefits.

The idea of a structured processes administrated by practice staff to assist patients in identifying and overcoming barriers to exercise was viewed favorably by physicians in this study. Standardized educational materials and outside referrals to assist patients in identifying and overcoming barriers to exercise were also endorsed by these physicians.

Current practices for providing subsequent follow-up and monitoring of patient exercise participation by study physicians were seen as lacking structure and specificity resulting and resulted in an uncertain feeling as to effectiveness as viewed by study physicians. Specific goal based exercise recommendations and prescription along with patient self-monitoring and regular office follow-up were endorsed as key elements for improving exercise surveillance. The physicians surveyed were skeptical of the
feasibility of any physician directed follow-up outside of regular office visits including follow-up provided by office staff members as these are not reimbursable services.

Strengths and Limitations of the Study

After an extensive review of the literature, this is believed to be the first qualitative study of its kind to utilize a semi-structured interview design with open-ended questions to evaluate physician opinion regarding exercise counseling and prescription in the Family Medicine setting. By utilizing abductive analysis, themes were allowed to arise from the interview data without boundaries or predetermined theories in place. The study design and analysis style were meant to minimize the researcher’s influence of personal bias on emerging themes. It is possible that, to some degree, the researcher’s own beliefs and point of view may have unknowingly influenced physician responses to interview questions or the interpretation of themes identified from the interview transcripts.

Interview subjects were recruited from a physician population that was located in the Intermountain West. Their practice settings were in urban and suburban locations. Therefore, the ability to generalize the study’s results may be limited to locations of similar demographic composition. Since purposeful sampling was employed the study results may be biased toward the views and opinions of Family Medicine physicians with an interest in therapeutic exercise. However, by utilizing this technique the most relevant information related to the research question was obtained and justifies any risk of bias on behalf of study participants.
A main purpose in undertaking this study was to demonstrate the process necessary to collect information to enable the development of an intervention strategy that meets specific local needs and is acceptable to Family Physicians and patients within a set geography and demographic area. Therefore, the results obtained should provide valuable insights that will be adaptable to many settings and locations.

Comparison with Existing Literature

The results of this study are consistent with and support those found in the existing literature. The results indicate that Family Medicine physicians in this study believe that patients’ lack of exercise is a major health issue that warrants intervention. Family Medicine physicians support calls for a more active role for physicians in exercise counseling and prescription as has been proposed by the ACSM and the U.S. National Activity Plan. In contradiction to these beliefs, the physicians sampled indicated that the regularity of exercise counseling and prescription in clinical practice was infrequent and ill defined.

Clinical inertia, as gauged by insufficient frequency, intensity, and duration of exercise recommended or prescribed by participating physicians is consistent with other chronic conditions where physician management falls short of national guideline recommendations for care management. It is believed that the clinical inertia regarding exercise counseling and prescription contributes significantly to disease morbidity and mortality.
Reports of poor physician role modeling of exercise behavior and insufficient knowledge of exercise principles necessary to effectively provide exercise counseling and prescription are supported by previous studies. Study participants perceived the inadequacies of exercise education in formal medical training as negatively impacting physician utilization of exercise counseling and prescription in practice.

Inadequate time available to facilitate exercise counseling and prescription was the most frequently cited obstacle to these activities in practice and has been demonstrated as a significant obstacle in previous works. Exercise counseling most often took the form of oral instruction and was not consistently supported by written or printed materials for reinforcement. Study participant estimations of time available for exercise counseling and prescription were in line with those found in other studies. Physician estimates ranged from between 30 and three minutes of available time in typical office encounter and further supports the need for a structured approach to facilitate exercise counseling and prescription in limited time.

Patient characteristics influenced the likelihood that exercise prescription and counseling would be employed as a therapeutic modality with those suffering from chronic disease conditions most likely to be targeted. The employment of exercise as a secondary prevention strategy was more common among study participants than was employing exercise counseling and prescription for disease prevention. A comprehensive intervention strategy structured according to the 5A’s framework utilizing the principles of assessment, advising, agreement, assistance, and arranging/adjusting was supported by Family Medicine physicians.
Conclusion

Consensus guidelines have established physical inactivity as a treatable and preventable condition that significantly and negatively impacts patient health \(^4\). Through initiatives such as Exercise is Medicine and the U.S. National Activity Plan physicians have been challenged to place a greater focus on promoting exercise as a preventive and therapeutic modality \(^2,4\). Initiatives such as Exercise is Medicine and the U.S. National Activity Plan have proposed that exercise participation be viewed as a patient “vital sign” to be monitored at every patient visit \(^2,4\). Initiatives such as these have proposed strategies to improve physician utilization of exercise counseling and prescription in the office but have stopped short of providing a specific care process model that enables exercise counseling and prescription.

Results from this study suggest that Family Medicine physicians are convinced that physical inactivity is a major health condition that is negatively affecting patient health. Further, Family Medicine physicians largely accept the role of being a leader in promoting exercise among their patients. This study, based on physician opinion, demonstrates that an acceptable, physician driven intervention for facilitating exercise counseling and prescription is not presently employed on a consistent basis.

A global issue identified by this study is that individual Family Medicine physicians possess insufficient knowledge of exercise counseling and prescription to have been able to develop comprehensive exercise intervention strategies independently that effectively enable exercise counseling and prescription in their office settings. This study revealed that, based on analysis of physician opinion, a comprehensive intervention
strategy to enable exercise counseling and prescription can be developed for Family Medicine physician practices. This intervention strategy should be based on the 5A’s framework and tailored to address the specific concerns and preferences expressed by Family Medicine physicians in the present study.
Chapter 3: A Comprehensive Intervention Strategy for Exercise Counseling and Prescription in Family Medicine

Introduction

The prevalence of physical inactivity among the American adult population is high. It is estimated that 39% of American adults accumulate no leisure-time exercise. There has not been any positive improvement in this statistic noted from 1996-2006. Physical inactivity results in significant health problems. Failure to attain regular exercise contributes to the development of chronic disease conditions such as hypertension, diabetes mellitus, overweight and obesity, dyslipidemia, cardiovascular disease, cancer, arthritis, osteoporosis, depression, and age-related physical decline.

These chronic disease conditions constitute the most common diagnosis treated in the Family Medicine setting. This setting also finds patients seeking physician counsel regarding general medical screening and well adult care. As a result, primary preventive visits constitute another significant segment of Family Medicine practice and are themselves integral to chronic disease prevention.

Visits for both chronic disease management and for primary prevention represent an ideal opportunity for physicians to provide counseling to patients regarding healthy lifestyle behaviors such as smoking cessation, moderation of alcohol consumption, healthy diet, and regular exercise. Family Medicine physicians are in a unique position to
address the problem of physical inactivity due to the longitudinal nature of the patient-physician relationship. Moreover, patients see their physician as the primary and preferred resource for exercise counseling and prescription.\textsuperscript{1,4}

The likelihood of patients receiving exercise counseling and prescription from their Family Physician at a given visit is low.\textsuperscript{7} Patients affected by hypertension, diabetes, coronary heart disease, dyslipidemia and obesity are most likely to receive exercise counseling and prescription from their physician but rates of utilization still average well below 33% even among these key conditions.\textsuperscript{7,8} Among patients at low risk for CVD exercise counseling and prescription is employed in less than 10% of visits.\textsuperscript{7,8}

Family Physicians indicate that inadequate time with patients is one of the major obstacles to exercise counseling and prescription in the office setting.\textsuperscript{9,7} Furthermore, actual training in exercise counseling and prescription is exceedingly rare in formal medical education.\textsuperscript{3} As a result, physicians leave medical school lacking the proficiency to formulate and adequate and appropriate prescription for their patients.\textsuperscript{3} This fundamental knowledge gap does not appear to be bridged during subsequent graduate medical education.\textsuperscript{0}

The development of a comprehensive intervention strategy was undertaken by the author to create a practical structure for Family Medicine physicians to provide exercise counseling and prescription on a regular basis in the office setting. This chapter reviews the process undertaken to develop this necessary structure. The author also proposes a
comprehensive intervention strategy in this chapter which will enable the employment of exercise counseling and prescription in the Family Medicine office setting.

**Methods**

*Literature Review*

Positive deviance is a concept often employed by behavioral scientists to identify the special characteristics in individuals or programs that allow them to function and produce change more effectively when compared to others with similar circumstances and resources. The background literature review presented in chapter one of this dissertation was conducted using the positive deviance approach. The literature review was conducted to identify the disease conditions that are most significantly impacted by physical inactivity. The review also identifies both physician and patient characteristics that influenced the utilization of exercise prescription and counseling by physicians. Additionally, characteristics of lifestyle behavior interventions that were most likely to contribute to a successful physician driven intervention for exercise counseling and prescription in Family Medicine were discovered.

*The Qualitative Interview Process*

In determining how best to align a comprehensive intervention strategy for exercise counseling and prescription with the needs of Family Medicine physicians, a qualitative interview study was undertaken. The goal of this study was to explore the beliefs and preferences of Family Medicine physicians with regard to using exercise counseling and prescription in the office setting. Based on the literature review, this
dissertation study appears to be the first one to use the qualitative interview process to evaluate Family Medicine physicians’ views of exercise counseling and prescription in the office setting.

A portion of the questions used in the qualitative interview process were devoted specifically to eliciting physician opinion relative to the core elements of the 5A’s of behavior change schematic model including, assessment, advising, agreement, assistance, and arrangement/adjustment. Other interview questions were designed to elicit physician opinion regarding their role in promoting exercise, the role of exercise in disease management, and barriers to the utilization of exercise counseling and prescription in routine practice. An inclusive detailing of the interview process and results were presented in chapter two of this document.

Results

Literature Review

Among physician driven interventions aimed at lifestyle behavior change, none have been more successful than tobacco cessation programs. Physician driven surveillance and cessation counseling has been found to be both helpful and cost effective in identifying and eliminating tobacco use in patients and is a prime example of positive deviance.

The 5A’s Behavior Change Model was originally developed by the National Cancer Institute to assist physicians in managing tobacco abuse and to provide a structure
for tobacco cessation interventions in the office setting. The model remains the basis for physician driven interventions for treating tobacco use and dependence 86.

Because of the success of smoking cessation interventions, the 5A’s of behavior change have been used as the basis for interventions aimed at modifying other lifestyle behaviors. In 2006, two articles published by the *American Journal of Preventive Medicine* explored the elements of effective tobacco cessation initiatives in the United States. These articles proposed processes for transferring the knowledge gained through these experiences into effective physical activity interventions 90, 126. The success of the 5 A’s of behavior change model make it a reasonable framework around which to develop a comprehensive intervention strategy to enabling exercise counseling and prescription in the Family Medicine office 4, 90, 111, 126, 127, 146.

*General Conclusions Drawn from Qualitative Interview Analysis*

The qualitative interview study for this dissertation showed that the Family Physicians sampled viewed exercise counseling and prescription as important and underutilized components of patient management. The Family Medicine setting was viewed by the physicians in this study as an ideal environment for exercise counseling and prescription due to the closeness and the longitudinal nature of the patient-physician relationships in Family Medicine. Family Medicine physicians largely accepted the role of being a leader in promoting exercise among their patients. While endorsing the importance of exercise and its contribution to patient health and in disease management, the interview study of Family Medicine physicians confirmed the absence of an
acceptable framework to enable the integration of exercise counseling and prescription as a component of standard office practice.

Specific Conclusions Drawn from Qualitative Interview Analysis

The opinions and recommendations of the Family Medicine physicians interviewed relative to the core elements of the 5 A’s of behavior change schematic and specifically how they relate to exercise counseling and prescription in practice are discuss below.

Assess

In the 5 A’s of behavior change schematic the first “A,” assess, has classically focused on questioning to identify the presence or absence of a particular health behavior. Areas of assessment relevant to the subject of exercise counseling and prescription include assessing patients’ current exercise habits, level of interest in participating in an exercise program, and fitness for exercise.

There was a general consensus among the Family Medicine physicians interviewed that direct questioning was the preferred means of assessing the current exercise habits of patients. The utilization of a screening tool to better quantify patient exercise habits was viewed favorably as long as this type of assessment could be administered by members of the office staff and did not require additional physician time face-to-face with the patient. Physicians also valued the idea of consistent and longitudinal measures for assessing patient exercise habits. Themes for accomplishing
this objective included implementing a systematic approach for assessment based on patient self-monitoring and electronic charting.

Study physicians were familiar with the Transtheoretical Model of Behavior Change and endorsed the utility of employing the model’s principles in patient evaluation. None of the physicians had implemented a structured approach for formally employing the model in practice to assess patient readiness with regard to exercise participation. Physicians favored the idea of having a member of the office staff assess patient interest in exercise if such were to be done formally.

Thematic elements expressed by study physicians with regard to assessing patient fitness for exercise included the following: patient health history, patient social history, a thorough physical exam, routine laboratory studies, ancillary diagnostic testing, and specialty referral as indicated. Physicians interviewed perceived value in each of these elements within the context of allowing the formulation of an overall health risk profile for patients who were interested in exercise participation. Study physicians did not identify having a specific process for health risk assessment in place but that such as systematic approach would be preferable to standard practice.

Advise

The physicians who participated in the interview study supported a key role for Family Medicine physicians in advising patients on exercise. In the context of exercise counseling and prescription advising focuses on urging all patients to participate in
regular exercise. A universal system to advise all patients to exercise was not in practice among the physicians interviewed.

Patient characteristics, including the presence of chronic disease conditions commonly associated with physical inactivity, increased the likelihood that exercise counseling and prescription would be offered to patients by study physicians. Patient presentation to the office for the purpose of health screening also increased the likelihood of study physicians providing exercise advice to patients. Study physicians supported providing exercise counseling and prescription to patients at visits for health screening and chronic disease management where the condition is associated with physical inactivity.

Study physicians supported the role of the Family Physician in providing patients with education on the disease processes associated with and the consequences of physical inactivity. Both verbal and printed educational materials were endorsed by study physicians for educating patients. Printed patient materials were not commonly integrated into standard practice for use in exercise counseling and prescription. Study physicians favored the idea of providing patients with specific, written exercise recommendations as a formal prescription but lacked prepared the necessary materials and process for providing this as part of standard practice.

Agree

Family Medicine physicians interviewed for this study valued patient autonomy in care planning and administration but admitted at times reverting to paternalistic
tendencies out of frustration when dealing with behavioral change such as exercise participation. Collaborating with patients in setting appropriate exercise goals was viewed by study physicians as a helpful strategy to engage patients to be more active participants in their own care planning and administration. In the context of exercise prescription, patient centered goals were viewed with greater importance by study physicians than were goals designed to achieve specific exercise guideline recommendations.

Assist

Study physicians identified lack of time as a key barrier to exercise participation among patients. Additional barriers included lack of desire and commitment, inhibitory mental constructs, changing cultural norms with regard to entertainment and perceptions of safety, inadequate knowledge of exercise principles and options, and lack of community resources or the financial means to access available resources. Intrinsic patient characteristics of poor self-awareness, lower levels of education and socioeconomic status were also viewed by study physicians as barriers to exercise. Identification of barriers to exercise among patients was not integrated into the routine office practices of the physicians interviewed.

Physician facilitated exploration of barriers to exercise were viewed by most physicians as being temporally prohibitive due to time constraints. Undertaking the process to identify strategies to overcome specific barriers to exercise with patients was also not believed to be feasible. Study physicians did support the concept and utility of a
structured process administered by office staff members to assist patients in identifying barriers to exercise and strategies to overcome such.

Referral to community resources was also supported by study physicians as a reasonable alternative to assist patients in overcoming barriers to exercise. Those interviewed generally lacked specific knowledge of available referral resources.

*Arrange/Adjust*

As with the other elements of the 5 A’s of behavior change, the interviewed physicians viewed regular follow-up as a necessary component to effective exercise counseling and prescription but lacked having a structure in place to consistently facilitate the regular monitoring of patient exercise. Patient self-monitoring, whether by recall or recorded in a log or journal, and assessed at subsequent office visits was the most common recommendation provided by study physicians. Physicians interviewed endorsed objectivity and a regular structure as necessary components for effective follow-up of patient exercise prescription.

The utilization of office staff and resources to conduct interval follow-up of exercise counseling and prescription with patients outside of scheduled office visits was viewed with skepticism by the study physicians. Limitations imposed by incurring additional office costs without reimbursement and unavailability of staff time to conduct such follow-up were viewed as being inhibitory.
The 5A’s of behavior change construct was well understood by the Family Medicine physicians who participated in the study. The most significant barrier to effective exercise counseling and prescription in practice as noted by study physicians was the absence of a systematic process to facilitate the utilization of the 5 A’s of behavior change construct in practice. Additional physician barriers to exercise counseling and prescription reported by study physicians included lack of time, poor reimbursement for such activities, insufficient knowledge in applying effective counseling techniques, inadequate exercise knowledge, low levels of exercise participation by physicians themselves, and physician apathy related to negative perceptions of self-efficacy in exercise among their patients in general.

Discussion

Summary of Main Findings

The results of the qualitative interviews represent the opinions and preferences of practicing Family Medicine physicians and provide valuable insight for the development of a comprehensive intervention strategy for exercise counseling and prescription in the outpatient setting. The most important conclusions from the qualitative interview study include:

1. Exercise counseling and prescription are important and underutilized components of chronic disease management and prevention.

2. The Family Medicine setting is viewed as an ideal environment for exercise counseling and prescription.
3. Family Medicine physicians accept the role of being a leader in promoting exercise among their patients.

4. An acceptable framework to enable the integration of exercise counseling and prescription as a component of standard office practice is not presently available.

5. The core elements of the 5 A’s of behavior change schematic are well conceptualized by Family Medicine physicians.

6. Family Medicine physicians should provide initial and ongoing assessment of patients’ current exercise habits, level of interest in participating in an exercise program, and fitness for exercise as important elements of exercise counseling and prescription.

7. Family Medicine physicians should regularly advise patients on exercise including providing formal patient education materials and exercise prescription and educate patients regarding the risks and co-morbidities associated with physical inactivity.

8. Family Medicine physicians should collaborate with patients to agree on appropriate exercise goals while respecting patient autonomy.

9. Family Medicine physicians should assist patients in identifying and overcoming barriers to exercise and in meeting exercise goals.

10. Family Medicine physicians should arrange for regular follow-up and monitoring of patient exercise habits including helping to facilitate patient self-monitoring and reporting.

11. Physician time constraints are likely to be best addressed by shifting intervention responsibilities as much as possible toward patients and ancillary office staff.
12. A comprehensive intervention strategy should contain intrinsic standardized procedures designed to bridge gaps in physician knowledge and proficiency in exercise counseling and prescription.

The qualitative analysis of the interview study transcripts indicates that physician time constraints and the absence of standard office processes are the two most significant barriers to exercise counseling and prescription in the Family Medicine setting. A successful office based intervention strategy will provide a routine structure to assess, advise, agree, assist, arrange/adjust exercise counseling and prescription with patients. A successful strategy will also alleviate time constraints on physicians by delegating, whenever possible, responsibilities to ancillary office staff members or to the patients themselves.

Presenting a Solution

The following comprehensive intervention strategy represents the preferences of practicing Family Medicine physicians regarding the employment of exercise counseling and prescription in the office setting. The intervention also represents a summary of the available literature regarding the employment of exercise counseling and prescription in chronic disease management and prevention.

Existing interventions for lifestyle behavior modification provided valuable insights regarding how best to present this information in a usable format for physicians \(^2, 4, 146, 147\). This comprehensive intervention strategy is designed to outline current recommendations for physician driven exercise counseling and prescription. It
also provides a useable framework to enable these in the office setting. The intervention is primarily designed to be used in the setting of outpatient Family Medicine.

*A Comprehensive Intervention Strategy for Exercise Counseling and Prescription in Family Medicine*

*Goals*

1. To provide Family Medicine physicians with evidence based information regarding exercise counseling and prescription in the outpatient office setting.
2. To provide a practical instrument to enable exercise counseling and prescription within the context of a routine Family Medicine office visit.

*Desired Outcomes*

1. Improve the understanding of exercise counseling and prescription among Family Medicine physicians.
2. Increase the utilization of exercise counseling and prescription as a treatment option in chronic disease management and prevention in the Family Medicine setting.
3. Improve the understanding of the role of regular exercise in disease management and prevention among Family Medicine patients.
4. Increase the rates of exercise participation among patients in the Family Medicine setting.
5. Decrease the morbidity and mortality associated with physical inactivity among Family Medicine patients.
The Problem of Physical Inactivity

High Prevalence – 39% of America adults accumulate no leisure-time exercise \(^\text{10}\). This high rate of physical inactivity is not improving. Less than 1/3 of U.S. adults participate in the minimum recommended level of exercise \(^\text{10}\).

Monetary Cost – Physical inactivity independently accounts for 2.4% of all U.S. health care expenditures \(^\text{11}\). Projections for total U.S. health care expenditures for the year 2011 are expected to exceed $2.7 trillion \(^\text{12}\). Physical inactivity is expected to independently account for nearly $65 billion in 2011 \(^\text{11,12}\).

Morbidity and Mortality – Physical inactivity is associated with an increased risk for many chronic disease conditions and associated morbidities. Increased exercise participation has been shown to positively impact the development and progression of the following chronic diseases:

- Hypertension
- Diabetes Mellitus
- Overweight and Obesity
- Dyslipidemia
- Cardiovascular Disease
- Cancer
- Arthritis
- Osteoporosis
- Depression
- Age-Related Physical Decline

These chronic disease conditions were present in 87% of all ambulatory physician office visits in 2007 \(^\text{15}\). Chronic disease conditions account for 76% of total U.S. medical expenditures \(^\text{13}\). The aggregate cost for chronic disease care is estimated to exceed $2.0 trillion in 2011 \(^\text{12,13}\). It is estimated that even moderate levels of exercise would reduce
the number of premature deaths from coronary artery disease, colon cancer, and type 2 diabetes mellitus by 250,000 annually \(^7\). Physical inactivity and poor diet are a leading cause of death associated with modifiable risk factors, second only to tobacco \(^6\).

**Clinical Inertia** – Clinical inertia is the failure to initiate or to intensify treatment in patients who have not achieved evidence-based standard of care goals for disease management \(^93, 94\). In 2007 The American College of Sports Medicine and the American Heart Association issued the following exercise recommendations: “To promote and maintain health, all healthy adults aged 18 to 65 yr need moderate-intensity aerobic (endurance) physical activity for a minimum of 30 min on five days each week or vigorous-intensity aerobic physical activity for a minimum of 20 min on three days each week; in addition, every adult should perform activities that maintain or increase muscular strength and endurance a minimum of two days each week” \(^1\). These recommendations are widely accepted as the gold standard for eliminating physical inactivity \(^4\).

**Take Advantage of Every Opportunity** – Ninety-one percent of patients indicate that they would be interested in discussing exercise with their physician as part of disease management and prevention \(^112\). But, the likelihood of an adult patient receiving exercise counseling from their Family Physician at a given office visit is low, 14% \(^97\). Patients accept their physician as their primary and preferred source for exercise advice \(^101, 104\).
Physician advice on exercise does positively impact patients’ exercise participation \(^{105, 106, 148}\).

National Guidelines Supporting the Employment of Exercise Counseling and Prescription

**Primary Prevention** – Exercise counseling and prescription should be a major component of all visits involving well adult care. The American College of Sports Medicine and the American Medical Association, with the support of the American Academy of Family Physicians, have called on physicians to “assess and review every patient’s [exercise] program at every visit.” A key aim of the U.S. National Physical Activity Plan is to make exercise a “vital sign” for patients to be regularly assessed by physicians\(^4\).

**Hypertension** – Hypertension is the most common diagnosis encountered in Family Medicine with nearly 11 million attributable office visits annually\(^{16}\). Nearly 2/3 of American adults are affected by hypertension (29%, 67 million) or prehypertension (37%, 86 million\(^{18, 19}\)). The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC-7) recommends that regular exercise be included as a component in the management of all patients with hypertension or prehypertension\(^{17}\).

(Hypertension = $SBP \geq 140$ mmHg or $DBP \geq 90$ mmHg\(^{17}\))

(Prehypertension = $SBP 120-139$ mmHg or $DBP 80-89$ mmHg\(^{17}\))
**Diabetes Mellitus** – Diabetes mellitus is the second most common diagnosis encountered in Family Medicine with more than 7.5 million attributable office visits annually\(^1\,_16\). More than 1/4 of American adults are affected by diabetes (11%, 25.6 million\(^25\)) or pre-diabetes (35%, 79 million\(^25\)). The American Diabetes Association (ADA) recommends that regular exercise be included as a component in the management of all patients with diabetes or pre-diabetes\(^1,\_34\).

\[(\text{Diabetes} = \text{FPG} \geq 126 \text{ mg/dL} \_149)\]

\[(\text{Pre-diabetes} = \text{FPG} 100-125 \text{ mg/dL} \_149)\]

**Overweight and Obesity** – The prevalence of obesity among American adults has more than doubled in the past 30 years\(^35\). More than 2/3 of American adults are overweight (29%, 67 million\(^19,\_35\)) or obese (37%, 86 million\(^19,\_35\)). The American College of Sports Medicine, the American Heart Association, and the Institute of Medicine recommend regular exercise to promote healthy weight loss and to prevent excessive weight gain\(^1,\_40\). Even in the absence of significant weight loss, regular exercise participation can decrease the overall disease burden associated with being overweight or obese\(^5,\_43\).

\[(\text{Overweight} = \text{BMI} 25-29.9 \_150)\]

\[(\text{Obesity Class I} = \text{BMI} 30.0-34.9 \_150)\]

\[(\text{Obesity Class II} = \text{BMI} 35.0-39.9 \_150)\]

\[(\text{Extreme Obesity Class III} = \text{BMI} \geq 40.0 \_150)\]

\[(\text{Waist Circumference Men} = >40 \text{ inches High Risk} \_150)\]

\[(\text{Waist Circumference Women} = >35 \text{ inches High Risk} \_150)\]
Dyslipidemia – Dyslipidemia is one of six major modifiable risk factors for coronary heart disease along with hypertension, diabetes mellitus, obesity and overweight, and physical inactivity. The prevalence of dyslipidemia among American adults is 16% (37 million). Exercise is endorsed as a primary preventive and effective treatment option for managing all classes of dyslipidemia by the Third Report of the National Cholesterol Education Program, the ATP III.

(Total Cholesterol = <200 mg/dL Desirable)
(LDL Cholesterol = <100 mg/dL Optimal)
(HDL Cholesterol = <40 mg/dL Low vs. ≥60 mg/dL High)
(Triglycerides = <150 mg/dL Normal)

Cardiovascular Disease (CVD) – This grouping of diseases includes coronary heart disease, cerebrovascular disease, and peripheral arterial disease. CVD affects 1/3 of American adults. CVD is the leading cause of death and of premature death in America. Regular exercise is endorsed by the American Heart Association for the prevention of CVD as a modifier of 5 of 6 major modifiable risk factors for CVD; hypertension, diabetes mellitus, obesity and overweight, dyslipidemia, and physical inactivity. The American Heart Association and the American Stroke Association advocate for exercise intervention for secondary prevention and for post-event recover in CVD conditions.
Cancer – Cancer is second only to heart disease as a leading cause of death in the United States\textsuperscript{56}. One-third of cancer deaths each year are attributed to poor diet and insufficient levels of exercise\textsuperscript{58}. The American Cancer Society cancer prevention guidelines support the most recent exercise recommendations set forth by the American College of Sports Medicine and the American Heart Association as beneficial in preventing cancer\textsuperscript{1,58}. Evidence for the positive effects of regular exercise in preventing cancer is best for cancers of the of colon, breast, lung, and uterus\textsuperscript{60}. Regular exercise improves physical functioning and improves quality of life measures among cancer survivors and those undergoing treatment\textsuperscript{63}.

Arthritis – In 2007 over 59 million physician office visits were attributed to joint related pathologies\textsuperscript{15}. Arthritis is the number one cause of disability in America\textsuperscript{64}. More than 1/5 of American adults suffer from arthritis (22\%, 51 million) and nearly 1/10 experiences arthritis-attributable activity limitation (9\%, 21 million\textsuperscript{19,65}). The American College of Rheumatology (ACR) recommends regular exercise participation of moderate intensity for people with arthritis\textsuperscript{68}. Exercise participation among arthritis sufferers decreases pain, improves function, delays disability, and provides other physical and psychological benefits\textsuperscript{67}.

Osteoporosis – Osteoporosis care and management accounts for 3.7\% of all visits to physician offices among patients age 65-74 years and 6.2\% of all visits among patients age 75 years and older\textsuperscript{15}. Nearly 1/5 American adults are affected by osteoporosis (4\%,
10 million) or are at significant risk for developing this condition (15%, 34 million \(^{19,71}\)).

The current American College of Sports Medicine and American Heart Association exercise recommendations are supported by the American College of Sports Medicine and the United States Department of Health and Human Services to help patients achieve and maintain adequate bone mass \(^{72,73}\).

(Osteoporosis = DXA T-score ≤ -2.5 \(^{151}\))

(Osteopenia = DXA T-score <-1 and >-2.5 \(^{151}\))

**Depression** – Depression is a common diagnosis in Family Medicine and is the fifth most common chronic medical condition reported at physician office visits \(^{14,15}\). Nearly 1/10 of American adults suffer from depression each year (9%, 21 million \(^{19,75}\)). The American College of Sports Medicine and the American Heart Association exercise guidelines are recommended by the American Psychiatric Association as an integral component in preventing and treating depressive disorders \(^{1,78}\). Exercise provides intrinsic benefit to improve mood along with secondary benefits including pain reduction, functional improvement, and helping to prevent weight gain associated with psychotropic medication use \(^{78}\).

**Aging** – Individuals age 65 or older (12%, 37.8 million) represent one of the fastest growing demographics in America \(^{80}\). This group is expected to nearly double and representing 1/5 Americans by the year 2030 \(^{81}\). The American College of Sports Medicine and American Heart Association exercise guidelines for older adults do not
differ significantly from the recommendations for younger adults as long as a more gradual initiation and progression are followed to account for deconditioning or functional/disease limitations. Regular exercise has been shown to increase life expectancy, decrease chronic disease burden, diminish physiological aging, preserve cardiovascular reserve and body composition, improve psychological wellbeing, and reduce the risk of cognitive decline and dementia associated with aging.

Applying the 5 A’s of Behavior Change to Exercise Counseling and Prescription

Defining the 5 A’s – The 5 A’s behavior change were originally developed by the National Cancer Institute to assist physicians in managing tobacco abuse and to provide a structure for tobacco cessation interventions in the office setting. The 5 A’s of behavior change have been used as the basis for interventions aimed at modifying other lifestyle behaviors. The success of the 5 A’s of behavior change model make it a reasonable framework around which to develop a comprehensive intervention strategy to enabling exercise counseling and prescription in the Family Medicine office.

ASSESS – the patient’s current exercise habits, level of interest in participating in an exercise program, and fitness for exercise.

Assess Current Exercise Habits – Patient self-reporting of exercise participation is a time efficient way to assess a patient’s current exercise habits.
The Godin Leisure-Time Exercise Questionnaire represents one such tool \(^{152, 153}\). The questionnaire is a simple, brief, easy to use tool that assesses light, moderate, and strenuous levels of exercise activity among patients \(^{152, 153}\). The Godin questionnaire is useful both to screen for exercise participation among patients as well as to assess changes in their exercise behavior over time \(^{152}\).

A recent review of physical activity questionnaires for adults concluded that no questionnaire was clearly better than all others \(^{154}\). The Godin Leisure-Time Exercise Questionnaire is rated better than most questionnaires in the study and has been used extensively in health-related research \(^{153, 154}\). The Godin Leisure-Time Exercise Questionnaire is available in Appendix C.

Exercise journals represent an alternative for patient self-reporting of exercise participation for more motivated patients. Exercise journals should be specific and include details as to the modality, frequency, intensity, and duration of activity. This type of patient self-reporting requires more patient effort but has the potential to provide more specific information regarding exercise behavior over time. An example of a four week daily exercise journal is found in Table 3.1.
### Table 3.1. FOUR WEEK DAILY EXERCISE JOURNAL

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
</tr>
<tr>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
</tr>
<tr>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
</tr>
<tr>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
<td>M: A: M or V</td>
</tr>
</tbody>
</table>

M = Minutes – write in the number of minutes you exercised (i.e. 30)
A = Activity – write in the type of activity you did (i.e. walking, running, or weight training)
I = Intensity – circle M for moderate or V for vigorous

#### Weekly Exercise Totals

<table>
<thead>
<tr>
<th>Totals</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total minutes of moderate-intensity aerobic exercise</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total minutes of vigorous-intensity aerobic exercise</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total days of muscle strengthening exercise</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### The American College of Sports Medicine Exercise Recommendations for Adults

Moderate-intensity aerobic exercise for 30 minutes or more on at least 5 days each week.

**OR**

Vigorous-intensity aerobic exercise for 20 minutes or more on at least 3 days each week.

**AND**

Muscle-strengthening exercise on at least 2 days each week.

#### Classification of Common Forms of Exercise by Intensity

<table>
<thead>
<tr>
<th>Moderate-Intensity</th>
<th>Vigorous-Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>walking 3.0-4.5 mph</td>
<td>walking at &gt;4.5 mph</td>
</tr>
<tr>
<td>swimming leisurely</td>
<td>jogging or running</td>
</tr>
<tr>
<td>bicycling leisurely or &lt;100 watts if stationary</td>
<td>swimming laps</td>
</tr>
<tr>
<td>bicycling &gt;10 mph or &gt;150 watts if stationary</td>
<td></td>
</tr>
</tbody>
</table>
**Assess Interest in Exercise** – The Transtheoretical Model of Behavior Change has been widely applied in exercise interventions with results supporting its use in helping patients to improve their level of exercise participation\(^\text{129}\). The Transtheoretical Model outlines five stages of change relevant to exercise: precontemplation, contemplation, preparation, action, and maintenance\(^\text{130}\). Table 3.2 presents a practical set of questions to be used in assessing patient readiness to accept exercise as a part of their overall care planning and administration.

**Table 3.2. STAGES OF CHANGE – Readiness for Exercise**

<table>
<thead>
<tr>
<th>How do you feel about exercise?</th>
<th>Precontemplation – I have no interest in exercise. I don’t think that exercise is important.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Contemplation – I would like to learn more about how exercise can improve my health.</td>
</tr>
<tr>
<td></td>
<td>Preparation – I am interested in starting an exercise program.</td>
</tr>
<tr>
<td></td>
<td>Action – I am currently exercising but could probably do more.</td>
</tr>
<tr>
<td></td>
<td>Maintenance – I am currently exercising at least 30 minutes on five days each week.</td>
</tr>
</tbody>
</table>
Assess Fitness for Exercise – Patients often hear the disclaimer: “Consult your physician before starting any exercise program.” The preparticipation evaluation for individuals interested in participating in an exercise program serves multiple purposes.

1. To serve as a general health screening.
2. To identify medical contraindications to exercise.
3. To determine which activities are safe for the patient.

Unfortunately, there is no clear consensus among physicians on how best to achieve these objectives. Like the evaluation for preoperative risk, the goal of the preparticipation evaluation should be to identify and treat conditions that may place patients at increased risk for adverse events during exercise. A proper review of medical history may be the most important aspect of the evaluation. Family Medicine physicians possess the necessary expertise to evaluate all aspects of patient health.

Tables 3.3 – 3.6 represent a comprehensive structure to guide physicians in assessing a patient’s fitness for exercise. Tables 3.7 provides a summary of clinical preventive services that are pertinent to exercise. Tables 3.3 – 3.7 are provided only to assist physicians in organizing and structuring the preparticipation evaluation process. They are provided for reference purposes only and cannot substitute for the individual clinical judgment of any physician who chooses to utilize them in patient management.
Table 3.3. PAST MEDICAL HISTORY – General Information

**PAST MEDICAL HISTORY – General Information**

Have you ever had to stay in the hospital overnight?
Reason: ______________________________________

Have you ever had surgery?
Type: ______________________________________

Has a doctor ever told you that you should not exercise?  No ___ Yes ___
Reason: ______________________________________

Medications you are taking now:

<table>
<thead>
<tr>
<th>Name</th>
<th>Amount</th>
<th>How often</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Vitamins, herbs, or natural supplements you are taking now:

<table>
<thead>
<tr>
<th>Name</th>
<th>Amount</th>
<th>How often</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Do you drink beverages that contain caffeine?  No ___ Yes ___ How many each day ___

Do you drink beverages that contain alcohol?  No ___ Yes ___ How many each day ___

Have you ever smoked tobacco (cigarettes, cigars, pipe)?  No ___ Yes ___

Do you smoke tobacco now?  No ___ Yes ___ How many cigarettes daily ___

Did you quit smoking within the last 6 months?  No ___ Yes ___

How many years did you smoke?  Number ___ How many cigarettes did you smoke daily ___

Have you ever used recreational drugs or prescription drugs that were not prescribed by your doctor?  No ___ Yes ___ Which drugs ________________________________

Have you ever injected any of these types of drugs into your blood vessels?  No ___ Yes ___
# Table 3.4. PAST MEDICAL HISTORY – Review of Common Medical Conditions

**PAST MEDICAL HISTORY – Review of Common Medical Conditions**

*Have you ever had or been treated by a doctor for any of the following conditions?*  
(please circle all that apply. Use the lines below to explain any problems you have circled.)

**Eyes**
- vision problems  
- wear glasses  
- double vision  
- wear contacts  
- blind spots

**Cardiovascular**
- heart attack  
- coronary artery bypass surgery  
- pacemaker  
- peripheral vascular disease  
- heart murmur  
- heart stent or angioplasty  
- atrial fibrillation  
- heart valve problems  
- high blood pressure  
- carotid artery surgery  
- aortic aneurysm  
- arrhythmia  
- heart failure  
- high cholesterol  
- myoccarditis

**Respiratory**
- asthma  
- COPD  
- emphysema

**Gastrointestinal**
- stomach problems  
- bowel problems  
- liver problems

**Genitourinary (males and females)**
- bladder problems  
- kidney problems

**Genitourinary (females only)**
- How old were you when you had your first menstrual period? Years ___  
- What was the first day of your most recent menstrual period? Month _____ Day ___  
- How many days do you have from the start of one period to the start of another? Days ___  
- Are your periods regular (usually the same number of days between periods)? Yes ___ No ___  
- How many periods have you had in the last year? Number ___  
- What was the longest time between periods in the last year? Length __________

*Continued*
Table 3.4. Continued

<table>
<thead>
<tr>
<th>Musculoskeletal</th>
<th>Muscle problems</th>
<th>Broken bones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osteoporosis</td>
<td>Muscle problems</td>
<td>Broken bones</td>
</tr>
<tr>
<td>Do you have pain / swelling / injury in any of the following muscles or joints?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neck</td>
<td>Chest</td>
<td>Shoulder</td>
</tr>
<tr>
<td>Upper arm</td>
<td>Elbow</td>
<td>Forearm</td>
</tr>
<tr>
<td>Wrist</td>
<td>Hand</td>
<td>Finger</td>
</tr>
<tr>
<td>Hip</td>
<td>Thigh</td>
<td>Knee</td>
</tr>
<tr>
<td>Shin or calf</td>
<td>Ankle</td>
<td>Foot</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Do you use special corrective equipment or devices? |
| Back brace   | Knee brace      | Ankle brace  |
| Orthotics or shoe inserts | Cane             | Walker       |
| Other        |                 |              |

| Neurological | Stroke       | Mini-stroke  | TIA   |
| Seizures     | Pinched nerve | Sciatica     |      |
| Been knocked unconscious | Concussion     | Epilepsy     |      |
| Reading problems | Learning problems | Hearing loss |      |

| Psychiatric | Mood or emotional problems | Depression | Anxiety |
| Bipolar disorder | Eating disorders |          |
| Want to gain weight | Want to lose weight |          |

| Hematologic / Lymphatic | Anemia | Blood clots – leg or arm | Blood clots – lungs |
| Deep vein thrombosis (DVT) | Pulmonary embolism (PE) | |

| Endocrine | Diabetes | Overweight | Obesity |
| Hyperthyroidism | Hypothyroidism | Thyroid disease | |
| Become ill from exercising in the heat | |

| Other | Pregnancy | Cancer | Skin diseases |
| Other |           |       |              |
Table 3.5. PAST MEDICAL HISTORY – Review of Common Symptoms

PAST MEDICAL HISTORY – Review of Common Symptoms

**Have you experienced any of the following symptoms in the past few months?**
(Please circle **all** that apply. Use the lines below to explain any problems you have circled.)

<table>
<thead>
<tr>
<th><strong>Constitutional Symptoms</strong></th>
<th>night sweats</th>
<th>fatigue</th>
</tr>
</thead>
<tbody>
<tr>
<td>fever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>unintentional weigh changes</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Explain:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Eyes</strong></th>
<th>double vision</th>
<th>blind spots</th>
</tr>
</thead>
<tbody>
<tr>
<td>visual changes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>double vision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>blind spots</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Explain:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Ears, Nose, Mouth, and Throat</strong></th>
<th>hearing changes</th>
<th>sinus pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>ear pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hearing changes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>sinus pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Explain:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Cardiovascular</strong></th>
<th>chest pain at rest</th>
<th>tire easily</th>
</tr>
</thead>
<tbody>
<tr>
<td>chest pain with activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rapid heartbeat or palpitations</td>
<td>calf pain with walking</td>
<td>ankle swelling</td>
</tr>
<tr>
<td>short of breath when lying down</td>
<td>short of breath with activity</td>
<td>fainting</td>
</tr>
<tr>
<td><strong>Explain:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Have you ever experienced pressure, tingling, pain, heaviness, burning, tightness, squeezing, or numbness in the chest, jaw, neck, back, or arms?  No ___  Yes ___
**Explain:**

<table>
<thead>
<tr>
<th><strong>Respiratory</strong></th>
<th>shortness of breath</th>
<th>wheezing</th>
</tr>
</thead>
<tbody>
<tr>
<td>cough</td>
<td></td>
<td></td>
</tr>
<tr>
<td>shortness of breath</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>wheezing</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Explain:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Gastrointestinal</strong></th>
<th>abdominal pain or cramping</th>
<th>heart burn</th>
</tr>
</thead>
<tbody>
<tr>
<td>pain or difficulty swallowing</td>
<td>nausea/vomiting</td>
<td></td>
</tr>
<tr>
<td>gas or bloating</td>
<td>constipation</td>
<td></td>
</tr>
<tr>
<td>diarrhea</td>
<td>dark or black stools</td>
<td></td>
</tr>
<tr>
<td>red blood in stools</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Explain:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Continued*
### Table 3.5. Continued

<table>
<thead>
<tr>
<th>Genitourinary</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>incontinence</td>
<td>pain with urination</td>
<td>blood in urine</td>
</tr>
<tr>
<td>poor urine flow</td>
<td>sexual problems</td>
<td></td>
</tr>
<tr>
<td>Explain:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Musculoskeletal</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>joint pain</td>
<td>muscle pain</td>
<td>stiffness</td>
</tr>
<tr>
<td>joint swelling</td>
<td>decreased joint movement</td>
<td></td>
</tr>
<tr>
<td>Explain:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Integumentary</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>itching</td>
<td>rashes</td>
<td>sores</td>
</tr>
<tr>
<td>concerning moles or bumps</td>
<td>fungus</td>
<td></td>
</tr>
<tr>
<td>Explain:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Neurological</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>weakness</td>
<td>poor balance</td>
<td>numbness</td>
</tr>
<tr>
<td>memory problems</td>
<td>headaches</td>
<td>tingling</td>
</tr>
<tr>
<td>Explain:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Psychiatric</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>mood problems</td>
<td>depression</td>
<td>anxiety</td>
</tr>
<tr>
<td>sleep problems</td>
<td>difficulty concentrating</td>
<td></td>
</tr>
<tr>
<td>Explain:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Endocrine</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>difficulty with the cold</td>
<td>difficulty with the heat</td>
<td></td>
</tr>
<tr>
<td>excessive thirst</td>
<td>excessive urination</td>
<td></td>
</tr>
<tr>
<td>Explain:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hematologic / Lymphatic</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>anemia</td>
<td>blood clots</td>
<td>easy bruising</td>
</tr>
<tr>
<td>excessive bleeding</td>
<td>cannot donate blood</td>
<td></td>
</tr>
<tr>
<td>Explain:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Allergic / Immunologic</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>allergies (for example, medications, foods, animals, or stings)</td>
<td>hay fever</td>
</tr>
<tr>
<td>lumps in neck, armpits, or groin</td>
<td></td>
</tr>
<tr>
<td>Explain:</td>
<td></td>
</tr>
<tr>
<td>Table 3.6. PHYSICAL EXAM</td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td></td>
</tr>
</tbody>
</table>

**PHYSICAL EXAM – Vital Signs and Measures**

- _____ age
- _____ weight
- _____ BMI
- _____ heart rate
- _____ systolic blood pressure
- _____ gender
- _____ height
- _____ waist circumference
- _____ respiratory rate
- _____ diastolic blood pressure
- _____ SpO₂

**PHYSICAL EXAM – Organ Systems**

1. **Constitutional/General:** __________________________________________________________
______________________________________________________________________________

2. **Eyes:** _______________________________________________________________________
______________________________________________________________________________

3. **Ears, Nose, Mouth, Throat, and Neck:** ___________________________________________
______________________________________________________________________________
______________________________________________________________________________

4. **Cardiovascular:** _________________________________________________________________
______________________________________________________________________________

5. **Respiratory:** __________________________________________________________________
______________________________________________________________________________

6. **Gastrointestinal:** ________________________________________________________________
______________________________________________________________________________

7. **Genitourinary:** _________________________________________________________________
______________________________________________________________________________

8. **Musculoskeletal:** ________________________________________________________________
______________________________________________________________________________

9. **Integumentary:** __________________________________________________________________
______________________________________________________________________________

10. **Neurological:** __________________________________________________________________
______________________________________________________________________________

11. **Psychiatric:** __________________________________________________________________
______________________________________________________________________________

12. **Hematologic / Lymphatic:** _________________________________________________________
______________________________________________________________________________
### Hypertension
Adults aged $\geq 18$ should be screened for high blood pressure.

### Diabetes Mellitus
Adults with high blood pressure should be screened for diabetes mellitus.

### Obesity
All adult patients should be screened for obesity.

### Dyslipidemia
- Men aged $\geq 35$ and older should be screened for dyslipidemia.
- Men aged 20 to 35 should be screened for dyslipidemia if they are at increased risk for CVD.
- Women aged $\geq 45$ should be screened for dyslipidemia if they are at increased risk for CVD.
- Men aged 20 to 35 and women $\geq 20$ not at increased risk for coronary heart disease may or may not benefit from screening for dyslipidemia.

### Cardiovascular Disease Screening
- Adults with low risk for CVD should not undergo routine screening via resting EKG or exercise treadmill testing.
- Adults at increased risk for CVD may or may not benefit from routine screening via resting EKG or exercise treadmill testing.
- Asymptomatic adults should not be screened for carotid artery stenosis.
- Adults should not undergo routine screening for peripheral arterial disease.
- Men aged 65-75 who have ever smoked should undergo one-time screening for abdominal aortic aneurysm.
- Women should not undergo routine screening for abdominal aortic aneurysm.

### Osteoporosis
- Women aged $\geq 65$ should be screened for osteoporosis.
- Women aged $\geq 60$ at increased risk for osteoporotic fractures should be screened for osteoporosis.
- All females $\geq 11$ should be counseled to maintain adequate calcium intake to prevent osteoporosis.

### Depression
All adults should be screened for depression when staff-assisted depression care supports are in place to assure accurate diagnosis, effective treatment, and follow-up.
ADVISE – the patient in a specific and personalized manner regarding the health benefits of regular exercise and the corollary risks of failing to exercise regularly. Use the patient’s personal assessment data to identify individualized needs that may be aided by regular exercise.

Advise Regarding Fitness for Exercise – Historically preparticipation evaluations have included a section for physicians to provide a statement regarding medical “clearance” for a particular activity; for example “full clearance,” “conditional clearance,” or “restricted.” It is recommended that physicians avoid using such language as the preparticipation evaluation is best viewed as a “risk assessment” and not “clearance” that may imply the absence of adverse potentials.

After a thorough risk assessment, such as that outlined in the previous section, the patient and his/her physician will be able to more appropriately discuss both the potential benefits and the potential risks associated with regular exercise participation. Maintaining the viewpoint of “risk assessment” rather than “clearance” is an important step in providing patients with appropriate informed consent with regard to exercise as a treatment modality. In the vast majority of cases the potential long-term benefits of regular exercise will far outweigh any increased health risks associated with acute bouts of exercise.

Advise on Additional Testing or Evaluation – The presence of cardiovascular, pulmonary, or metabolic disease in particular increases a patient’s risk for adverse events
associated with acute bouts of exercise. These disease categories include cardiac disease, peripheral arterial disease, cerebrovascular disease, diseases of the lung, diabetes mellitus, and other endocrine disorders. Signs and symptoms of these diseases include pain or discomfort in the chest, neck, jaw, or arms, dyspnea at rest or with exertion, dizziness, syncope, orthopnea, ankle edema, palpitations, claudication, heart murmur, unusual fatigue or shortness of breath with activity. Patients will benefit from a careful exploration as to the origins for these signs or symptoms.

Special attention should be paid to the presence of both modifiable and non-modifiable risk factors for cardiovascular disease including sedentary lifestyle, obesity, hypertension, dyslipidemia, diabetes, tobacco smoking, age, and family history. Adverse cardiovascular events represent the greatest health risk associated with acute bouts of exercise. Physicians and patients should consider carefully together any needs for ancillary laboratory or physiologic testing prior to participating in exercise. For patients with significant active or poorly controlled cardiovascular, pulmonary, or metabolic disease a supervised exercise setting may be the most appropriate exercise recommendation that the physician can provide.

Advise: “Meet Them Where They Are” – When advising a patient it is important to, “meet them where they are.” This means providing specific and personalized recommendations that make sense to the patient based on the patient’s understanding of his/her general health and disease processes.
Patients should be advised based on the level of self-awareness that he/she possesses regarding his/her general health and medical conditions. Physicians should take care to inform patients about their health and conditions and the many options available for management. Patients should be educated regarding the importance of adequately managing chronic disease conditions such as hypertension, diabetes mellitus, overweight and obesity, dyslipidemia, cardiovascular disease, arthritis, osteoporosis, depression, and physiologic aging. Physicians should emphasize the beneficial effects of regular exercise in the management of these and other chronic conditions.

The Transtheoretical Model of Behavior Change provides valuable insight into the patient’s readiness to change to adopt exercise as a regular behavior. With this understanding the physician is able to tailor exercise counseling and prescription to meet individual patient needs. Table 3.8 provides instruction for physicians regarding how to interpret and use the stages of change information provided by the patient during the assessment process.
Table 3.8. STAGES OF CHANGE – Interpretation and Recommendations 129, 130.

STAGES OF CHANGE – Interpretation and Recommendations

Precontemplation – The patient in this stage generally has little or no interest in exercise and does not recognize the importance of exercise as it relates to his/her health. The physician’s main role in counseling this patient is simply to “raise the issue,” of exercise as a recommendation with the patient.

Contemplation – The patient in this stage generally understands that exercise is likely to be beneficial to his/her health but fails to progress from the level of simple interest to that of action. This patient should be provided with exercise counseling and an prescription.

Preparation – The patient in this stage may be making some effort to exercise but generally not in a consistent manner or adequate amount. This patient should be provided with exercise counseling and an exercise prescription.

Action – The patient in this stage has established a consistent pattern of exercise but may not be meeting the recommended amount of exercise established in the ACSM guidelines. This patient should be provided with exercise counseling and an exercise prescription.

Maintenance – The patient in this stage has established a consistent pattern of exercise and is currently meeting or exceeding the recommended amount of exercise established in the ACSM guidelines. This patient should be provided with encouragement to continue exercising. Additionally, this patients should be counseled that they may attain additional health benefits by exceeding the minimum recommended amount of physical activity.

AGREE – upon appropriate exercise goals through collaboration with the patient to actively engage him/her in his/her own care planning and administration. By focusing on patient autonomy the patient is empowered to take beneficial action on his/her own.

Agree on Physician and Patient Roles – After a thorough assessment and advisement, physicians and patients should work together to facilitate the healing process. In the case of chronic disease the physician should assume the role of facilitator in this process. In
the setting of chronic disease the patient should be empowered to assume the role of provider in healing with his/her efforts being facilitated by the physician.

**Agree on Exercise Goals** – In the context of chronic disease prevention and management the enacting of positive behavioral changes are key to long term success. Successful goal setting with regard to regular exercise participation requires patient involvement. The physician should focus on facilitating the process of goal setting rather than imposing exercise goals upon the patient.

Table 3.9 presents a structure by which physicians can facilitate the setting of exercise goals. Table 3.10 presents an exercise prescription based on this structure for setting exercise goals. Effective exercise goals will be personal, challenging but realistic, specific, verbalized, visualized, and verified \(^{131}\). Exercise goals are more likely to be successfully achieved if the goal’s objective is to institute the behavior of regular exercise participation than will goals aimed at more obscure endpoints such as weight loss that would actually require a number of different individual behavioral goals \(^{119}\).
Table 3.9. PRINCIPLES OF GOAL SETTING – Exercise Specific\textsuperscript{119, 131}.

PRINCIPLES OF GOAL SETTING – Exercise Specific

**Personal** – Exercise goals should focus on the patient’s intrinsic desires and motivations. It is important to help the patient recognize why the health benefits of exercise are meaningful to him/her on a personal level.

**Challenging but Achievable** – Exercise goals should test the patient’s ability while remaining achievable. Goals must take into account realistic limitations based on current exercise capacity and other physiological and psychological limitations. Success breeds success.

**Specific** – Exercise goals should be specific with regard to the type of exercise the patient will engage in. Additionally, frequency, intensity, and duration of exercise are all components of exercise goals that are appropriately specific. Specificity provides a clearly defined expectation that can be measured and verified.

**Verbalized** – Exercise goals are more likely to be successfully accomplished if this personal commitment is shared with other individuals. By expressing exercise goals to support persons the patient allows others to assist them in being successful.

**Visualized** – Exercise goals, like goals for other healthy lifestyle behaviors, are set when a patient’s motivation is high and often wane with time. Having the exercise goal visible in a prominent place will assist patients in maintaining their focus and motivation over time.

**Verified** – Physicians should set the expectation with patients that exercise goals will be followed-up. Patients should expect to return and report on exercise progress. As with any therapy, regular and consistent monitoring is a key element of successful exercise intervention.
### Table 3.10. EXERCISE PRESCRIPTION

#### EXERCISE PRESCRIPTION

**Aerobic Exercise Goals**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Intensity</th>
<th>Number of Days per Week</th>
<th>Number of Minutes per Day</th>
<th>Number of Minutes per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Muscle-Strengthening Exercise Goals**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Number of Days per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Who will I share these goals with? ________________________________

Where will I put these goals to help me remember? ________________________________

When will I return to report my progress? ________________________________

**************************************************************************

**Classification of Common Forms of Aerobic Exercise by Intensity**

<table>
<thead>
<tr>
<th>Moderate-Intensity</th>
<th>Vigorous-Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>walking 3.0-4.5 mph</td>
<td>walking at &gt;4.5 mph</td>
</tr>
<tr>
<td>swimming leisurely</td>
<td>jogging or running</td>
</tr>
<tr>
<td>bicycling leisurely or &lt;100 watts if stationary</td>
<td>swimming laps</td>
</tr>
<tr>
<td>bicycling &gt;10 mph or &gt;150 watts if stationary</td>
<td></td>
</tr>
</tbody>
</table>

**The American College of Sports Medicine Exercise Recommendations for Adults**

- Moderate-intensity aerobic exercise for 30 minutes or more on at least 5 days each week.
- OR
- Vigorous-intensity aerobic exercise for 20 minutes or more on at least 3 days each week.
- AND
- Muscle-strengthening exercise on at least 2 days each week.
ASSIST – the patient in identifying barriers to adequate regular exercise participation and in formulating strategies to overcome those barriers.

Assist Patients in Identifying and Overcoming Barriers to Exercise – Each patient will face individual challenges when initiating an exercise program. Additional barriers will make it difficult for the patients to increasing his/her frequency, intensity, and duration of exercise. Physicians can assist patients in identifying individual barriers and in creating a plan to overcome these barriers.

Assist Patients in Identifying Exercise Resources – Patients who have not been exercising regularly may benefit from physician guidance in helping them to identify available exercise resources. Providing patients with reliable resources to become better educated on various exercise principles and activities may be helpful. Some patients will benefit from physician recommendations regarding available community resources and facilities. Other patients will benefit from direct referral to hospital or community based exercise professionals. Physicians are more likely to discuss exercise with patients if they are familiar with these types of resources. Physicians should carefully evaluate the quality and safety of exercise referral resources before making recommendations to patients. Table 3.11 represents an example of how to organize a list of public and nonprofit exercise resources to share with patients.
Table 3.11. EXERCISE RESOURCES

**EDUCATION RESOURCES**

**National Government** – (Use the search terms: exercise or physical activity)
Centers for Disease Control and Prevention (CDC) – [www.cdc.gov](http://www.cdc.gov)
President’s Council on Fitness, Sports and Nutrition (PCFSN) – [www.fitness.gov](http://www.fitness.gov)
National Institute on Aging (NIA) – [www.nihseniorhealth.gov](http://www.nihseniorhealth.gov)

**State and Local Government** – (Use the search terms: exercise or physical activity)

**Professional Organizations and Societies** – (Use the search terms: exercise or physical activity)
American College of Sports Medicine (ACSM) – [www.acsm.org](http://www.acsm.org)
National Physical Activity Plan (NPAP) – [www.physicalactivityplan.org](http://www.physicalactivityplan.org)
Exercise is Medicine (ACSM-AMA joint program) – [www.exerciseismedicine.org](http://www.exerciseismedicine.org)
American Medical Association (AMA) – [www.ama-assn.org](http://www.ama-assn.org)
American Heart Association (AHA) – [www.heart.org](http://www.heart.org)
American Cancer Society (ACS) – [www.cancer.org](http://www.cancer.org)
American Diabetes Association (ADA) – [www.diabetes.org](http://www.diabetes.org)

**DESTINATIONS, FACILITIES and PROGRAMS**

**Public Parks and Recreation**
Utah County Parks and Trails – [http://www.utahcountyonline.org/parks/](http://www.utahcountyonline.org/parks/)
City of Orem Provo City Parks and Recreation – [http://www.provo.org/parks_and_rec.main.html](http://www.provo.org/parks_and_rec.main.html)

**Hospital Facilities and Programs**
Intermountain Healthcare – [http://intermountainhealthcare.org](http://intermountainhealthcare.org)

**University Facilities and Programs**
Brigham Young University Department of Exercise Sciences – [http://exercisesciences.byu.edu/](http://exercisesciences.byu.edu/)
Utah Valley University Department of Exercise Science and Outdoor Recreation – [http://www.uvu.edu/csh/peandrec/](http://www.uvu.edu/csh/peandrec/)
ARRANGE/ADJUST – for regular office follow-up to evaluate the patient’s exercise progress. Regular follow-up allows the physician to evaluate patient exercise goals and to provide ongoing assistance to assure consistent positive progress. Regular follow-up also provides the physician with valuable opportunities to adjust exercise goals to meet changing patient needs and preferences.

Arrange for Regular Follow-up – Regular physician follow-up provides the patient with the greatest likelihood of success when attempting to make and maintain a health behavior change. Primary preventive visits and visits for chronic disease management represent the most appropriate evidence based setting for exercise counseling and prescription follow-up and assessment.

Adjust for Changing Patient Needs – Regular physician follow-up should include revisiting the key elements of patient assessment including interest in exercise, current exercise habits, and fitness for exercise. The patient assessment should be updated during subsequent office encounters. This is especially important in the setting of chronic disease management where exercise counseling and prescription should routinely be included in the treatment plan. Information gained through interval assessments should be used to guide physician collaboration with the patient to adjust individualized exercise goals as needed. Regular adjustment of the exercise prescription to account for changing exercise
participation and patient health needs will optimize the utilization of exercise as a therapeutic modality for disease prevention and management.

*Strengths and Limitations of the Intervention*

One of the strengths of this intervention is its basis on the opinions and preferences of board certified Family Medicine physicians who are actively managing patient care in the outpatient setting. The group of physicians interviewed were well suited to provide recommendations pertinent to the development of a comprehensive intervention strategy for exercise counseling and prescription in the outpatient setting. These physicians are the primary stakeholders in implementing changes to care planning and administration.

The physicians interviewed were recruited from a single physician population located in the Intermountain West. It is possible that the intervention strategy will not fully address the specific needs to successfully enable exercise counseling and prescription in all Family Medicine practices. However, this intervention strategy provides valuable insights and tools that may serve as an excellent starting point for adaptation in implementing exercise counseling and prescription in many settings and locations.

*Implications for Clinical Practice*

There are a number of implications for clinical practice resulting from this dissertation research. The first implication is that the comprehensive intervention
strategy provides Family Medicine physicians with evidence based information regarding exercise counseling and prescription in the outpatient office setting. By so doing the intervention strategy will assist in closing the knowledge gap known to exist among physicians with regard to exercise counseling and prescription and provide physicians with the necessary knowledge base to implement exercise counseling and prescription in practice. The intervention also provides physician sufficient evidence based rational for establishing physical inactivity as a detrimental health condition worthy of specific attention. The intervention strategy provides a practical instrument to enable exercise counseling and prescription within the context of a routine Family Medicine office visit. This intervention strategy is unique in that it details a specific format and process for providing exercise counseling and prescription that is based on an aggregate of Family Physician opinions and recommendations. By emulating the group consensus rather than an individual opinion the intervention strategy is expected to be more acceptable to Family Medicine physicians than are current instruments.

Multiple organizations have advocated for the comprehensive employment of exercise counseling and prescription in outpatient medicine. However, most have provided only general guidelines for office based exercise interventions. Individual physicians are then required to put forth significant effort to create a usable structure based on those guidelines.

This dissertation research provides a comprehensive intervention structure for exercise counseling and prescription that can be inserted into clinical practice with minimal origination effort on the part of individual physicians. The intervention is
designed for universal implementation thus eliminating disparities in the utilization of exercise counseling and prescription that exist among differing patient populations. The intervention also encourages physicians to become more aware of available governmental, community, and private resources on exercise in their own community in order to provide meaningful referrals to appropriate patients.

It is hoped that with the added understanding provided through the implementation of the intervention strategy that physicians will find renewed desire to participate in regular exercise themselves. The strategies presented in the intervention design are consistent with the U.S. Physical Activity Plan endorsed by the American College of Sports Medicine, the American Medical Association, and the American Academy of Family Physicians.

It is hoped that the intervention strategy will improve the understanding of exercise counseling and prescription among Family Medicine physicians. Other desired results would be the establishment of regular exercise as an often used treatment modality in the management and prevention of chronic disease; an improved understanding of the role of regular exercise in disease management and prevention among Family Medicine patients; increased rates of exercise participation among patients in the Family Medicine setting; and a decrease in the morbidity and mortality associated with physical inactivity among Family Medicine patients. The intervention may be most valuable in serving as a catalyst for organizational change in other elements of office based care delivery in Family Medicine.
Implications for Future Research

The intervention strategy is proposed as a comprehensive tool that will enable exercise counseling and prescription within the context of a routine Family Medicine office visit. It is believed that the intervention strategy will facilitate the employment of exercise counseling and prescription by providing a needed structure for patient evaluation, exercise management, and follow-up. The comprehensive intervention strategy is presented as a prototype that will need to be further evaluated and tested in practice.

Further evaluation will involve an expert panel review to be conducted by the author and will involve practicing Family Physicians and professional Exercise Physiologists. A needs assessment and acceptability study involving Family Medicine patients will also be conducted in further evaluating the intervention strategy. Following the completion of the expert panel and patient reviews a refined version of the intervention strategy will be created.

A feasibility trial using the refined intervention strategy will then be conducted to determine the practicality of the intervention and to guide any additional changes that may be needed. A pilot study of the intervention strategy will then be conducted to explore the usability and implementation of the intervention by practicing Family Medicine physicians.

Any needed improvements indicated for by the pilot study will be implemented. Subsequently, an effect evaluation study will be conducted to establish the clinical relevance of exercise counseling and prescription by Family Medicine physicians. It is
hoped that by providing Family Medicine physicians with an evidence based and clinically validated intervention strategy, exercise counseling and prescription will become standard components of disease prevention and management.

**Conclusion**

This comprehensive intervention strategy provides a basis for standardized and structured exercise counseling and prescription in the Family Medicine setting. The intervention is consistent with the scientific understanding of exercise as it relates to health and chronic disease processes. The intervention’s design is representative of current recommendations for interventions aimed at healthy lifestyle behavior modification. Uniquely, this exercise counseling and prescription intervention is tailored specifically to represent the opinions and preferences of practicing Family Medicine physicians.
References


55. American Association of Cardiovascular and Pulmonary Rehabilitation, American College of Cardiology Foundation, American Heart Association Task Force on Performance Measures (Writing Committee to Develop Clinical Performance Measures for Cardiac Rehabilitation), Thomas RJ, King M, Lui K, Oldridge N, Pina IL, Spertus J. AACVPR/ACCF/AHA 2010 update: Performance measures on cardiac rehabilitation for referral to cardiac Rehabilitation/Secondary prevention services endorsed by the american college of chest physicians, the american college of sports medicine, the american physical therapy association, the canadian association of cardiac rehabilitation, the clinical exercise physiology association, the european association for cardiovascular prevention and rehabilitation, the inter-american heart foundation, the national association of clinical nurse specialists, the preventive cardiovascular nurses association, and the society of thoracic surgeons. J Am Coll Cardiol 2010 Sep 28;56(14):1159-67.


Appendix A: Interview Discussion Guide
INTERVIEW DISCUSSION GUIDE

Warm Up

In conducting today's interview I hope to be able to understand more about your viewpoints on exercise counseling and prescription in your office. Our intention in conducting these interviews is to evaluate a number of elements and factors that influence patient-physician encounters involving exercise counseling and prescription. There are no right or wrong answers. Your honest opinion will provide valuable information needed to create an acceptable framework to guide such encounters in the future. Since this is a semi-structured interview I will be using a predetermined set of questions to guide our discussion. Please feel confident in expressing your views openly as all responses will be protected with the utmost respect for confidentiality and anonymity. Do you have any questions before we begin?

Questions

1 – Patients often hear the disclaimer to ‘consult their physician before starting any exercise program to determine if you are healthy enough to do so.’ What DO YOU THINK needs to be done to determine if a patient is healthy enough to exercise?

2 – What DO YOU THINK is the best way to assess a patient’s current exercise habits?

3 – What DO YOU THINK is the best way to determine a patient’s level of interest in starting an exercise program?

4 – What DO YOU THINK is the best way to discuss or promote exercise during routine health maintenance visits?

5 – Regarding weekly exercise goals, what DO YOU THINK should be recommended to patients?

6 – What strategies DO YOU THINK are helpful for engaging patients to be more active participants in their own care planning and administration?

7 – What DO YOU THINK are the most common barriers to regular exercise participation among your patients?

8 – What DO YOU THINK physicians can do to assist patients in identifying ways to overcome these specific barriers?

9 – What DO YOU THINK would be the best system for following-up or monitoring a patient’s exercise habits on a longitudinal basis?

10 – In what ways DO YOU SEE physical inactivity or a lack of exercise impacting the health of your patients?

11 – What DO YOU THINK is the appropriate role of the Family Physician in promoting exercise?

12 – What barriers DO YOU THINK make it difficult for you to utilize exercise counseling and prescription in your practice?
Appendix B: Interview Transcripts – Aggregated and Reduced
INTERVIEW TRANSCRIPTS – AGGREGATED and REDUCED

1 – Patients often hear the disclaimer to “consult their physician before starting any exercise program to determine if you are healthy enough to do so.” What DO YOU THINK needs to be done to determine if a patient is healthy enough to exercise?

INITIAL RESPONSE TO Q1
“All patients are healthy enough to exercise; it’s just finding the right exercise for them.”

“I would … give them the type of review that I would do … on an every two-year review of their entire medical situation and physical exam.”

“Try to identify those risk factors that would be … especially dangerous for exercise such as epilepsy … coronary artery disease or other cardiac conditions that could lead to sudden death … other neurological things.”

“[Look] at what are the other things that impact the … types of exercise that they would actually be able to do. … It’s really important to know that and to be cognizant of all the factors instead of just saying, ‘You need to go exercise,’ or having sort of a rote, ‘Go out and run,’ type of prescription. … You’ve just got to understand not only what the risk factors are but what are the … other factors that would feed into an exercise prescription.”

“From a physician’s perspective you first need to find out what is their current level of activity. … You must moderate that with their age and risk factors for participating in activity. … Help them see what the risks and benefits are for them individually.”

“Find out what their goals are in terms of activity.”

“Just [obtain] a thorough history.”

“Their past history, if they’ve had any problems with exercise before.”

“[Assess] any heart problems, respiratory problems, orthopedic problems in particular. … Find out if they’ve had symptoms that would point to problems with their heart or lungs [or] joint pains that would make it difficult for them to exercise.”

“Certainly neurologic, cardiovascular, musculoskeletal, and psychiatric are probably the top four in my mind.”

“A thorough history, including: family history [and] personal history depending on the age and condition of the patient. It tends to direct me where I go as far as what I decide … their ability to exercise [is]. … Mostly history to make sure that there’s no significant illnesses and then it would be directed to their own personal disease processes.”

“There are very few conditions that I will say … ‘It’s not a good idea to exercise.’ … Unstable angina, uncompensated heart failure, too soon after a myocardial infarction [are exceptions].”

1
“Questions about cardiac health; making sure that … they’re not suffering from any exercise induced chest pain.”

“A basic physical exam …”

“Sometimes it’s helpful to take a look at their body habits. If they’re really obese … give them some advice about how to start and what to do, because … they may hurt themselves if they do too aggressive a regimen … Assessing cardiac health and … how well they’re going to be able to use their joints and move.”

“Vital signs, blood pressure, heart rate, [and] history …”

“Lungs, heart, and musculoskeletal depending on what their complaints are, [and] maybe … history.”

“More than anything it’s judging risk factors: age, family history, past with exercising … and their risk factors in the past medical history.”

“Mostly [assessing] cardiovascular health as far as their vital signs [and] exam. … [Find out]: Have they ever had any fatigue or near syncope with exercise … any early family cardiac death [or] any early heart disease as far as atherosclerotic disease.”

“It would depend on their age, gender, what type of activity they have been doing, [and] what type of intensity of exercise are [they] going to be doing.”

“Musculoskeletal; looking at their back, knees, ankles.”

“Cardiac risk. … If someone has cardiac risk issues that’s addressed separately and I guess cleared … [From an] orthopaedic point of view usually that’s a historical thing too. On exam, I don’t ever find anything …”

“Almost any patient is healthy enough to exercise; it’s just a matter of to what level they can actually exercise. … They should have a basic physical, have their blood pressure checked … almost any other test we would do would really support the fact that they needed to exercise if it were abnormal.”

“Making sure their heart is healthy enough. … [Checking] blood pressure ….”

“Pulmonary status ….”

“A lot of getting to exercise has to do with where you are at … mentally [psychologically]; what your belief systems are. … It has more to do with … their mental constructs so maybe more psychological evaluation … What kind of statements do they throw out, ‘I can’t exercise,’ [or] ‘I can’t run.’ … What is the lens through which their viewing the world when it comes to … exercise.”
“It’s really important to get quickly to what is this person’s motivation and what are their roadblocks. … Try to take those road blocks down and work on helping them get to their own motivations.”

“From a cardiovascular perspective, you’d want to … assess those risk factors like their cholesterol situation, their blood pressure, whether or not they’re diabetic.”

“If they have a history of seizures than it just depends of how frequent those are and what workup is being done and what follow-up is being done with neurologists…”

“Mostly from a red flag point of view … asthma issues, heart rhythm issues, cardiovascular issues … a severe orthopaedic issue …”

STUDIES / LABS GEN
“Take a look at each person individually and see what they might be at risk for. … What workup is being done and what follow-up is being done with [specialists to determine] whether or not you’d order anything else. … [Look] at the specific labs … that that individual needed to have to help assess where they’re at.”

“If there is a suggestion that they might have coronary artery disease … risk [stratifying] them a little bit with a lipid profile and maybe a blood sugar. … If they are high risk and want to engage in vigorous physical activity, in that situation I might do a treadmill test on them.”

“Worrying mostly about respiratory or heart problems … spirometry or in some cases an exercise treadmill test.”

“I check cholesterol and kidney and liver function and sometimes a thyroid. … I don’t routinely do stress tests or chest x-rays or blood counts.”

“It is important when you are starting an exercise program … to see where you were at the start of it and where you ended up at the end of it. … Get … lipid levels. … CBC, CMP … thyroid is pertinent to the discussion if they have fatigue. … It is fun for patients to see … what their results are and how they improve afterward.”

“In general I would do the standard health care maintenance stuff. … If they’re over thirty-five or over forty I’m going to be checking for diabetes, checking for cholesterol … vitamin D …”

“Some people do … a cardiac treadmill if someone comes in and says they want to start an exercise regimen. I’m not sure that’s a valid indication for that unless I have other suspicion.”

“Nothing routinely … if they’re hypertensive I’d likely get an EKG. If they are extremely hypertensive I usually tell them that we need to get their blood pressure under better control prior to their starting a vigorous exercise workout. Otherwise there’s not anything routinely that I do …”
“An EKG or even more so a stress test, a treadmill stress test. Depending on the patient’s age and family history...”

“In certain patients that I felt like had a risk I might do exercise stress testing... based on their body weight and multiple factors... I don’t routinely do that.”

“Occasionally I get an EKG and then... start light exercise; if they’re able to do low-intensity exercise than I’ll advance it gradually.”

“An older person who has been sedentary who is about to start a moderate-to-intense exercise program should probably have exercise stress testing depending on their cardiac risk factors... If somebody is exercising regularly and doing fine, than I probably wouldn’t do much more additional workup.”

“I’d still just look for more cardiac risk... risk factors for diabetes... metabolic syndrome... a lipid panel... thyroid function... There’s nothing that I test routinely for.”

“CBC, CMP, maybe thyroid and lipids... Almost to support the fact that they needed to exercise. It would be very hard to find something abnormal in there that would prevent them from exercising really.”

“[Patient exaggeration] might be a reason to put them on a treadmill... because then you get a sense for... their aerobic capacity... That’s an expensive test just to do for that.”

REFERRALS

“Not very often (would I refer to cardiology). Only heart rhythm patients... or a significant family history issue, dad died of a heart attack at forty.”

“If I felt like somebody was what I would call a level A or B coronary artery disease type patient, I would get a cardiologist involved.”

“In a few instances I might consider sending someone to a cardiologist... If I found an abnormality on a treadmill stress test with a lot of PVCs, something like that, arrhythmias.”

“I could see sometimes when seeing a cardiologist beforehand might be helpful.”

“The CDC has come out with certain recommendations obviously and that’s not a secret... based on whatever morbidity they are dealing with... then I would have them go more to cardiac rehab or... something else just depending on what they present with.”

“I have found it useful to send somebody to see a physical therapist or... some sort of a knowledgeable exercise coach to help people understand, ‘Well... I have this hip problem’ ‘Ok well, let’s figure out what kind of weight lifting you can do around that hip problem.’ ... Trying to figure out a therapy.”
“In some instances, I have never thought about it, but it might be helpful to use a non-physician such as an exercise physiologist … in someone who needed some counseling and help about training for a specific kind of a program and didn’t know where to begin.”

“If I find anything on physical exam that’s concerning or [in their] history … a pace maker in place … intermittent a-fib … knee pain and they’re obese … I might send them to [a specialist] …”

“If someone were having concerning chest pain I probably would send them to a specialist or at least get a treadmill test or something beforehand … I don’t think I’ve ever sent anyone else to a specialist prior.”

“I would do in most all occasions … the initial studies and then refer them based on those studies, as a result of the stress test or … perhaps just jump to the stress ECHO.”

“If somebody had heart disease, previous stents, MI’s, or out of control hypertension or things like that. I might consider having a cardiologist clear them first … I usually feel fairly comfortable with it unless they are pretty sick…”

“Only someone with severe cardiovascular disease, or maybe … a severe musculoskeletal problem …”

“A lot of doctors are afraid to even do sports physicals because they are afraid that they might miss hypertrophic cardiomyopathy or they’re afraid they might be responsible for a kid that gets hurt or … dies during sports if they don’t do a good enough physical exam. … It’s just an awareness of … the importance of getting a family history and stuff for patients … It just comes down to physician … awareness of the process and the importance of relaying that message to their patients.”

“If they do have … cardiac or pulmonary problems then I would specifically refer them to cardiopulmonary rehab.”

STANDARDIZED PROTOCOL
“I don’t [have a standardized protocol]. … I have been aware of … standardized protocol tests for fitness levels. I do not use them before I begin … working with somebody for an exercise program.”

“I do not have a standardized … algorithm that I use to prescribe exercise.”

“I have kept for quite a while a memo on a handheld device that reminds me of all the notes, of all the reading that I’ve done, relative to exercise and appropriate exercise for different conditions and inappropriate exercise for different conditions … I will turn to that occasionally as things crop up that are less familiar to my practice; to remind me of things to take into consideration.”
“It’s more important to … help a person get to the point where they want to exercise and finding that motivation than it is to come up with a good plan. … It is important to come up with a good safe plan, but I find it’s more useful to spend the time finding that motivation.”

“[A standardized protocol] probably would be [helpful]. … It is not often that I have patients come in specifically wanting some physician suggestions and advice on clearance for exercise.”

“Not one standardized (protocol) … it would (be useful).”

“Absolutely, I do [have a standardized protocol] and I have it actually templated out in the computer.”

“I don’t have any forms … I fill out a lot of those preparticipation sports physical forms … a lot of the same questions that I would ask during a routine visit [are involved]. … It’s rare that anyone comes in and says, ‘I just want to make sure I am able to exercise.’”

“If you have that type of protocol then it’s easy to usually include some sort of questionnaire that a patient can already fill out … in terms of getting an accurate and reliable history. … Making sure that you cover everything that they may not have thought to tell you.”

“The easiest thing is just making sure we have the accurate history form beforehand so that way it can guide what I need to do testing-wise or exam-wise afterwards.”

“I do use the pre-participation physical. Do I use that with every patient that comes in? Not necessarily. … It’s a pretty good guide … Generally they don’t require that and I don’t use that in them.”

“Not that I’ve formalized. … There [were] guidelines from the American Academy of Cardiology or something that talks about when you should get an exercise stress test based on age and … fitness level ….”

“Absolutely, [a preparticipation form would be useful]. … I would have it more in my head … what type of workup [is appropriate]. I often counsel for exercise but I don’t necessarily have people coming in saying, ‘I’m going to start a program, I just want to make sure I am healthy and safe to do it.’”

“No, I don’t. That would be something good to have. I just do … a basic physical.”

2 – What DO YOU THINK is the best way to assess a patient’s current exercise habits?

INITIAL RESPONSE TO Q2

“Asking them what they do for exercise is instructive … starting with an open-ended question. … Some people will say, ‘Well, I’ve put the remote away,’ or ‘I park far away from the front of the store and walk,’ or ‘I take the stairs.’ … You get a sense of what they consider exercise to be. Then … being more specific and saying, ‘Do you do any aerobic exercise.’ What’s aerobic
exercise?” And then explaining that. ‘Do you do any weight lifting?’ ‘Do you do any sports?’ ‘Do you participate in individual sports or team sports?’ … ‘Do you do any aerobic[s] … any Pilates or PX90,’ or … things that are on three am TV at the given moment.”

“By history.”

“I probably would have them keep an exercise log. But I have never done that.”

“Ask them. History … more than just, ‘Do you exercise.’ … More detailed questions about how often, how long, what kind of exercise.”

“History, just a discussion with the patient. If they are willing to change or if they are willing to discuss, they are usually very honest about where they’ve been.”

“I usually just ask them.”

“That’s tough because each person’s definition of what exercise is, is quite different. The first thing I’m going to do is just ask them.”

“Just [ask] what they do for activity: How many minutes they exercise a day; How many days a week; What they like to do for exercise.”

“If it’s something that’s scheduled or if they’re just playing sports, or if they say … ‘I clean the house and that’s my exercise,’ or ‘I go outside with the kids on occasion,’ versus somebody who says … ‘I exercise, I run or swim an hour five days a week.’ Then I don’t have as much concern about their ability to start an exercise program.”

“Ask. Most people … are pretty honest about what they do. Their dishonesty is what they are expecting from it.”

“Just by asking them, ‘What do you do,’ and then probing a little bit … ‘I exercise 30 minutes a week or an hour a day’ … ‘I lift weights,’ ‘Well, what weights do you lift?’ … Usually you can narrow it down to, ‘Well sometimes I do a few curls on a Wednesday.’ … Most people are pretty honest about their exercise.”

“Just ask.”

SCREENING QUESTIONNAIRE
“Standardized tools I find difficult to incorporate. I’m a much more open interviewer type communicator.”

“I do find it useful if my nurses have … done some sort of screening based on certain criteria. … It would be helpful to … walk in the room with some information from a standard screening test that assessed all sorts of things … where people are with their exercise, what their willingness to change is, what their awareness level of the health benefits would be …”
“I just use patient report.”

“I have heard of [exercise screening questionnaires] but I have never used them. … [I] was never trained to and just haven’t thought about it. … Having something that is standard … would be useful.”

“Have the staff do it and then have me review it with them.”

“Health and Human Services has come out with a full list of physical activity questionnaires that I’ve used before. I don’t keep copies with me all the time so I haven’t used that all the time, but there are physical activity questionnaires that I’ve used in the past ….”

“Patients will often lie about that or exaggerate. Or, you’ll get the standard answer, ‘I walk around a lot at work.’ So you almost have to take what they say with a grain of salt. It’s helpful to have somebody else from the family in there ….”

“I use the form on the EMR. It says, ‘Do you exercise?’ … There are options … sedentary, moderate, and [vigorous]. … Underneath that there are questions about what they do and then how many minutes per day and … how many days per week.”

“No, I don’t think I’ve used any of them.”

“I’ve found [questionnaires] helpful in terms of helping the patient actually set goals in terms of what they need to accomplish. … I’ll have them fill it out … either in the office so I can actually look at it or when they go home … Usually I tell them to pick one or two things as their focus for the next couple of weeks in terms of developing better habits ….”

“It would be helpful especially … if it was … able to generate particular goals or you could use it to generate a goal for a patient.”

“Just ask them: ‘How many days a week do you exercise; How many minutes a week; What intensity?’”

“If I had an hour to meet with them … it would be pretty useful, but when you’re trying to … see patients on a fifteen minute interval … you’d find that it would create a lot of dialogue you don’t have time to talk about. Kind of like obesity. … You just don’t have time to delve into the specifics of it in a fifteen minute visit.”

**INQUIRING ABOUT EXERCISE - FREQUENCY**

“On diabetic patients I inquire probably most of the time about what their exercise habits are. In non-diabetic patients … it’s infrequently … maybe one out of twenty or less.”

“Maybe 10% of the time, not often.”

“It’s part of the social history … when I do a regular general physical ….”
"At every physical and then anyone who comes to me for specific weight loss assistance and typically if anyone is noted to be overweight but more commonly in the obese BMI. Usually I will give them at least a brochure or something about weight loss which … includes exercise."

"[When discussing] diabetes, high cholesterol, those are going to be your other big ones, coronary artery disease, anything where lifestyle has really been shown to be helpful in treating the disease."

"It comes up more than you might think because I have an obesity discussion regularly. Probably four or five times a day people will say, ‘I can’t lose weight.’ And that’s when I kind of start … assessing their activity level; what they’re doing, what their barriers are to exercise, why they haven’t been doing it."

"Most people want a diet prescription and I prefer an activity prescription with that … I’ll … talk to them about what they’ve been doing, what their barriers to exercise are and then … see if I can get them to set a goal for at least starting exercise."

"Probably a quarter of them. That might be high."

"It’s embarrassing. Probably not enough now that I think about it … For it to come directly from me just asking without them prompting me at all; maybe thirty percent of the time if that …"

**TRACKING INFORMATION**

"I have a standardized note type that I use for all my visits. … Health maintenance and health promotion is usually the last problem in my assessment and plan. … I make notes to myself about where people are mentally with their health behaviors. … I always put in a little plan for what I’m going to do with them next time. I find it very useful then to go back, I do that with all the problems …"

"I usually record the number of days that they participate in physical activity and … how vigorous the activity is [and] … length of the activity."

"[No system in place to track activity over time]"

"I … record it in my progress note … that is the trigger for me to ask them next time. I will sometimes ask them to set a goal for exercise and if I do then I’ll write that in the progress note so I can follow-up on it at the next visit."

"It is goal based … typically … one or two goals. If they are able to follow through with those one or two goals then … I keep track of it obviously in the electronic medical records system."

"There’s not a way to look back (in our system) and say, ‘Hey, well in ‘96 you were sedentary. Now you’re … running in marathons, really cool.’ No, there’s not, unfortunately, in our system."
“On my physicals there’s actually a spot on our charting that allows you to put how much exercise, how many times a week, how many hours per day or minutes per day that they do it … If I’m doing counseling on weight loss … I actually have a part of my template again that says current exercise; how many days per week, what is it that they’re doing, et cetera. On the other things … it is not as structured …”

“If they say specifically I will just write … so many minutes per day so many days per week … you can’t really mine … information from it, it’s just from note to note that you can tell.”

“I just go back and look at my previous note.”

“People are not always aware of how often they are really doing something or for how long unless they do a journal of it or diary or something. … That’s probably the best way of doing it. Whether you measure frequency, heart rate, if they’re doing something [aerobic], duration. It’s probably the most accurate way of getting it.”

“They actually recording it and then bringing it in.”

“I … document it usually in their social history or in the subjective … I tell them I’d like to see an exercise journal along with their food journal. But I don’t often get it brought back.”

“Put it in the note … we talk about it the next time and compare it with what they were doing before.”

“I don’t have it built into my normal charting routine … If someone were coming to see me for weight loss or coming to see me to improve their general health it would be documented in the note. … I don’t have an area in my chart that is strictly … for that.”

“It would be incorporated in the past medical history part that pops up in every note that we do. … I would incorporate it into that. … You could change it every single time.”

3 – What DO YOU THINK is the best way to determine a patient’s level of interest in starting an exercise program?

INITIAL RESPONSE TO Q3

“The level of readiness for change; the stages of change. … if they’re precontemplative, contemplative, ready to act, actively acting … as I interview them [I] try to figure out … where they are in those boxes, and then try to use the … methods that I’ve learned over the years that are most effective for people who are precontemplative or contemplative for change.”

“Interviewing the person and sort of challenging them. … It’s useful to … not give a plan quickly, but to say, ‘If you’re ever interested in being healthier,’ or ‘If you’re ever interested in getting rid of some of these medications that you’re on,’ or ‘If you’d like to save some money on your health care expense, let me know.’ … It’s interesting because they say, ‘Well, I’m interested now,’ and I say, ‘No, if you’re ‘really’ ever interested, let me know.’ … It’s kind of
this ... way of ... piquing their interest, that I’m willing to spend time with them but not until they’re ready to make some changes. ... It usually leads into a discussion of what would be involved that they ... initiate and if they don’t initiate it then I just say, ‘Let me know.’ ... If they begin to initiate a discussion of, ‘What do you mean; What would be involved; How would you help me to get healthier?’ Then I’d say, ‘Well you’d have to do three things. You’d have to be willing to eat a little differently. You’d have to be able to be willing to do some form of aerobic exercise and some form of weight bearing exercise.’ ... I haven’t really incorporated stretching ... very consistently. ... I kind of leave it at that and I say, ‘When you’re willing to make those three changes come and see me.’”

“Simply inquiring and then using sort of a Likert scale about asking them how likely they feel they are to be able to accomplish what they plan to do ... have them set a goal that they think there is at least an 80% likelihood that they will be able to accomplish it.”

“I’ve never thought about that, to tell you the truth. I’d ask them particularly if it has to do with their particular condition like heart failure, diabetes ... weight loss or if they’re coming in for a physical where it directly pertains to what we’re talking about ....”

“Just asking them ... telling them the need for exercise based on ... what they’re involved in, for example diabetes. I’ll tell them what the risks are as a diabetic and how ... studies have been shown to improve morbidity and even mortality in patients that have ... disease processes like diabetes or heart problems and assess their willingness to participate in some type of exercise program after they understand ... the severity of their illness.”

“You kind of get a gestalt ... by just talking to the patient about whether that’s a road they want to go. You start talking about exercise and you start talking about outdoor activities. ... I ask questions about what they do as a family; What are their family traditions; What do they do, and especially if they’re younger I talk about the importance of establishing [healthy activities].”

“I use Utah as an excuse and I say, ‘You live in a place where there [are] a lot of outdoor activities. What kinds of things do you do? How do you take advantage of this state?’ ... implying. do you ski? Do you bike? Do you hike? Do you know about Escalante? ... Have you ever been south of Nephi? Have you been to Calf Creek Falls? ... ‘There’s a book called A Hundred Hikes With Children ... that I talk up a little bit for people who have younger kids. ... Try to float the idea that they should begin to do things as a family that are outdoor-oriented. ... If I float that trial balloon and ... they ... look like they want to put gas in their four-wheeler and watch a video, than I don’t go much farther. ... If that really kind of lights a spark in them, then I’ll start talking about more specific exercise recommendations. And then say, ‘Ok, well, that’s your goal; to climb Timp every year with your family; how are we going to get you there? ... Cause you’re not going to want to do it tomorrow or you’ll hurt yourself, so what do we want to do to get you so next summer you can climb Timp and not feel like you died?’”

“It’s different than asking what are you doing versus what are you willing or what are you hoping to do. ... The best way is just to talk to the patient. You can get a sense as you’ve gone along whether they’re just ... nodding to appease you or whether they’re actually motivated. ...
That may sound kind of strange and very non-objective but I … find that the easiest way is when you’re talking to them about it … just assess where they seem to be and their willingness.”

“Just asking them, are they interested … do they have goals … what are the goals and how likely are they [to] … exceed, succeed … If they think, ‘Well, not much,’ then it sounds like not much interest.”

“Anybody who comes in for a physical I ask about their exercise. … Anybody who is asking about obesity or diabetes or high cholesterol screening I ask them about their exercise. I try to ask most patients if they have risk factors that exercise could modify: What they’re doing; What their barriers are to doing more.”

“The best way is to just say, ‘Go do it,’ and see if they come back. … If they come back then they’re interested and if they don’t then it’s just one more thing they wish they could do. I don’t know how else to assess it.”

“It’s an education thing. They don’t know what to do. … That’s the biggest issue of weight and exercise … ‘What do I do?’”

“it’s a discussion. … ‘What are you doing to exercise?’ … Just asking. ‘Do you have interest in doing that?’ … What if we talk about a plan that’s specific for you, would it help you be motivated to do it?’ … I’ve actually had patients in those types of discussions say, ‘I know I should exercise but I just can’t right now.’ … You would get pretty honest answers just asking.”

STAGES OF CHANGE
“It has been an effective tool to help people realize that there is a next step that they need to take and move them along that path more quickly. … It’s been helpful to me emotionally as a physician … to realize that if I have someone who’s precontemplative, I’m not going to get them to a plan today. … You’ve got to get them to move along. … It’s helpful in keeping up the relationship, a therapeutic relationship, a respectful relationship, but it also helps them move along much more quickly than they would if I just didn’t pay attention to it or if I said, “Oh you ought to exercise, that’d be good for you.” It’s helpful to have some specific things to do to move them from where they’re at to the next step.”

“Yes, I have used it a little bit with smoking cessation. That’s probably been the biggest area where I’ve used it. … I have found it useful.”

“I use the principles there. I’m not sure that I would formally think about it or make an assessment of what level they’re at but I am familiar enough with it [that] I would probably use those principles. … If I can tell somebody is in the precontemplative stage the evidence there kind of shows that it’s probably not the right thing to counsel them on action … I’d find something that they are ready to do. … Then I would try to set an appropriate goal for them and basically kind of meet them where they’re at.”

“If the stages of change are useful then I certainly would maybe incorporate it … In reference to exercise specifically, I haven’t used anything like that before.”
“Consciously … how often do I look at someone and say, ‘They’re pre-contemplative?’ I would say never. Practically, on a subconscious level … I use that. … That’s what I mean by kind of the gestalt … When you’re talking to them and if you can tell they’re kind of looking at their watch and … thinking, ‘Ok, I just came in here to get my cholesterol, and now this guy’s talking to me about climbing Timp. I don’t know why I’m here.’ Then, that’s … not even in the ballpark, precontemplator. … If you catch that spark but you also look at them and you go, ‘There’s no way you’ve exercised in the last six months.’ Well, maybe they’re in a place where … you could start … going on if you can get the right idea in. … Everybody comes in wanting to lose weight. That’s their focus. … I try to switch that focus and say, ‘I don’t care what you weigh. What I care is that in a year from now you tell me, ‘Yeah, you remember last year we talked about something and boy we … did Little Wild Horse Canyon. It was great, and we had a good time. … We hiked all day long in Goblin Valley and it was a good time.’ … And then, ‘By the way, I think I’m down five pounds and I didn’t really notice that.’ That’s the kind of … weight loss and lifestyle modification that I try to push.”

“When I help them set goals, if I sense that they’re not really interested … I say ‘Well can you at least spend 5 minutes walking’ … something very small to make a small change. … They’re at that precontemplative stage.”

“… In terms of it just being in the back of my mind, yes. … In terms of actually teaching … in terms of counseling change or helping behavior change in patients, I am not formal in doing that.”

“More than anything it gives … perspective to the patient. So really, what do they really want to do? What is it going to take for them to … get it?”

“That’s basically what I’m doing when I ask them, ‘What are you doing? How interested are you in exercise? Are you willing to make a change? Where are you? Have you thought about exercising more?’ … Like with smoking or quitting drinking … that same principle can be used with exercise and activity. … It works well. … If they’re not motivated to exercise. … I just have to … plant the seed instead of coming up with a prescription. … if they’re really wanting to exercise but aren’t sure what to do then I can move forward with making some recommendations.”

“It’s absolutely important to know where they’re at …”

“For me as a physician to sit there and try to assess someone’s readiness … it becomes a psychological issue … that takes forever. … It’s like trying to decide … who’s ready to start eating better and not be overweight. … Most of the time, the least important aspect of exercise and health is the … twenty minutes I spend with the doctor. … Once I walk out of there it’s back to my life and unless I have someone I can regularly see and report to … I don’t think any physician is, from a business perspective … the right person.”
“Not where I actually would physically document … ‘You are in the precontemplative state.’ … We all do that in various facets of medicine. … It’s why when you first diagnose someone with diabetes you have them come back several times . . .”

“If … you used that type of a model, [the stages of change], you’re going to have more success with your patients in making the changes that you are hoping that they’ll make. … The best way to use it in my mind would be to structure your visits so that you’re taking that into account; that they’re going to go through those various stages. … Take those stages into account and maybe, especially in relation to … exercise, set goals that would go along with that.”

PERCENTAGE INTEREST IN EXERCISE
“Probably eighty percent are interested. … In my practice I get about twenty-five percent achieving their exercise and health goals. … The other fifty-five percent of that eighty percent are just sort of moving. … They attempt it for a very brief period of time and then it’s just too hard for them or they haven’t found the proper motivation so they fall back. … There’s a much smaller segment that’s thinking about trying maybe … ten percent . . .”

“The majority of patients are interested in exercise, but it is not very many that will follow through and do it. They express an interest and a desire but their commitment is small.”

“It depends on what you mean by interested. How many recognize they should; probably the vast majority. How many people are really motivated to do it; the minority.”

“The number is different up front verses in real life. … In front of me … a large majority are interested. When they come back to me even after having only been given one or two goals very infrequently do they fulfill those goals. … I celebrate with patients much less often than I chastise them . . . It’s a friendly chastisement.”

“Up front their interest is pretty high but … patients are less [desirous] to change their lifestyle habits when they go home because of it being the same atmosphere that they just left. It’s hard to escape that atmosphere without any significant uprooting of … previous lifestyle.”

“Most of them actually. Most of them usually say, ‘Yeah, I know and I should do that.’ … I don’t know if you count that as interest. … That’s not really interest to action necessarily. … I rarely have ever had anyone say, ‘Oh really, I should do that, or exercise for this disease?’ … I’ve not heard anyone ever say … ‘Oh no, I’m not going to ever exercise.’ … Whether they actually go out and do it afterwards is a different question. … All of them recognize at some level that, yes, this is something they should be doing … whether it’s interest to action or interest just to think about it [is the question].”

“Maybe 50%; maybe half again, 25% total or 50% of those, [actually do it].”

“The majority … 75-80% would be. … Some people can’t exercise because … their knees won’t let them, or their back. … Most people who can … are interested, it’s just more motivation and to come up with a plan that they can actually accomplish.”
“Most patients would say they’re interested but whether they would actually act on it …
Probably eighty to ninety percent of patients would, on initial questioning, say they would be
interested in doing it … I bet twenty-five percent would follow through, if that … Maybe fifty
percent would do it for two weeks … ten percent for a year …”

4 – What DO YOU THINK is the best way to discuss or promote exercise during routine
health maintenance visits?

INITIAL RESPONSE TO Q4

“Look for that thing that they care about … Sometimes they’ll have knee pain; and that will be
the thing they care about the most. I as a physician might be more concerned about their blood
sugar of 250 and their blood pressure of 220/110. … If they don’t care about those things but
they do care about the knee pain, then that’s something that I can use to find some motivation.”

“Identify that (motivation) and then say, ‘How would you like to make that better … a lot better
for a long time. Instead of just having a cover-up medication.’ … Asking … questions that are
both … helping me to assess whether this person is ready to change [and] … what motivations
they might have.”

“The most important thing … for success, long term success is … finding and maintain[ing]
that motivation. … It’s so different for different people. … Some people could be really
motivated if somebody would promise to give them money if they did something. Others would
be motivated if they were in a public environment such as the Biggest Loser or something like
that. Others … need to make a bet with a friend. Others have something coming up … a high
school reunion or a cruise … Any time that you’re thinking about getting into a bathing suit in
front of other humans … you think about whether you should be in better shape. … I find people
don’t often think about exercise when they have health concerns. They think about shutting it
down. … Most of my time in an interview with a patient is finding and maintaining that
motivation.”

“Usually, I just ask as part of their social history, Do they exercise regularly; and What do they
do and how often.”

“Just discuss it with patients. I don’t know what the evidence would say the best way is, but I
know that if they hear it from their physician they are more likely … to do something about it
than if they hear it from other sources.”

“Anytime I see somebody for a health maintenance exam we do talk about exercise and diet
both. … If they have an illness … where exercise is going to be an important part of their therapy
then we would discuss it. … Things like heart failure [and] diabetes are two big ones that would
come to mind or weight loss in general.”

“I try to make it important for them and then … try and sell them on it a little bit. … The best
way to discuss it … is just using a disease process model and … to help them through that
disease process.”
“Just bring it up. . . . My medical assistant actually fills out the physical form on the history on the computer. So it’s already in there . . . . I already know whether they’re exercising or not exercising so I will review that with them. . . . I just . . . encourage them to continue with what they’re doing, or as I am doing various parts of the exam . . . [I] bring up other health maintenance things, including exercise, and how they can incorporate that better into their lives.”

“You . . . have to tailor it to what the patients want. . . . You can rattle off benefits and studies and information and things like that about how exercise is going to help them, but . . . finding out what they want out of life and letting them know how exercise can help out in that is probably, realistically, what’s going to be more helpful for them to change.”

“Getting to know what their interests are, their goals, if . . . they have kids, grandkids; Where they would like to see themselves in five or ten years. What they have as far as hobbies and then suggesting . . . that exercise can help them do the things that they want to and keep them around to do those things that they want to . . . . To see . . . their grandkids get married, or whatever [just find what the root of their motivation is, what they want].”

“First assess their activity. If they’re not doing any then I try to encourage them to do some, and ask if they would like some help coming up with a plan. . . . Most people who were former athletes or people who have exercised before and aren’t exercising are afraid of the pain of exercising and so I try to talk people into doing something that doesn’t hurt, doing something short and easy and quitting while they still feel good, and making a commitment to do that regularly before we advance. And then once they’ve done that for three or four weeks I increase intensity or duration by about 10% a week. That’s . . . how I start.”

“It’s an important question to ask . . . what the patient’s understanding of their situation is? . . . With exercise, either I do or I don’t. . . . As a physician . . . I don’t think you really have time to get into, is it a good functional exercise program for them, is it something that matches what their needs are, what their goals are, what they want to get out of it. Unless you make yourself a specialty clinic and you figure out a way to bill for all of that, you’d go broke dealing with that on a regular basis.”

“Just ask them what they’re doing . . . seeing if it matches what they’re talking to me about. . . . If someone wants to lose eighty pounds and they’re excited about exercising twice a week for twenty minutes then I try to help them understand that that doesn’t match up with the needs that they have right now. It’s good for them but their interpretation of what their needs are needs to be a little different.”

“First of all bring it up at all . . . . It’s important as physicians that we tell our patients . . . . things that will benefit their health. Eating right, exercising, not smoking. . . . We do a Pap smear to help . . . diagnose cervical cancer at an early stage, we have them get their mammogram. If we could approach it in that same way, ‘Another thing you could do to help prevent you from getting heart disease and diabetes and . . . things like that is exercise.’ . . . Approach it in that same preventative vein.”
PATIENT CHARACTERISTICS

“If a patient appeared healthy and trim and fit with a low body fat percentage, I would probably throw out a statement like, ‘You look trim and fit. I bet you exercise.’ And that’s about all I would spend on it.”

“The patient who comes in with a lot of problems on their list of things that they want to talk about, I probably spend less time with. If there’s a hyper-talkative patient probably less likely, I mean I would tell myself, ‘No, I still work with those people.’ But I’m probably less likely to spend the proper amount of time with them.”

“Diabetics…. The other group where I tend to do that is with those that are obese or overweight; particularly with kids and parents of kids.”

“You can look at the patient and tailor what you’re going to say to them. For instance some patients you can tell are not going to be able to do as much exercise as other patients. … I would like to think that when I talk to them about exercise I wouldn’t exclude some patients from some kind of activity counseling based on some characteristic. I may modify what I tell them so that it’s appropriate.”

“Yes, there are. There are some patients that are more willing to change and others that are less willing to change. There are patients that are much more adamant about their personal lifestyles. I am sure you have had instances where you’ve … told somebody that smoking is bad for them and they say, ‘Well, I’ve been doing it this long, I’m not going to stop now.’ Versus … some that say, ‘Yeah, I know it’s bad, but you know I just have a hard time stopping.’ It’s easier obviously to talk to people that are more willing to be open to the new ideas and are interested in new ideas. … It tends to be people that are more open to improving themselves or improving who they are.”

“People who are overweight, [have] high blood pressure … [or] sleep apnea. I start to talk about, ‘Hey, you’ve got some medical conditions here that … we could really modify if we could get you to lose … even ten pounds; things would be better.’ … The other people that I hit a lot are people who are in shape. … Late twenty something, they’re doing ok, and then I give them a warning and I grab my belly and show that I’m fat and say, ‘Look, this will happen to you … you [have] got to start doing stuff now … you’ve got to start creating traditions now with you and your wife, and you and your wife and your kids so that that’s just something you do. When you get a Saturday off, your family tradition isn’t … to drink beer and eat chaps, it’s to do something.’ It’s … ‘Hey, let’s go to Silver Lake; let’s do this; let’s do that.’”

“Those that are obviously struggling with weight or other health concerns, I am more likely to bring that up than in someone who is very thin … or who doesn’t have any health problems. … It’s incorrect to assume those who are thin are actually exercising, but in terms of the medical benefits that I hope to gain from patients exercising I take the higher priority of those who are actually overweight, obese, diabetic, or hypertensive, or have coronary artery disease, or other things that would actually help them.”
“Sometimes it’s harder to want to advise them on things if they seem standoffish or reluctant to accept anything you are saying in general. . . . Their open-mindedness.”

“More likely people who ask about weight loss, people who have high blood pressure, or people who have metabolic syndrome, more active, more likely to do it . . . . If somebody comes in for just a physical and general and wants to know how they can improve their health then I’ll . . . push towards exercise.”

“Anybody that’s overweight I’ll at least usually try to . . . that’s not true. I won’t ask sometimes because I don’t have the time. I’m a lot more interested in it in someone who’s overweight . . . . If someone comes in who seems to be an average size, I’d be a lot less likely to bring it up or discuss it.”

“The patient saying . . . ’I’m trying to get healthier.’ . . . ’I’m here for my physical. I haven’t come for eight years. I’m trying to take steps to improve my health, can you help me.’ . . . ’I want to . . . have a healthy pregnancy.’ . . . If the patient initiates a discussion about being more healthy or weight loss or, ‘My dad has diabetes, I don’t want to get it. What [cau] I do?’ . . . That should be a part of my routine physical . . . that I would say that in the same vein as I say, ‘We’re going to do a Pap smear today. You’re over fifty, you need a mammogram; You need a colonoscopy; and You need a prescription for exercise.’ But I don’t do that right now as much as I should . . . . We should though.”

5 – Regarding weekly exercise goals, what DO YOU THINK should be recommended to patients?

**INITIAL RESPONSE TO Q5**

“Well, that’s a challenging question. . . . What needs to be recommended is what is . . . possible and what they will be willing to do.”

“What I am trying to get them up to eventually is at least thirty minutes three times a week of aerobic exercise and some sort of weight bearing exercise . . . . If we’ve got those things in place . . . then I’ll talk about stretching . . . . Once I get them to that level I’m not trying to get them to go to five times a week or seven times a week.”

“If you can get somebody into a lifestyle of exercise . . . it just sort of takes off.”

“I usually have the patient set their goal of what they can do and then start there.”

“I will talk to them about cardiovascular conditioning . . . muscle tone and strengthening and also about flexibility training.”

“For the general public, the guidelines that are based as a minimum for physical activity that the CDC put out I believe . . . was thirty minutes a day, 5 days a week, of moderate intensity exercise; which just means . . . a three and a half mile an hour walk, thirty minutes a day five days
a week. ... Three days out of the week it’s recommended that they do some type of strength training.”

“For weight loss ... you’ve got to be doing it five to six days a week. ... To get adequate weight loss it’s got to be five to six days a week, an hour a day. ... It’s got to be significant.”

“Your goal has got to be to do it pretty much every day ... if you’re religious maybe that’s six days a week. ... It’s got to be every day. You’ve got to do something every day. ... That’s good for health and for weight loss but particularly for weight loss. ... If people target once a day, then it becomes a habit and it’s just something they do, it’s part of who they are. ... If they target two to three times a week, or three to four times a week then it’s a chore that they’ve got to get in. They’ve got to punch their ticket and then they can enjoy their life.”

“[It] mostly depends on what they’ve been doing. If they’ve been doing nothing then I don’t want to suggest that they exercise an hour a day five days a week. ... That’s an unrealistic goal initially. ... If they haven’t been doing anything just twenty minutes a day three times a [week] is a good place to start.”

“Walking or whatever their fitness level can tolerate and then ... build it up from there. ... It’s quite variable depending on where the patient is at initially.”

“I like to be somewhat realistic. ... Someone that hasn’t been exercising throughout their life, doesn’t consider that it’s something that’s their hobby, suggesting that they exercise ... at least moderate intensity an hour a day five days a week ... is unrealistic and may be overwhelming to the patient. I don’t want to overwhelm them ... even if they have [a] little improvement in what their activity level is ... that’s some success. As opposed to telling them they need to get to this high level and then them being discouraged and saying that’s not me, I can’t do that. ... Steps at a time.”

“It ought to be recommended in stages. ... For someone who hasn’t done anything I usually tell them to start ... two to three days a week. ... For someone who is doing something and it’s not working for them then ... moving to that next stage ... has to be done.”

“If someone’s working out three days a week I’m excited for them because that’s kind of the exception. ... For a routine recommendation ... the reality is [that] three days a week for most people is more than they’re doing and probably is not too bad.”

**INTENSITY / DURATION / FREQUENCY**

“Vigorously enough that it increases their heart rate into a training range of typically 120-130 beats per minute for most people.”

“I don’t think that it is appropriate to discuss goals in terms of distances of running or walking or biking but rather the time that they spend doing it.”...

“At least 3-4 days per week and preferably 5-6.”
“Usually I encourage 30 minutes of vigorous activity.”

“I tell them that they should exercise enough that it may make them a little breathless but not so much that they can’t talk or carry on a conversation.”

“I may discuss specific kinds of activities for example someone with osteoarthritis or obesity I may recommend low-impact types of activity, aerobic activity, rather than higher impact like jogging or running.”

“I would like to just keep it simple. … ‘Exercise at least 30 minutes a day more days out of the week than not.’ … [Ideally] 4, 5, 6 days a week depending on what they’re able to do.”

“For weight loss it needs to be an hour [6 or more days a week]. For fitness … enough so that you get a little sweaty and you’ve got to take a shower. Most people aren’t going to monitor their heart rate … any metric isn’t going to be useful except time and how sweaty they get …”

“If they’re doing nothing I will start [with] … ‘Can you at least do 5 minutes a couple times a week?’ … The end goal should really be thirty to sixty minutes most days of the week of moderate exercise. … Walking … fifteen to twenty minute miles or that type of thing.”

“Cardiovascular exercise … three to four times a week, a half hour at a time, at least moderate intensity … is a great goal.”

“Moderate exercise at least 45 minutes to an hour most days a week, meaning 5-7 days.”

“What I’d like them to do is an hour a day five days a week, but … the recommendation would be thirty minutes a day for three days a week.”

“There are very different goals. … It somewhat should be individualized for the patient in particular. … As I look at my own very busy life … and try to figure out what’s reasonable … I try to tell people … a minimum of three days a week; I would prefer four, of course I would prefer six. … I tell them that so they don’t think they only have to do three but a minimum of three to four days a week, thirty to sixty minutes.”

“Super individualized. … If people do a brisk walk that’s going to be helpful. I really promote swimming. … It’s great and good on your joints. … The goal would be to work up … to increase your intensity.”

6 – What strategies DO YOU THINK are helpful for engaging patients to be more active participants in their own care planning and administration?

INITIAL RESPONSE TO Q6

“It’s very important … to make certain that they understand that the ball is in their court; that they have choices that they can make. … It’s important to give them options … real world options, between exercising and not exercising and what the outcomes of that will be.”
"I remember just talking to my dad forever about his blood sugars and, 'Boy you got to get those under control,' and all the different things that could happen to him. ... Then one day, he had a physician say to him, just in a very brief encounter, seven minutes ... 'You know X, you could be dead in five years or you could live another fifteen and have pretty good health. It's up to you. ... If you don't make a change you're going to be dead in five years.' ... If you pushed that physician and [said], 'What data do you have that says I'm going to be dead in five years,' ... he would have found that hard to come up with a good defense possibly. But it was a very powerful statement to my father and ... it was as if he had heard it for the very first time. 'Really ... my mortality or my lifestyle or something about that might be at risk?' ... That was something that changed him ... I do find it useful to try to make a brief comment like that. ... It's very useful always to say, 'I'm your physician. I recommend this. If you don't do this, this is what's going to happen.' ... Also, 'How would you like to make that thing you're suffering with better?'

"The strategy that I have used ... has been [to] ... give them a menu of various things that they may want to choose, of which exercise is one of the menu items. Other [options] might be diet or medications ... If they choose exercise, then I usually have tried to ask them to set their own goal."

"It is variable from patient to patient ... in general ... most patients are engaged in their care, but commitment to follow through on the engagement is always the weakest area."

"Start slow and let them see success, and then follow-up on it. I would rather that they start, even if it's doing a minimal amount, than that they sit and worry about getting to the goal of say 30 minutes a day. If they can do something then we build on that success."

"Compliance is essentially based upon ... [the patient's] own personal investment in the treatment. ... Unfortunately, I tend to use more ... strategies that are based on fear and threatening, in a kind ... passive sort of way. ... [Strategies] based around fear of falling into some type of disease process or disease morbidity. ... I tell them, 'Physical inactivity causes this or ... has the same physiologic equivalent as this ... On the other side you certainly have better options if you just at least do thirty minutes minimum per day.' ... I try to break it down for them; even if they do ten minutes at a time it's still been shown to be as useful."

"Scaring them a little bit is good. ... With diabetes ... you talk about the way that you die from diabetes and how it's not a sudden death, it's a slow, bit by bit, cut off your feet, kind of thing and dialysis. ... Painting a negative picture ..."

"I get more mileage out of trying to get people to catch the vision that ... there's a healthier way to live ... that if they can get out and enjoy the outdoors that they can happier. ... I try to sell the positive aspects of health. That being healthy leads to ... being happier."

"I tell them that it's their responsibility. ... I'm there to counsel but it's ultimately their decision on what they need to do. ... Making sure that they feel empowered to actually make ... changes ... in their health ... is important."
“Even if they’re being seen for another reason, I comment … ‘Oh look, it looks like you’ve lost a lot of weight,’ or mention, ‘So how’s that exercise going?’”

“I actually say as they’re setting the goal, ‘I’m writing this in your chart so that way you know you have some external accountability for it.’ … Believe it or not that works, a lot of patients come back and [say], ‘You know, I did my goal. I remembered you were going to ask me about it.’”

“It’s helping them figure out what they can and would like to do. … Finding out what they are more likely to do and then helping them come up with a goal themselves.”

“Just asking them … ‘What can you do; What do you think would benefit your health … What are you willing to work on this time?’”

“Setting goals with them … getting them to commit to something that they feel can benefit their health and that they’re interested in doing, and then helping them set a goal and then plan follow-up.”

“Help them understand that different disease states go together like diabetes and blood pressure and cholesterol and the sum effects of that. … Further down the road … this is what will happen. … that’s the biggest thing that’s related to exercise … the big four: obesity, blood pressure, cholesterol, and diabetes.”

“By them making the choice … they’re going to be more likely to follow through. … My job as a physician is to guide them to make a choice that’s … not going to be detrimental and that’s going to help them.”

WRITTEN INSTRUCTIONS

“All the time, one-hundred percent of the time. They’re handwritten instructions. … I would like to actually have a structured tool [for exercise prescription]. I haven’t taken the time to develop one. … I want it to be very specific: ‘This is what we agreed you could do; This is what you will do; and I want you to come back and do it.’ … I’ve … found it useful to hand write it.”

“It is not the majority of times but sometimes I will write on a prescription pad specific kinds of instructions … maybe once a day or two or three times a week … [With regard to exercise], I sometimes do.”

“It is infrequent that I [provide a patient a specific exercise prescription]. In terms of how often, probably … a couple of times a month.”

“Pretty infrequently.”

“[Written instructions] would be very useful. … I [just] don’t have them conveniently there to give the patient.”
“50% of the time. … A lot of the time patients will … ask about weight loss and exercise at the end of a visit and so I’m not as good about … putting things together for them. I have pre-written stuff that if I knew ahead of time I’d just bring that with me and give it to them. … [The instructions include] a sheet of my own … [that] lists the guidelines [and] the amount of calories that you burn based on certain activities … [and also] references for different web sites that they can go to. … I’ll get that out maybe 50% of the time.”

“There [are] a bunch of handouts within [our EMR] that we routinely use … I … cycle through favorite books that I recommend. For weight loss … there’s a book called Volumetrics, by Rolls … also, Mindless Eating … . I like to point out books that don’t sell things … that are more common sense, evidence-based approaches … .”

“Usually not [a written prescription], just the conversation in general.”

“We don’t have script pads any more. … In the past you’d write … ‘Exercise three to four times [weekly]’ and hand it to them in some kind of ritual. … If I open up my medication module in my EMR I can’t write exercise and it comes up with a blank template and I fill it in. … I guess we could create something like that as a document, but we haven’t.”

“All the time. … Not every patient, but frequently. … [Patients] only gather about maybe half of what you actually say. … Even when I provide written instructions I still have people call back and have questions … even though I have written it all down. … I use a lot of handouts, so I’m including that into written instructions.”

“Something written is probably more helpful because it’s something physical that they can look at … they can think back to the conversation and maybe they get a little foggy on the details or want to change the details themselves. … Having it written down … is helpful.”

“Not very often, maybe 10% of the time. I more just kind of put the plan like, ‘You’re going to do 10 minutes of exercise … 6 days a week. … Stop before you breathe hard. … Just … get in that habit … until you’ve done it every day … . Then we’ll … bump it up from there.’”

“Half the time maybe.”

“I use written material. Our EMR has patient education that we can just print out on various topics that we’ll give patients a lot. We’ve used some brochures … I write a lot too. … All my well childs [receive a handout] … half the time my prenatal do, most of my physicals do [also].”

“[Patients] like [written instructions]. ‘Aren’t you going to write that down?’ … they’ll say. … It just helps if it’s something they can stick on their fridge or wherever.”

“Not very much. … We talk about it … .”

ABILITY
“I would not say that I’m very comfortable or confident in being able to provide an exercise prescription that meets the standards of any given organization, but, I feel very comfortable and very confident with providing an exercise prescription that meets the specific needs of the patient.”

“I certainly would like to be more comfortable with [providing a patient specific exercise prescription] … I am fairly comfortable in doing that. … Greater knowledge of some of the alternatives they might have in activity and better knowledge of training schedules about how they can increase and improve their levels of activity and fitness [would improve my confidence].”

“Moderately.”

“Very comfortable.”

“I am comfortable. … I am deficient in … my sales tactics and understanding how to work them through those different levels of readiness for change and things like that.”

“I’m very comfortable. … It’s something that I do a lot. … Because of my history, my experience exercising myself and training people … I feel like it is something that I can do.”

“If I wanted to be successful as a physician getting people to exercise I’d have to have [someone I could send them to] … to pay money out of their pocket to go see and come up with an exercise situation that would fit them.”

“My comfort level would be there [for exercise prescription]. My time to do it … would be the issue, [could] I find a way to make it time effective?”

STANDARDIZED FRAMEWORK
“[A standardized framework is important] for efficiency. … It takes a long time to do this right [from scratch]. … It’s so important when you find somebody … who really needs this … type of work to be able to spend the appropriate amount of time with it. … I personally can’t do it in five or seven minutes. … There are physicians who are better than I am at … actually getting the point across and getting a prescription out in a shorter amount of time.”

“The area that I’ve been weak on is follow-up. Without a specific system in place it is hard to track and follow-up.”

“The biggest thing is that it just hasn’t been part of my routine and so it’s just something I need to do more. … I have a fair understanding of it; I just haven’t incorporated it in a formal way into what I do with patients. Mine’s much more kind of informal counseling than a formal exercise prescription. … [A standardized framework would be helpful].”

 “[A standardized framework would probably be useful]. The question is, would we remember to use it consistently? … Our EMR is extremely robust and we don’t use all the features that it has.
... Part of me would be nervous that I would forget that it’s there. The trick is to remind yourself to use it.”

“Starting at a basic level and then [moving] in ... a natural progression as far as intensity, duration, [and] frequency. ... It would definitely have to cater to a whole variety of patients and activity levels and fitness levels.”

“I don’t have anything standardized. ... The usefulness of it would depend on the follow-up, the ability to follow-up with it. ... Most of that would depend on someone besides the physician.”

“[A standardized framework] would be really helpful, because that’s how my well-childs are ... we have the paper that’s printed out for the two months, four months, six months; it already has basic info on it. ... I can add anything and just hand it to them and so if I had that ... then of course I’m going to talk about [exercise]. ...”

KNOWLDEGE BASE
“Self-study during residency mostly ... . They didn’t teach that in residency, it was more self-driven.”

“Personal experience just from exercising.”

“I did take ... an exercise physiology class in college.”

“Reading ... continuing education [materials] and ... various journals or other things of that nature.”

“I don’t really remember anything formal in any of my medical school training.”

“I ran in college and high school so I had lots of coaches talk about training and advancing your ... fitness level ...”

“I’ve read about it.”

“I’ve coached in general ... people who are training for marathons and things like that.”

“I worked in a running shoe store for five years before medical school so I talked a lot about fitness and running and training ...”

“It’s mostly just been stuff that I’ve done on my own. I don’t think I was specifically trained very well for exercise counseling.”

“Physicians have to do it too, in order to believe in it. I don’t think you can not exercise and then preach it. You have to ... be committed to that too, to maintain your own health and ... then you’re better able to share that.”
7 – What DO YOU THINK are the most common barriers to regular exercise participation among your patients?

INITIAL RESPONSE TO Q7

“Inertia is probably number one. … The mental constructs that they’ve built in their mind about why they can’t exercise are really important to identify and take down.”

“Having a specific plan that’s more than … ‘Go jog for thirty minutes.’ It has to be: ‘Where are you going to jog? What are you going to wear when you jog? How are you going to entertain yourself when you jog? Who are you going to go with when you jog? When are you going to do it?’ … I have not found it to be sufficient for me to say, ‘You need to run thirty minutes three times a week.’ That’s been useless. … It will take patients time to get those things in place. … [It takes] time to get to Wal-Mart to buy shorts and a jog bra … time to figure out how to get an iPod, how iTunes works, how to get the music on there … I use frequent brief visits to follow-up with next steps. … If this person has never done anything before, my next visit will be, ‘I want you to go and I want you to buy a set of clothes, and I want you to get an iPod or an MP3 player, and I want you to come back in a week and tell me that you’ve done it.’ … I find that much more useful … People come back … it’s nice because they go home and they don’t have to sweat. But, they’ve taken some form of little step that says, ‘I am committed to this.’ ‘Ok, now that you’re committed to it, let’s take the next step.’”

“The biggest barrier is their commitment to do it. They all think it is a good idea. They all say, ‘I don’t want to take the cholesterol medicine. Give me three months and I’ll watch my diet and I’ll exercise more.’ But, three months later their cholesterol is essentially the same. They have a desire but they fail many times on follow through.”

“Competing demands on their time.”

“What they will tell me is that it’s time. What … it really is: They just don’t enjoy it, so they don’t make time.”

“Lifestyle … there are a lot of … points to their lifestyle that are … troublesome for changing and using exercise. … The things that make it harder for them to change are … what they’re used to … where they grew up, what their parents were like … the types of lifestyle changes that their parents instilled in them; the food they have in their cupboard … the activities that their kids are involved in; their understanding or knowledge of the importance of exercise.”

“My more knowledgeable patients tend to be better exercisers than my patients that are less aware of themselves and … who they are in society. … I feel like people that probably have a better social IQ are people that are better exercisers.”

“Cultural; there [are] some cultural issues … Obesity in the United States has increased dramatically … Why are we becoming more sedentary? Why as a nation do we not get out more? … With kids … [there’s] this kind of paranoia about bad thing happening to them [that] is affecting our ability to let them go play outside unsupervised … We tend to structure their lives a lot more which even taking soccer and all that stuff into account … means they exercise less.
... They’re not riding down to Brookside to buy this, or riding up to their friend’s house, or just disappearing ... When I was a kid we’d just get on our bikes and ride across town to so and so’s house and our parents didn’t know where we were. ... I’d have a hard time right now as a parent letting my kid just take off for two or three miles in one direction and then cross my fingers and hope they come back. That’s probably paranoid on my part. ... There’s some media paranoia that’s created ... a different parent-child culture ...”

“As far as adults go ... there’s a lot more available that keeps us in the house. It’s unusual for people just to go for walks ... or bike rides now. We’re changing on how we socialize. I don’t want to blame everything on Facebook or the internet but that does affect things. ... I don’t even have to go down to Blockbuster anymore. ... I have an Apple TV at home and a Roku box and I can rent stuff on Netflix ... without getting off the couch. ... In a lot of ways, just our culture is becoming more sedentary and I’m not sure how to fight that other than to emphasize ... the outdoor experience that we have available in Utah. ... It would be much harder in ... Atlanta or something.”

“Time, number one. ... All it comes down to is that ... Some of my patients ... I’m not sure [when] they would exercise. ... Time is the ... biggest thing.”

“If you take time and say that someone can always make time, then I guess you’d have to say desire. ... If you really desire it then you would be able to find the time.”

“Exercise is hard ... it’s work ...”

“[People] don’t enjoy it ... those who do, do it.”

“A lot of people feel they don’t have time ... That’s a prioritization thing ... really.”

“Access, especially in the winter months. Especially if it’s ... an older person, they don’t want to go out walking in the cold or the ice.”

“The most common barrier I hear is time ... they just have a hard time prioritizing it into their life ...”

“Motivation. They say, ‘Oh ... I’m not motivated enough to do it.’”

“The ... barrier they don’t recognize is that when they start a program they try too hard and ... workout to the point of nausea, and delayed muscle soreness ... Then they ... can’t go back out and do it and so it never becomes a habit.”

“Prioritization; I just say, ‘You have to do it; You’ve got to find time to fit it in.’ ... It doesn’t have to be hours ... I start them with ... shorter time commitments and then try to find a way to make it a habit so that the rationalization isn’t part of the equation anymore.”

“Education is a big one. ... Not really knowing what to do ...”
“[Lacking] the desire to go workout.”

“Time is huge.”

“I don’t think desire. … Most people want to, at least they say they want to.”

“Access … They have to go somewhere ….”

“The time, the desire, and the hardness of it.”

8 – What DO YOU THINK physicians can do to assist patients in identifying ways to overcome these specific barriers?

INITIAL RESPONSE TO Q8

“Physicians need to be aware of what the barriers are … what the real-world reasons are that people don’t exercise.”

“Physicians … need to set up in their practices means to get this done outside of that seven minute practice [visit] … If I had my own practice with a bunch of other guys and we had somehow found a way to find a nurse educator … I would definitely try to give that person skills that I have developed, and send them off to education and say, ‘Look, we’re going to have everybody who is overweight come to you and … these are the steps that you’re going to go through.’ … If you’re going to get up … anywhere near to ninety percent of your patients having this type of experience in a clinic, you have to provide that type of outside the physician interaction experience … I would want my entire clinic to … offer that to everybody that came through the door. … I’d probably be more effective to put that in somebody else’s hands than to try to train my partners.”

“It’s useful for physicians to understand what the real-world issues are and … to try to become experts. … I feel actually that I am an expert at this even though I may not be a world-class expert. … For the patients that I serve, it’s something that I’m good at and I have a lot of success with.”

“As physicians … we tend to take the easy way out and it is much easier to prescribe a pill than it is to work on motivating a patient to make basic changes in their lifestyle.”

“Greater knowledge of behavioral modification, motivational interviewing techniques, probably is the thing that would be most helpful to us generally as physicians and me specifically in getting patients to follow through.”

“A system in place to make sure that I have a means of following-up on whether they are achieving the goals that they have set.”

“Ask them … ‘What makes it hard for you to exercise?’ and then listen.”
“I try to be very specific. ... I give them three things specifically to do and that they’re really simple to do. ... When I’m giving patients exercise prescriptions, I have to be very, very specific and then make it goal-oriented. That I want to see them in 2 months and I want them to have done this ... a certain amount of time, or to have lost ... 5% or 10% of their weight by that time. ... Make it goal-based ... that’s where patients tend to be a little bit more invested ... If they recognize, ‘Ok, all I have to do is do this over the next two months and then report back,’ I tend not to offer rewards or anything like that. I know that’s an option and that’s been done but I feel like patients should be rewarded based on how they’re improving themselves and avoiding problems in the future.”

“Unfortunately ... it requires time to ask them questions about their lives. ... We don’t get reimbursed for that. ... We’d have to create an incentive for us to get reimbursed for that. ... I hate to say that but ... that’s probably in the real world what will have to happen. ... There’ll have to be something set up so that having an exercise consultation would be a reimbursed event. ... I don’t think that it is right now.”

“I can do a well-child exam really quick ... you just do a basic physical exam and, ‘You got any concerns about your kid?’ ‘No.’ You kind of look at him and he’s kind of fit. You shrug your shoulders and say, ‘Well, he’ll come in with his ... seventh grade shots. See you later.’ You can do that in five minutes. Or you can sit down for a half an hour and gently probe about what kind of exercise the kid’s engaging in and are other kids teasing him. ... If you know them really well ... get into it with the parents about, ‘What can you do to get Bobby to get off his butt?’ ... In the mean time I could have seen four or five other people with strep throats and made a whole lot of money. ... That’s part of the problem ... reimbursement ....”

“I will actually sit down ... so we actually [brainstorm] .... We actually [sit] down and [figure out solutions]!”

“That sort of thing is very time intensive. ... Handouts that a patient can look at on their own is going to be more effective for the patient and ... also the doctor. Sitting and spending your time brainstorming with the patient: Where are they going to exercise and when; how can they organize it with child care and so forth? ... I don’t see a lot of doctors doing that to be honest.”

“If you can overcome the thought that exercise is painful, it’s something that takes a lot of time, and that it’s something that can’t be maintained ... [or] is difficult to maintain; then you can help patients to recognize, ‘Oh yea ... I can incorporate this into my life.’ ... A lot of times it works. ... I know that it works because I’ve seen it work in my practice, with the right patient though.”

“Just feeling better. ... Seeing results in how they feel, watching their blood pressure come down, seeing their diabetes get in control, seeing the weight come off. ... Achieving the goals where they ... improve enough where they can actually do something.”

“Another thing I try to do is say, ‘Well, you need to sign up for something. You need to sign up for a triathlon or a 5K or something down the road,’ once we get them going.”

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“Not a whole lot. Educating them, if we could provide them with activities to choose from that would work for them … that’s about all we could do. … Provide either an education system so they can pick from something to go do or provide someone to again, sit down with them for an hour and get a good feel for them and hold their hand through it.”

“I wish I could figure that out for myself. … A lot of it is just saying we make time for whatever we make a priority … acknowledging the fact that, ‘I know you’re busy. I know it’s hard to fit it in.’ But … help come up with some solutions … ‘Can you get up a little earlier in the morning? Can you stay up a little later at night? What’s your lunch hour like?’ … Give them ideas of times that they could use or give them ideas of things they can do at home so they don’t have to go anywhere.”

“A big hindrance around here is the weather. … We can all go out when it’s cold but … it’s a big hindrance too. … It’s too hot or it’s too cold. … Those are excuses but … to some degree they’re valid.”

**REFERRALS / RESOURCES**

“I use the following people: If they are students or faculty at Utah Valley University there’s a free service that physical therapists provide [for] … exercise. The exercise includes: aerobics, weights, and stretching … BYU has similar resources. Those resources for both those schools can be paid for by outside individuals at cheaper prices. There’re resources at the Orem Rec. Center and the Provo Rec. Center that can put together a specific exercise … plan for very cheap. … The most effective group that I’ve used is … a group called Total Health and Fitness. They have an office in Sandy and one in Orem. … I save that for the people who have reached a level of motivation that is superb. … somebody who’s willing … and desirous to change all three areas and I believe has the capacity to do that, and has the financial means to pay for a fifty dollar visit once a week because it’s not coming out of insurance but [is] extremely successful. … If I had an hour with every patient then I could provide some of these services. … Since you can charge for obesity I’ve been thinking, ‘Hm, you could actually make this a … fairly lucrative lifestyle;’ if you could do it in a way that it wouldn’t take you as a physician an hour. It takes an hour to adjust the diet and exercise program on a weekly basis … as a physician you’re just not going to do that.”

“Two resources … one would be through the Sports Medicine program … They have an Acceleration Program available … Brigham Young University would be a resource that I might look to as well. I don’t know how publicly available some of the resources at BYU are.”

“I have in some instances encouraged people to get a personal trainer.”

“I have recommended sometimes patients, women particularly, participate in Curves as a program. … It is relatively low impact and it seems to engage people and they’re pretty good at following through in their participation. The patients that … have chosen to do that … seem to stick with it for … quite a few months.”

“Gyms and facilities; Gold’s Gym or a similar kind of place if they have access to them.”
“I honestly don’t know, I don’t think I’ve ever done that.”

“I’ve sent people to physical therapy for therapeutic reasons rather than just as an exercise prescription, but I don’t think insurance pays … for a personal trainer to help them … with exercise. … It would be hugely useful. You know even for ourselves how easy is it to be self-motivated to … exercise? … If I could refer patients to a personal trainer to work with, somebody that would work with them on an individual basis; you bet, I would do that all the time ….”

“I don’t think I’ve ever referred anybody to somebody special for [exercise].”

“We don’t have clear resources that I’m aware of that insurance pays for. … Other than just physical therapy and you’ve got to have an injury to access that.”

“There [are] certainly sports teams and things like that available through city [recreation] … We do have an indoor pool … and they do have water aerobics so we can recommend that. … We don’t have a city [recreation] center for example. … We’re a little shy on opportunities that way.”

“The biggest problem with [referrals] usually is cost, because most insurances don’t pay. … I have had some very good success with some of my patients from places like Total Health and Fitness locally. … They actually will sit down and put [together a] program of either exercise and/or diet specifically for that patient and … work with them on a weekly [basis] over a ten or twelve week period depending on what it is. … I’ve done that before.”

“At Total Health and Fitness … they’re probably personal trainers. There may be some of them who have some exercise physiology degree or background but I don’t know for sure. I have had really good success with most of my patients [there] ….”

“If they already belong to a gym I encourage them to … use the personal trainers or …. whatever resources they might have at the gym already available to them as a member of the gym. … There’s not really a lot of other things that I’ve used.”

“[For] middle age women, who … [have] never really exercised, I will sometimes use Curves ….”

“Gyms are helpful because you do have those resources. … Most people eventually stop going to gyms. … One, it just takes extra time to get there … unless the gym happens to be very convenient … like next door or within a couple of minutes. … Personally I will not drive five to ten minutes to go workout at a gym because I could use those five to ten minutes to workout and make my workout … timeframe be less.”

“I will usually encourage people, especially if they’ve [not] been exercising … to walk outside or … go online and look for an exercise bike, treadmill, or an elliptical or something that is used, not very expensive, that they [will] have access to … at home.”

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“If they are a gym person than I do say you could certainly get a gym [membership], but I usually try to brainstorm other ways that they can exercise that [don’t] require the money or having to go somewhere to exercise. That to me is just another barrier.”

“Athletes have their trainers, some people like to go to the gym and use a personal trainer. That may be a problem if they don’t have the money to go pay for that sort of thing. It would be great if there was something outside of the commercial gym where a patient could go medically and have a referral for an exercise program. That would be a great thing. I don’t know about insurance paying for that sort of thing.”

“There are some [exercise physiologists] up at TOSH but I haven’t personally referred [to them].”

“I’m sure there are things, [recreation] centers and so forth, and obviously at commercial gyms there are resources. Depending on the person, people don’t have money for those types of things.”

“Personal trainers for sure … [if] they need a little more one-on-one attention. … [If] they’ve reached the point where they can exercise enough that the trainer can really push them. Those are the people I usually will send … [to] Gold’s Gym or whatever local trainers.”

“I have had a few of my patients just go to the fitness institute at LDS Hospital and get tested themselves … I haven’t necessarily sent people there.”

“A [recreation] center … or 24-Hour Fitness or things like that …”

“At LDS Hospital … they do [have a] corporate fitness exam; and do the exercise stress and the VO2 max and the body fat testing. … Weber State has a … facility were people from the community can go up to the college and get their fitness testing done also; get an exercise prescription there with the exercise physiologist. … In this community, I don’t know as much.”

“I’d like to have a good educated trainer. Not just the … ‘I’ve got my certificate so I can show you what exercises to do.’ … Someone that … could sit down and … spend an hour with them and look at them from … an orthopaedic situation, their cardiovascular capabilities, and move them … along in the exercise capability spectrum.”

“One of my nurses knows a guy that works at American Fork Rec. that she’s liked … That’s who we’ve sent to. … For the patients that we have gotten into a little bit of a system, it’s been a lot more successful than just generally recommending something or seeing if they’ll start doing it.”

“I don’t know of any community resources. … Just say, ‘Walk in the [recreation] center and see what you find.’ I don’t know what’s available at any of those for someone for general instruction. … I’ve been to … Lehi’s community center and I don’t know of anything there that someone can just walk in and find Gold’s [Gym] … I’m sure they could direct you somewhere.”

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"I tell them … [getting a gym membership] would be good … getting the membership is the easy part. What do you do with it after … that is the issue. … The [utilization] of a gym membership is probably twenty percent if that … if they don’t do it at home to some extent it’s not going to get done. … A lot of them do belong or have belonged and it hasn’t changed anything."

"The only time I have ever [referred] … would be someone who really needed physical therapy … . I’ve used the physiatrists sometimes … I never have sent anyone anywhere for exercise."

"I recommend the Orem Rec. Center a lot. Swimming I recommend a lot. I’m not a huge gym person, I don’t like them myself so it’s hard for me to recommend them. … Total Health Fitness, maybe something like that?"

9 – What DO YOU THINK would be the best system for following-up or monitoring a patient’s exercise habits on a longitudinal basis?

INITIAL RESPONSE TO Q9

"Getting some … real-world data … can be useful. I always try to challenge my patient to come back with evidence, written evidence … of exactly what they’ve done, and try to make them not feel guilty at all if they haven’t done things. … It just helps me to better understand what they have done and what they haven’t done. … I have them keep a log of when they … actually did [exercise]. … It can be just a check mark if you did it that day. … If you didn’t do it or if something varied you write down what the variances are. You’ve got to try to make it as simple as possible. … It goes back to the motivation … finding out why they’re doing this, why do they care?"

"I use … my assessment and plan to do that. … I always write at the end … what is it that I’m going to do with you the next time. … What I know about that is, that even though in my mind I tell myself I’m very good … if I did a chart review I wouldn’t be. … To really be successful … this would have to be … sort of an extra-physician workflow process. … That’s probably true of all the chronic diseases."

"You need to have some kind of system that is computer based or paper based where you know the individuals that have set goals, what the goals are, and when they are supposed to have some follow-up. … Something where I can have an MA or a nurse contact the patient and see how they are doing, and tracking their goals, and helping them to set new goals."

"[A] pre-printed message to remind them that they need follow-up. … [Or] a reminder to have your nurse or MA call them rather than send them a little reminder in the mail; to have somebody make a personal contact with them."

"Asking them at follow-up visits. … Either by myself or my staff, having some kind of follow-up when they’re back in the office."
“For diabetes patients, I keep a table of those patients ... I can look at my patients and see how I am doing as a provider ... to provide care for them ... I’ll use that data ... to make a plan so when they come in ... I will have thought through already what I want to discuss with them ... If they don’t come in then we can look at who hasn’t been in so that we can ask them to come in for a visit and help them with follow-up.”

“I would make it goal based and then try to keep the time simple and short ... If I give somebody a goal, I give them ... two to three months to follow through with that goal and then ... return and report ... A goal-directed reporting type system is mostly what I ... have done in the past.”

“If we wanted to, we could create a tracking system ... Ideally it would be ... some sort of life coach that would call them every week and say, ‘How are you doing?’ ‘How many times did you work out this week?’ ‘How did it go?’ ‘How do you feel?’ It comes back to paying for that ... We could hire ten RNs and ... have a whole system and dedicate a couple of rooms in our building for them to set up a phone bank and be calling people and doing group visits ... I don’t know where we’d pay for that ... I can think of a lot of cool things to do but ... I’m in a different position than other physicians because I’m also ... on the executive board of a twenty physician group and we’re a business ... It’s interesting how you look at things on the other side of the fence ... Economic incentives are huge ... it’s going to require something like that; not just everybody talking about how great it is to feel good.”

“Every time you have a physical, which is of course something that insurance does cover, so that makes it nice to use that opportunity to follow-up. A lot of insurances now are covering just weight-loss management or diabetes. Obviously you have to come in every so often for checks ... There [are] a lot of these diagnoses that would really benefit from exercise in terms of a treatment plan that insurance already pays for. ... Every time you see them for that, you just make it ... a part of your questions you normally ask, ‘How’s your exercise?’”

“You’d have to be objective ... They’d have to be recording, if I’m going to follow it ... It takes a patient that is dedicated; it takes a simple way for them to record that; and then an easy way to view that ... That sort of thing is going to make it easiest for the physician to follow-up on.”

“If there is a community program or a trainer that they report back to or [who] deal[s] with their exercise and then ... that person gives report to the doctor ... that’s ideal and saves the doctor time ...”

“There needs to be some type of reporting system, and I don’t have a great plan for that other than the follow-up visits in clinic.”

“That My Health program ... would be a good way for people to ... send me ... feedback ...”

“Checking in monthly ... Some of it gets back to money but most people aren’t willing to spend fifty dollars a week to see a trainer and check in with them ... If they had someone on a monthly basis to check in with, and have a log, [and] have that person have an expectation of the exercise
… that would be a realistic follow-up situation for a lot of people that they could probably afford.”

“You’re begging to spend a lot of time on a problem that is not reimbursable and has a very low success rate. … In an ideal world it would be useful to have someone, my activity coordinator … probably fifty to eighty percent of my patients need it … we just spend too much time putting out fires to try to figure out who’s doing their exercises or not.”

“The yearly physical is not enough …. I’d say every three months they would come back for some kind of something. … Will insurance companies pay for that, for them to come just for [exercise counseling]?”

10. In what ways DO YOU SEE physical inactivity or a lack of exercise impacting the health of your patients?

INITIAL RESPONSE TO Q10

“Just about every way: poor sleep, high stress levels, headaches, all sorts of physical complaints, depression, anxiety, relationship issues. … So many physical ailments that people come in with that are vague, that aren’t specific conditions that are causing problems … are caused by poor … lifestyle choices. … The disease conditions they do have like diabetes or rheumatoid arthritis are just incredibly affected by a lack of exercise ….”

“… I started my career being very much an allopathic … thinking that everything that every pharmaceutical company did was righteous. … I still am amazed by the learning that we have put into … a number of our different types of medications. … We have so under-focused on non-medication assisted health, on diet and exercise health. … I just view [exercise] as extremely powerful.”

“[Lack of exercise] is a major factor in the so-called obesity epidemic that we are facing with the rising incidence of diabetes and hypertension and osteoarthritis; a lot of things are impacted by inactivity. … [The impact of inactivity] is very significant.”

“[Inactivity] has a tremendous impact. … Certainly the biggest one … is heart disease and the other related disorders: obesity, hypertension, diabetes. … The end point for all of those is cardiovascular disease.”

“Significantly, significantly … Those statistics that had come out saying that physical inactivity is the equivalent of high blood pressure or being a smoker, I am liberal at telling that to my patients … hopefully putting that to their memory and making that a challenge that they don’t want to end up that way. … I see physical inactivity affecting … their condition greatly, dramatically. … I’m happy to make that known.”

“It’s huge. … The CDC came out last week and they said … by twenty fifty they think a third of adults will have diabetes. … There hasn’t been a genetic mutation. … [We] haven’t all become Pima Indians or something. … It’s obesity … . I went to Europe this past summer and while
people in Europe are getting fatter … it's dramatic when you fly back and you get off that plane and start walking around the airport to catch your connecting flight. People in the United States are fat! Like really fat! Freakishly fat … There's heart disease, joint problems out … I've got a patient who's four-hundred and fifty pounds. He's got diabetes. His wife has diabetes, she's like three seventy … Yeah, his knees hurt! I mean he's my age and his knees are shot, and he's got heart disease, and sleep apnea … he can't hold a job. … This is a big deal. … It's huge. … If we can get those economic incentives in place then … we can start to set up programs to deal with it.”

"It's huge! … Most common diseases that we treat as family doctors all have a component of lifestyle contributing to the development of that disease. … It's not the sole thing … but yeah, it's a huge thing. … All the time we have patients who, 'OK, sorry it looks like … you need blood pressure medications;' or, 'Now you're pre-diabetic;' or 'Now you're diabetic;' or 'Now you have high cholesterol;' or whatever the disease is. Or they have knee pain, or they have back pain, or whatever … It's a huge component of my practice … It's a huge component of almost everything I see.”

“A lot. A lot. … A lot of it is quality of life. … People are happier when they exercise and keep their weight down. … They have a higher quality of life, doing things that they want to do, and being out. They're more likely to socialize if they feel good about themselves … not to mention ... decreasing the risk of diabetes and heart disease and even arthritis and … [being] overweight.”

“It's one of the single biggest contributors to the illnesses, the diseases that we treat, with high blood pressure, and diabetes, and depression, and just injuries, and all of it. … Lack of exercise is ... probably one of the biggest problems we face in the community at large and in America and especially in my … patients.”

“In every possible way. … If people regularly exercised I'd probably be out of business.”

“Huge. Big. … It's huge, it's massive …”

“Someone who's exercising is also more likely to be eating right … [regular exercise] would decrease: diabetes, high blood pressure ... even musculoskeletal things ... it keeps you healthier.”

11 – What DO YOU THINK is the appropriate role of the Family Physician in promoting exercise?

INITIAL RESPONSE TO Q11

“Exercise is ... your best drug. … It ought to be the role of every family physician to be prescribing it for every patient. Or at least finding out ... if they're participating already. I can't think of a more important thing ... that they could be doing.”
“You have to demonstrate in your personal life that you are committed to exercise and recognize that it is an important thing that adds to the quality of your life and improves your health. ... Example is number one.”

“Greater time spent in ... conversing with patients about the value of exercise and the importance of it in their personal lives. I don’t know where that balance is with the many other things that you’re trying to do. That’s always the big problem.”

“Educating and ... motivating patients to [exercise]. ... Sometimes understanding provides motivation ...”

“Goal setting with patients. ... Talking about it and then having them pick a goal and following up on it.”

“We could do better. I don’t know that it’s emphasized enough, primarily because [of] time ... We don’t get paid to teach preventative medicine as much as ... we should. ... The role ... is ideal as a primary care physician and it’s ... the most appropriate place to start for exercise prescription and for exercise counseling.”

“If there was some set of standardized ... counseling or ... a certain amount of follow-ups that we do, specifically if we were paid to teach and talk to somebody about exercise, it would happen a lot more often. ... We would save society a great deal of morbidity and money by being more aggressive that way.”

“I’ve already kind of placed an emphasis on reimbursement. Unfortunately ... that drives the system for how we practice. ... The responsibility ... lies in each individual physician to try and come up with creative ways, or the organizations that represent physicians ... to make sure that those creative ways are available to physicians for exercise counseling.”

“That supreme relationship between physician and the patient needs to be emphasized because it’s that relationship of trust ... that helps the patient to be motivated to comply.”

“We have to be an advocate ... on a national level ... of change in ... how we’re paid. ... yesterday some guy came in with a little lipoma on his thigh. ... I cut that out ... it takes me what ... maybe fifteen minutes to numb it up and cut it out and sew it up; it’s not that much time. ... The amount that I billed HHC or Altius was ... close to three-hundred dollars. ... If I sit down and talk with you ... about exercise for forty-five minutes, maybe I can justify a 99215; which is like a hundred bucks ... Right now we’re so skewed towards procedural orientation ... I don’t know how to fix that. ... They just don’t pay ... It’s easier for me to freeze a ... wart.”

“The role of the family doctor ... is to be the doctor for the family. ... We fortunately get to see people on a longitudinal basis. ... I don’t want to come across saying that every single URI I’m asking about exercise; but ... there are very small opportunities that we don’t take all the time that we can either give them a brochure or give them a handout at least to then get things started. ... It’s our role to at least bring it up. ... It should be clear that that is what we are recommending.”
“Obviously it’s a little odd if you’re not doing it yourself to recommend it. … We should follow our own advice.”

“They should expect to have a doctor who wants to … see the whole picture as a family doctor. … It should definitely be part of our general counseling with any physical or any … diagnosis that would benefit from it.”

“It is the family physician’s role to direct it … It’s hard to give them the whole responsibility of all the education ….”

“More than anything making the patient aware … trying to find out their interest or their motivation behind it and then sending them in the right direction. … Exercise [is] a type of therapy. … A lot of times someone comes in and needs physical therapy. We find out the problem and direct it in that way. It would be great if there was a way that we could do that just as easily with exercise.”

“They definitely need to be on the line of assessing what [patients are] doing; being able to help them overcome barriers to it and then at least get them started if not continually follow their exercise program; or refer them to an appropriate place where they can get … more individual, longitudinal care with their fitness.”

“[No group is better suited than Family Physicians to promote exercise]. … Nothing else is really working. … School programs … government recommendations for exercise, the cancer societies whatever. … We hear it a lot of other places ….”

“It is … such a fundamental problem with illness, lack of activity and not exercising, that … Family Medicine is ideally situated to be on the front lines of treating that.”

“If anything providing resources. … The initial assessment is something the family physician would do but I don’t know that in five years I’ve ever gotten anything useful out of an initial assessment for someone who wanted to go exercise.”

“The Family Physician has the biggest role in promoting it. … This is terrible because I just said that I don’t do it very much ….”

“It really should be our duty and obligation to promote healthy lifestyles; that’s our job.”

“We really should have a huge preventative part of our practice, which I do, but I just have not been … making it a priority to tell people to exercise. Maybe it is because I’m struggling to exercise so I can’t tell them to?”

“We should have ‘the role’ in it.”
12 - What barriers DO YOU THINK make it difficult for you to utilize exercise counseling and prescription in your practice?

INITIAL RESPONSE TO Q12

"Every doctor feels that exercise is important. ... Some doctors are afraid to [discuss exercise with patients] either ... because their own personal health is bad, or ... because they just don’t feel knowledgeable enough ... to do it ... [They aren’t] aware of what’s appropriate and what’s inappropriate.”

"Time ... that’s number one. The time that it takes to do the thing right ... that’s especially true of people who are on production. ... That method of reimbursing physicians is completely antithetical to exercise counseling.”

"The lack of appreciation for the power of exercise. ... I’m really good at [utilizing exercise] but I’m a drop in the bucket even in our own clinic. ... One of twenty-four physicians, I don’t know who else is even interested in it.”

“A lack of knowledge of resources is a barrier.”

“A lack of a good consistent way to make a prescription; understanding how to do it ... how to tailor it to ... a patient.”

“A lack of standardized process.”

“Achieving ... success so that I am motivated ... to do it ... If I had had a lot of success in making lifestyle changes in patients I’d be ... more motivated to try to work with them in lifestyle modification. I haven’t found that to be very successful.”

“It is a lot easier to prescribe a pill than to motivate someone to change their habits that have been established for 10 or 20 or 50 or 70 years.”

“Better systems to track [progress] ... reminders that it’s something that I need to discuss.”

“Better knowledge of motivational techniques; behavioral motivation, interviewing ...”

“Familiarity with how to do it efficiently; having a system, basically.”

“Time. ... Although exercise counseling is a great thing, you could probably pick half a dozen things to counsel them on and they need them all.”

“Developing a system so that it becomes easy to do.”

“Cost and time. ... If I have two other people waiting for me than it is hard to be disrespectful of their time ... In order to ... pay for your overhead and keep yourself above water it’s important to see a lot of patients during the day. But unfortunately, some of those exercise counseling
moments are going to suffer. ... I'll still ... throw in something about the importance of exercise and diet, lifestyle changes essentially."

"Comfort level certainly. I've talked to ... other physicians ... that are ... available to do sports physicals and they refuse to do those because they're just not comfortable with it. ... Comfort level is a barrier, as far as knowledge of the information."

"Some people feel uncomfortable with their body habits and are afraid to emphasize the importance of it ... The hypocrisy of it has ... a little bit to play into it."

"Adjusting our EMR so that ... there would be natural templates that would be easily useable."

"Making it possible to have ancillary services on site. ... Having a nurse practitioner that works for you that specializes in that and maybe does group visits with people who are interested in weight loss or ... exercise. ... That would be nice to have those kinds of facilities, services close by, not just at the hospital or in Salt Lake ... but really on site or in our ... company."

"The time that I have for the patient. ... Counseling is not a quick thing in general. ... You can do some basic stuff but if you really want to do well you actually have to sit down and brainstorm with the patient. ... Having adequate time on my part and then likewise reimbursement for it."

"Knowledge or experience with it. ... Our education in medical school certainly doesn't [prepare us] ... I don't think there's any [exercise] education in medical school. ... Unless you have experience already where you yourself have done weight lifting or done exercise ... I don't know where you would get that knowledge. ... Certainly in terms of resources, there's plenty out there but if you have to learn how to manage diabetes based on all the medications and all the testing that has to be done; or hypertension, what the new JNC says or whatever. Then yeah, you're going to put your priority on that [rather] than exercise. ... Currently ... our society, the medical field in general ... puts its emphasis on ... disease management, not disease prevention. ... Until that shifts ... you're not going to see a change in education for it; you're not going to see more doctors do it; you're not going to see a change in reimbursement or anything until the realization that, 'Hey, that's where quote unquote the money is, it's really on the prevention and teaching that.'"

"It is a little bit difficult to tell the patient, 'You're obese, you need to start exercising and lose weight.' ... How do you say that tactfully? ... 'Well I don't mean this offensive[ly] but your BMI [is obese], this is a medical term and this is what you are.' ... Confronting patients is hard because they're worried about coming off or coming across ... rude. ... 'Hello, get your butt in gear!' You can't really say that to a patient. ... Especially if they don't really have that connection with a patient ... that trust already developed; it's going to be hard to figure out how to say that."

"For everyone, one [barrier is] time."

"Lack of knowledge of community resources for patients."
“Perceptions that … these things are helpful but how many patients are really going to do it. … Lack of faith in the patients.”

“…everyone says time.”

“Most people understand the principles. … A lot of it is the counseling issue. … We’re trained as physicians to be objective thinkers and diagnosters. … [Counselors and psychologists] have an added benefit of how to turn things so the patient sees the benefits and motivating them to do it.”

“Patients … who aren’t interested in exercise.”

“Time.”

“Lack of knowledge.”

“Lack of exercising themselves. … It’s hard for physicians who don’t exercise to say, ‘Oh, you’ve really got to exercise. …’ They may feel a little hypocritical.”

“[Not] having an interest in exercise and [knowing] what the options are to do it.”

“It’s not reimbursable. … If … you and I are sitting around talking to people about their problems we get paid horribly for it.”

“Just talking with your doctor about something isn’t that effective in solving your problem.”

“Knowledge to some extent. I don’t think a lot of physicians understand exercise as much as we should. I’ve got a masters degree in exercise science and I don’t know that I understand it as well as I’d like to, to be able to come up with specific solutions with patients.”

“The expectation that most patients will walk out of your office and not do much about what you just talked about. … Physician apathy.”

“Time.”

“Remembering to do it.”

“[Not] having a protocol for it.”

“Resistance in patients … apathetic [patients].”

COUNSELING DURATION

“About two minutes in every visit just to assess where people [are] with their health behaviors.”

“If I identified a need and a willingness to move on to the next step then I would actually schedule them to come back for an appointment. … That actually is quite beneficial in a
production environment because instead of seeing that person once a year, I might be seeing them eight times that year. I’ll fill my appointment book with people that just need to come back. … The thing that was really exciting to me is when Intermountain decided to … go ahead and pay for the ICD-9 code for Obesity. … Once that happened then I could justify bringing those people back and … be paid for it. … You could have somebody come back and you could schedule them for more time, and that’s what you’d have to do. You’d have to identify that as an issue and say, ‘I need you for a level four,’ essentially, ‘Come back for thirty minutes.’”

“Probably about one minute.”

“In a typical encounter, probably 2 or 3 minutes.”

“[Time is] really the clutch problem. … To do it right is going to take a little bit more time than just throwing a piece of paper at them and saying, ‘Hey, this is important. Do this.’ If I was to say doing it right was my goal it would take a little bit longer and that amount of time varies from person to person; what their needs are and how talkative they are. … If I was just to talk to somebody and tell them about the importance and give them a piece of paper it could take me anywhere from 3-5 minutes.”

“Visits are ten and twenty minutes. … If I have someone coming specifically only for weight-loss management … usually [for] my first time weight-loss management I will schedule an extended office visit to actually discuss everything, so that’s the ideal. … [Then] you’re spending fifteen, twenty minutes talking only about weight loss, exercise, diet, which is … what you need.”

“[For] most of my visits which … are not usually those extended office visits just for weight, it’s very brief. It’s probably less than a minute.”

“Five to ten minutes.”

“I don’t think it takes very long for … an exercise assessment. … It takes a couple of minutes ….”

“It’s important enough that I’ll spend 5-7 minutes out of the fifteen or thirty minutes that I have with them.”

“Less than five [minutes].”

“There are so many things and important priorities to discuss on routine health maintenance visits and exercise is something that I probably have not spent much time on because it requires a fair amount of time to really get a commitment and set a goal and follow-up on a goal.”

“On average, 30 seconds is probably what I would spend on a routine health maintenance visit on exercise and activity.”

“Five or ten minutes tops.”
“Putting an exact time on it for each visit is kind of tough … If a follow-up visit is fifteen minutes … I don’t know that you’d spend more than five for sure …”

“In the one to three minute range unless someone were specifically coming for, ‘I want to lose weight; I want to get more healthy.’ Then maybe it would constitute more.”

**APPROPRIATE VISITS FOR COUNSELING**

“I try to discuss TV time and screen time and exercise with parents during well-child visits … That’s important because … they are more malleable, their habits are a little less well established.”

“In patients where their inactivity is clearly affecting their health …”

“Hypertensives, diabetics, obese individuals are three groups that I would think of immediately.”

“[Chronic disease and general health maintenance visits].”

“Mainly either health maintenance exams or chronic disease follow-up visits.”

“Sometimes it doesn’t really pertain to what they came in for so it’s not going to be a good time to catch them. … If you have the patient that’s in for pneumonia, talking about … exercising [is] not a good plan. Number one it’s not a good time to start and they’re not feeling well. They’re not at the point where they want to hear it. … They want to … be taken care of, for whatever their acute problem is and be on their way.”

“The importance of exercise pervades every visit. … We’re still finding out the benefits of exercise in a lot of the things that we do. … I don’t think there’s a visit that’s inappropriate … [excluding a] very personal visit like a rape …”

“Any visit that focuses on disease processes or … physicals …”

“In a health care maintenance visit …”

“A lot of times … [chronic health conditions] will get scheduled for a ten or fifteen minute visit to renew five or ten medications and review recent hospitalizations and all that kind of stuff. … A minute or two is the most you’re going to be able to spend [on exercise] … unless you could bill for that … independent of the visit.”

“Whenever anybody comes in for diabetic visits … I do talk about exercise at that point. It’s not the same however because our focus is more on the disease process than it is on [exercise]. It’s emphasized as far as its importance but I probably don’t spend enough time on it because obviously I’m very limited, we’re all limited in our time as far as how much we have with patients.”

“The physical exam is one.”
“The initial diagnosis or workup of medical issues relating to it, such as high blood pressure or diabetes.”

“Any preventative visit … [and] most chronic illness visits … It should probably just be addressed in other follow-up visits [also]. So pretty much every time.”

“If it’s a physical exam [exercise] should be something we would discuss … If someone comes in with diabetes, high blood pressure … it should be part of the discussion.”

CONFIDENCE IN EXRY SKILLS
“Moderately confident … I know what I want my patients to do. I wouldn’t say it’s my greatest area of knowledge and probably not always my biggest priority … It just hasn’t been always worked into the system of what I do with patients.”

“I have a good knowledge base … A lot of it is personal … what you’ve done for exercise in your life … Understanding a person’s motivation, helping them get motivated to do the things that they should and probably want to do … that’s where I lack … more of the counseling side.”

“[Knowledge base] depends on [a physician’s] background … I don’t think that they necessarily learned it in medical school … It’s more just people who have had that interest in their life and then have incorporated it into their medicine … It would be nice if there was … CME or different things like that that could help … I don’t think it would take … that long to give them some information even just an afternoon.”

“I don’t remember any [formal exercise education in my training]. [Only what] you carry into it, or probably what you’ve done personally. It’s all got to be personal experience … The doctors who are better at it are the ones that have personal experience … It’s guys that are heavy into cycling or triathlons, body building, or weight lifting … they’re probably the best physicians out there to specifically come up with workouts and … activity intervention[s] …”

“To be more confident would be to have an ideal protocol already in place … ‘Ok … do you exercise?’ ‘Yes.’ ‘How much do you exercise?’ ‘Once a week.’ ‘Ok.’ ‘Oh.’ ‘Ok.’ ‘Ok.’ ‘Ok.’ ‘Ok.’ … So then you have this repertoire; ok someone who doesn’t exercise, this is what I’m [going to do] … ‘Ok, exercise is going to do this, this, this, and this for you. Are you willing to try exercise?’ Yes or no, and if they are, ‘What types of things do you have access to? What are you going to do?’ Then … ‘Ok, for the next three months, I want you to commit to me that you will do …’ whatever it is … You could do actually a pretty good job if you had a set thing … Like with my obstetric patients … I just have a set thing for each visit and it used to be that it would take me forever to do these types of visits but now it’s quick … Of course they have questions but … you could actually be pretty efficient in that amount of time, especially if you had good follow-up.”

“Quite a bit [of visit prep work is done by my MAs] … you could have those initial things answered for you already. Are you exercising? Do you have a desire to exercise? … That would make it even faster.”
XX – Is there anything with regard to exercise counseling and prescription within the context of a physician-patient encounter that we have not discussed THAT YOU THINK would be important to consider in designing an office intervention to facilitate exercise counseling and prescription?

INITIAL RESPONSE TO QXX

"Obviously you have to work with the current system. … There needs to be some sort of a screening tool. It needs to be applied … consistently and aggressively to just about every patient. … There could be a trigger that if there’s a BMI that’s above such and such a level you apply this specific screening tool."

"It would be very useful to work with Select Health leadership to identify a pilot project to pay for an expert to be in a clinic and have a standard set of tools to screen people for willingness and readiness for exercise. To give them an exercise prescription that’s maybe discussed with the physician. To follow-up and to do a little trial … to look at short-term things like symptom resolution, or visits to physician for other than follow-up for this, visits to emergency department, hospitalizations, and you’d have to pick some sort of a time. … Since you’re a young man it might be very interesting to follow a cohort of patients for a longer period of time and compare them to … some other group. … It would be very good for you to get into a position at Intermountain where you could work with Select Health and say, ‘Look, this is something.’ … I personally firmly believe that … one of the ways we’ll reduce health care costs in the future is by keeping people healthy, and beginning to pay physicians to do that. … You’re in a good environment … in a good position to … work on that.”

“You have pretty much gone over all of the things that I can think of immediately.”

“You’ve probably covered it pretty well.”

“I would say no … The barriers to doing it … [are] probably the most important thing[s]. I really feel like if we can pass through some of those barriers and standardize … exercise prescription and exercise counseling in a way that’s effective … that patients will respond to … then that’s ideal.”

“I don’t think so. … We’ve talked about most of the … general problems and kind of the ‘State of the Union,’ so to speak, on how we do things.”

“It would be nice to see more emphasis on it from the medical societies … [and] medical education … A problem with our society is the, ‘It’s your fault not mine I’m like this.’ … Having our society in general being more accountable for themselves. … That’s something that would be very important in changing around the obesity epidemic … and a lot of the diseases that we have; if people took that … attitude. … Starting with physicians, ‘Hey, I can at least do it with my patients.’ That’s a place to start.”
“No. … It has been pretty thorough. … A lot of people don’t do it … just because they … don’t know how to get a person to do it. … It’s helping them see the importance of it according to their own values and trying to motivate them. … Standard questions that can help bring up the topic or help open it up for the patient and then some ideas of standardization … maybe at a certain fitness level and how to gauge the fitness level and then how to progress and what their goals should be in such a time period, a month, six months.”

“The American Heart Association, I think they’re the ones that suggested five to six days a week an hour kind of time. … I’m sure as heck don’t do that. … I’m going to tell an overweight, new diagnosis diabetic that that’s his goal right now? … That’s completely unrealistic. … If you can get them to do baby steps initially maybe they’ll be a person that gets to that stage … People are just so different that it’s hard[er] to set up a standard protocol [for exercise then] it would be say for chest pain … There probably could be some help with some protocols.”

“My soap box is just that; getting somebody to commit to something … It’s hard to get somebody to commit to an hour a day of exercise. … It’s too much and especially to start, and especially at the intensity that most people think they need to do. … I just use little key words like, ‘I want you to do 10 minutes “embarrassingly” slow,’ and if you can’t carry on a conversation because you are breathing too hard then you need to slow down even more … Whether it’s light walking or getting in a swimming pool or doing some biking. … Find something that’s easy and you enjoy and do it for 10 minutes and just commit to do it every day because there’s no such thing as junk exercise. If you only do 10 minutes it doesn’t mean it’s not beneficial. … Eventually once we’re in a habit of doing that and you feel good doing that we’ll start working on … increasing by 10% per week so that we can get you up to eventually an hour a day.’ … Emphasizing the health benefits, just feeling better in general, all the other aspects that it brings to their lives … will help them … start that first step.”

“Dumb it down to where … most people are like, ‘Are you serious? That’s all I have to do and that’s all you’re going to commit me to? Yes, I’ll do it.’ … For the most part they will do that if they’re … to the point in the steps of change that they’ll do it.”

“I have one lady right now … I got her started and she came in today, she’s lost 16 pounds; just signed up for … The Mud Run. She’s never even run before and signed up for this triathlon. … She just broke three-hundred pounds. She’s got a trainer working with her now; she’s cut her calories down. … It’s about getting the lifestyle … it’s an adjustment [but] people think it’s harder than it is.”

“[Physicians can motivate people]. Absolutely. I’ve seen it work for sure. There’s a quote I like … by Emil Zatopek, he was this runner from the 50’s … When he was running everybody thought, ‘Oh, if you run, you only have so many heart beats so you shouldn’t run because you might die early, right?’ … He … basically invented interval training … His thing was … when you force yourself to do something a hundred or a thousand times then motivation goes away … It doesn’t matter if it’s raining or if it’s cold or whatever, because it’s part of you and then the excuses go away and then you’ve really accomplished something more than just … going out on a run … you’ve conquered yourself a little bit. … I try to … instill that in my patients … I’m
thinking of ten … twenty patients in my mind that have changed their lives with … starting easy and gradually advancing it.”

“When I see those people do it that definitely keeps me preaching it and talking to people.”

“… for me it's just a huge, frustrating issue. … It's so important but … it's so much like the weight issue. … How do you get these people to know what they should be doing that just can't do that? … You see them eating themselves to death. You see people 'inactivity-ing' themselves to death and I don't know how to get them to change that. … My twenty minute visit isn't going to do it and … even if I had an hour visit and we sat down to do it, unless I could be in a situation to watch them do it; to see if they can operate a treadmill … take five to ten minutes to do a weight cycle; and to follow-up with them in a week or in a month or two months and see who you could get to do it … It's just a lifestyle intervention thing. … If people won't go do it on their own, it's just not going to happen … I'd love to have a system. I'd love to have someone just to say, 'Go see these guys … it's only thirty dollars to talk to them for an hour, and they'll set you up with … a book and … whatever.' … I don't know if it would work or not. … To sit and talk to them for about a half an hour is an appointment just drives me nuts. It's just like eating. 'You shouldn't be eating that.' 'I know but I still do.' … It's a faulty decision-making process and I don't know how to change that. … I see a lot of it up here.”

“Even if we came out and said … 'We're going to make a code that's two hundred and fifty dollars for an hour, you can use it.' It still wouldn't be effective. You've got to have a fifteen dollar an hour person that's doing most of the work. There's no way you'd ever make money out of the patients, they won't pay for it. … Insurance should and they'll start paying for things more but, I just don't think it will ever be [cost effective] … To [help] this whole nation that's thirty to thirty-five percent obese at this point, it's just not a government issue, it's such an individual issue. … I see a ton of women who are heavier than they want to be and I try to get them to fill out their log and bring it back and we'll talk about [it] … The only success I've had is I've got a nurse … that's kind of an unofficial trainer, just personal experience. She works out a lot to try to maintain her weight. I've got about six women that I've hooked in with her that will check in with her on a regular basis and weigh in and she'll do some counseling for them. … Most of those six have lost weight, but it's kind of … an encompassing project for my nurse just to … maintain those relationships. … It's the only success that I've seen at all.”

“I don't think so … This is awesome … that you're doing this. … This is the direction health care needs to go. You need to have your primary care physician where you go and you have really good preventative care. That's what we need and this is a huge part of it. … As I sit just answering these questions for you I think, 'Oh, see I've just got to do better at that.' … It's really, really important … if we can get that good medical home where you're not just [coming] … if you have strep throat but … you're coming to actually prevent disease. We're good at some of that, not good at all of it. … As a family physician you do delve into a lot more of that kind of stuff than … we were trained to do in medical school … I see that as the future of medicine, both in providing the best care for patients and for being successful too. … If you can have a really good model of that, really take care of them.”

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Appendix C: Godin Leisure-Time Physical Activity Questionnaire
Godin Leisure-Time Exercise Questionnaire

INSTRUCTIONS

In this excerpt from the Godin Leisure-Time Exercise Questionnaire, the individual is asked to complete a self-explanatory, brief four-item query of usual leisure-time exercise habits.

CALCULATIONS

For the first question, weekly frequencies of strenuous, moderate, and light activities are multiplied by nine, five, and three, respectively. Total weekly leisure activity is calculated in arbitrary units by summing the products of the separate components, as shown in the following formula:

Weekly leisure activity score = (9 × Strenuous) + (5 × Moderate) + (3 × Light)

The second question is used to calculate the frequency of weekly leisure-time activities pursued "long enough to work up a sweat" (see questionnaire).

EXAMPLE

Strenuous = 3 times/wk
Moderate = 6 times/wk
Light = 14 times/wk

Total leisure activity score = (9 × 3) + (5 × 6) + (3 × 14) = 27 + 30 + 42 = 99

Godin Leisure-Time Exercise Questionnaire

1. During a typical 7-Day period (a week), how many times on the average do you do the following kinds of exercise for more than 15 minutes during your free time (write on each line the appropriate number).

   Times Per Week

a) STRENUOUS EXERCISE
   (HEART BEATS RAPIDLY)
   (e.g., running, jogging, hockey, football, soccer, squash, basketball, cross country skiing, judo, roller skating, vigorous swimming, vigorous long distance bicycling)
b) MODERATE EXERCISE
   
   (NOT EXHAUSTING)

   (e.g., fast walking, baseball, tennis, easy bicycling, 
   volleyball, badminton, easy swimming, alpine skiing, 
   popular and folk dancing)

c) MILD EXERCISE
   
   (MINIMAL EFFORT)

   (e.g., yoga, archery, fishing from river bank, bowling, 
   horseshoes, golf, snow-mobiling, easy walking)

2. During a typical 7-Day period (a week), in your leisure time, how often do you engage in any 
   regular activity long enough to work up a sweat (heart beats rapidly)?

   OFTEN       SOMETIMES       NEVER/RARELY
   
   1. [ ]       2. [ ]       3. [ ]
Appendix D: IRB Application
TITLE PAGE - APPLICATION FOR EXEMPTION
FROM REVIEW BY THE INSTITUTIONAL REVIEW BOARD
The Ohio State University, Columbus OH 43210

Principal Investigator
Name: Steven T. Devor PhD, FACSM
University Title: Associate Professor
Department or College: Physical Activity and Educational Services
Campus Address (room, building, street address): A50 PAES Building
305 West 17th Avenue
Columbus, OH 43210-1224
Signature: Date:

Co-Investigator
Name: Jared T. Miner MA
University Status: Grad Student
Campus Address (room, building, street address) or Mailing Address:
A50 PAES Building
305 West 17th Avenue
Columbus, OH 43210-1224
Signature: Date:

Co-Investigator
Name: Randell K. Wexler MD, MPH
University Status: Faculty
Campus Address (room, building, street address) or Mailing Address:
B002B Crumbell Hall
455 West 10th Avenue
Columbus, OH 43210
Signature: Date:

Protocol Title: Developing an Intervention Strategy to Enable Exercise Counseling and Prescription in Family Medicine.

Source of Funding: 110130

Research has been determined to be exempt under these categories: [Insert categories]
Research may begin as of the date of determination listed below: [Insert date]

Date of determination: [Insert date]
Signature: [Signature]
Office of Responsible Research Practices

PROTOCOL NUMBER: [Insert protocol number]
The purpose of the Application for Exemption is two-fold: (a) to determine whether the proposed research qualifies for exemption from review and continuing oversight by an Institutional Review Board; and, if so, (b) to ensure that the informed consent process protects the rights and welfare of human subjects in research. Please respond to the following questions and provide the requested documentation.

Have all investigators completed the required web-based course in the protection of human research subjects?  
☐ Yes ☐ No

If No, see http://orp.mcm.edu/irb/training/citi.cfm for more information. EDUCATIONAL REQUIREMENTS MUST BE SATISFIED PRIOR TO SUBMITTING THE APPLICATION FOR IRB REVIEW.

Please check the category of exemption for which you are applying. The list of categories is located at the end of this application. You may check more than one box.

EXEMPT CATEGORY: 1 ☐ 2 ☒ 3 ☐ 4 ☐ 5 ☐ 6 ☐

SCREENING QUESTIONS: If you check YES to any of the questions below, your research is not exempt. Do not complete the exempt application. Submit an application to the appropriate Institutional Review Board for review.

Does any part of the research require that subjects be deceived?  
☐ Yes ☒ No

Will research expose human subjects to discomfort or harassment beyond levels encountered in daily life?  
☐ Yes ☒ No

Could disclosure of the subjects' responses outside the research reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation?  
☐ Yes ☒ No

Will fetuses, pregnant women, human in vitro fertilization, or individuals involuntarily confined or detained in penal institutions be subjects of the study?  
☐ Yes ☒ No

For research proposed under category 2, will research involve surveys, interview procedures, or observation of public behavior with individuals under the age of 18?  
☐ Yes ☒ No

For research proposed under category 4, will any of the data, documents, records, pathological specimens, or diagnostic specimens be collected or come into existence after the date you apply for exemption?  
☐ Yes ☒ No

For research proposed under category 4, will any of the information obtained from data, documents, records, pathological specimens, or diagnostic specimens that come from private sources be recorded by the investigator in such a manner that subjects can be identified directly or through identifiers linked to the subjects?  
☐ Yes ☒ No

IF YOU CHECKED YES TO ANY OF THE QUESTIONS ABOVE, YOUR RESEARCH IS NOT EXEMPT.

IF YOU HAVE CHECKED NO TO ALL OF THE QUESTIONS ABOVE, YOUR RESEARCH MAY BE EXEMPT. PLEASE CONTINUE WITH THE EXEMPT APPLICATION.

If you have questions about the application or review process, please contact Office of Responsible Research Practices / Phone: 688-8457 / Fax: 688-9366 / E-mail: exemptinfo@mcm.edu
For purposes of this application, “research” includes the recruitment of human subjects as well as data collection and analysis. None of these research activities may begin until the investigator has received a protocol number AND has received written concurrence that the proposed research is exempt. The “date of determination” on page one of this application is assigned by the Office of Responsible Research Practices; it indicates the date when research may begin.

Please describe your study clearly and completely, using a style of language that can easily be understood by someone who is not familiar with your research.

GENERAL QUESTIONS REGARDING THE PROPOSED RESEARCH

1. Describe the purpose of the research activity to be undertaken. Describe how it involves human subjects. Respond in the space provided here, or attach a research proposal and/or grant proposal containing the requested information.

Description: 10-15 Semi-structured individual interviews of 30-40 minutes each will be conducted by the Co-investigator, Jared T. Miner MA, a combined degree student in Medicine and Education PAES. The purpose of the interviews is to obtain the opinions of Family Medicine physicians regarding exercise counseling and prescription in the Family Medicine office setting. Analysis of the information obtained in interviews will be used to guide the development of a novel intervention strategy to enable exercise counseling and prescription in Family Medicine. Full proposal is attached.

2. Provide a brief description of the subjects you plan to recruit and the criteria used in the selection process. Indicate whether subjects are 18 years of age or older.

Description: Board Certified Family Medicine physicians over the age of 18, who are English speaking, and practice medicine in Utah County, Utah.

3. Describe how the proposed research meets the criteria for exemption from IRB review and oversight. (Refer to the criteria on the last page of this application that correspond to the category or categories you checked on the screening sheet.)

Description: The research involves semi-structured individual interviews of subjects. Only opinion will be obtained. This research does not involve obtaining any personal health information. Neither the audio tape of the interviews, nor the written transcripts of the interviews will reference any subject by name.

4. Will your subjects be recruited through schools, employers, and/or community agencies or organizations, and/or are you required to obtain permission to access data that is not publicly available? If the answer is yes, provide a letter of support from the person authorized to give you access to the subjects or to the data in question. More than one letter may be required.

☐ Does not apply.
☐ Letter(s) attached.
☐ Comments:
5. Describe the means you will use to obtain data. Check all boxes that apply.

☐ Surveys or questionnaires distributed by mail or in person. I am attaching a copy of the instrument(s).
☐ Surveys distributed through the Internet, through listservs, or through E-mail. I am attaching a copy of the instrument(s). Provide the Internet address:
☐ Interviews. I am attaching a copy of the interview questions.
☐ Focus groups. I am attaching a copy of the questions that will shape the discussion.
☐ Observation of public behavior.
☐ Observation of activities in school classrooms.
☐ Videotapes. I will obtain consent from the subjects to tape their responses.
☐ Review of existing records, including databases, medical records, school records, etc. I am attaching a copy of the data collection sheet. I am recording information in such a manner that subjects cannot be identified directly or through identifiers linked to the subjects. All of the information in the records to be reviewed exists as of the date of submission of this application.
☐ Tissue specimens. All of the specimens have already been collected and are “on the shelf.” I am recording information in such a manner that subjects cannot be identified directly or through identifiers linked to the subjects.

6. Indicate the date when you plan to begin research, and the date when you anticipate that data analysis will be complete.

Begin date: August 1, 2009   End date: August 1, 2010

Clarification: During this 12 month time frame, one of the Co-Investigator will be a first year medical resident and thus will only be participating in the research activities on a part-time basis. Were all investigators able to participate on a full-time basis, the actual interviews, data analysis, and intervention design would be able to be completed in a shorter period of time. Given these circumstances it is believed that a global 12 month time frame for this study is reasonable.

CONFIDENTIALITY

- Investigators are required to protect the confidentiality of the information obtained during research, unless the subjects (a) explicitly agree to be identified or quoted, and/or (b) explicitly agree to the release of material captured on audiotapes or videotapes for use in presentations or conferences.

7. Provide a brief description of the measures you will take to protect confidentiality. Please describe how you will protect the identity of the subjects, their responses, and any data that you obtain from private records or capture on audiotape or videotape. Describe the disposition of the data and/or the tapes once the study has been completed.

Description: Neither the audio recording of the interviews, nor the written transcript of the interviews will reference any subject by name. Names will appear on all informed consent forms, and they will be stored in a locked cabinet that only the investigator have access too. We are not obtaining any personal health information, we will obtain opinion only. The PI and Co-Investigators are all CITI certified.
**INFORMED CONSENT**

- In most cases, investigators are required to obtain informed consent from their subjects before collecting data. Respond to questions #8 and #9 to indicate how you will inform your subjects about the research and how you will obtain and document their consent.
- Subjects must be told what they will be asked to do if they agree to participate in research, how long it will take, and how you will protect the confidentiality of the information they provide.
- Subjects must be told that their participation is voluntary, they can refuse to answer questions that they do not wish to answer, and they can refuse to participate or they can withdraw at any time without penalty or repercussion.
- With few exceptions, written consent of the child's parent(s) or guardian(s) is required if subjects are under the age of 18. In addition, children 14 years of age or older should be asked to give written assent (agreement) to participate. Children younger than 13 years of age should be asked to give verbal assent (agreement) to participate.
- Provide a means for subjects to contact the investigator(s) if they have questions or concerns about the research. Make it clear to the subjects that you are affiliated with The Ohio State University.

8. What information do you plan to give to your subjects before you ask for their consent? Use a style of language that simply and clearly explains the research to your subjects. Respond to the space provided here, or attach a copy of the information you plan to provide to your subjects and/or their parents or guardians. (Note: if you use more than one method of recruitment, you may check more than one box)

- Letter(s) attached. I will give each of the subjects a copy of this letter.
- I will be contacting subjects by phone or in person. Please reference the attached letter that will be used in post-mail e-mail recruitment as stated above. This letter will serve as the script for any in person or phone recruitment.
- Does not apply. My data analysis is limited to existing records or tissue specimens.
- Response: Subjects will be recruited by individual contact either by mail, e-mail, phone, or in person. Interested subjects will be invited to schedule a time for the interview that is mutually convenient for both parties.

9. How do you plan to document informed consent? Read all of the options before checking the appropriate boxes.

- The subjects are 18 years of age or older. Before collecting data, I will ask them to sign a written consent form. I am attaching a copy of the consent form.
- The subjects are 18 years of age or older. Before collecting data, I will ask them to give verbal consent to participate in this research study.
- The subjects are 18 years of age or older. I am distributing a survey or questionnaire to the subjects. They can choose whether or not they want to respond. I am requesting a waiver of written consent.
- The subjects are under the age of 18. I am attaching a copy of the consent form that I will use to obtain consent from their parents or guardians and assent (agreement) from subjects who are 14 years of age or older.
- Some of the subjects are 18 years of age or older, and some are younger than 18. I have checked more than one box above to reflect the methods I will use to document informed consent.
- Does not apply. My data analysis is limited to existing records or tissue specimens.
- Other. Please explain and provide justification for your request.
- Comments:
CONSENT FOR PARTICIPATION IN RESEARCH

Individual Interview

I consent to participating in research entitled: Developing an Intervention Strategy to Enable Exercise Counseling and Prescription in Family Medicine.

Jared T. Miner, MD, the authorized representative of Steven T. Devor, PhD, FACSM, Principal Investigator, has explained the purpose of the study (to evaluate the perceived utility and barriers to utilization of the current American College of Sports Medicine (ACSM) and American Heart Association (AHA) guidelines for exercise counseling and prescription in daily patient management and to elicit physician recommendations on how best to adapt the general SA’s framework for behavioral modification to meet the needs of exercise counseling and prescription in Family Medicine), and the expected duration of my participation (30 to 40 minutes). Possible benefits of the study have been described (to create relevant physician reference and patient education materials for addressing the issue of exercise counseling and prescription in Family Medicine, and to create an usable instrument that; fits within the time frame and context of a routine Family Medicine office visit and is modifiable to fit individual patient needs for exercise counseling and prescription), as have alternative procedures (declining to participate), if such procedures are applicable and available.

The purpose of this study is to obtain the opinion of Family Medicine physicians regarding the perceived utility and barriers to utilization of the current American College of Sports Medicine (ACSM) and American Heart Association (AHA) guidelines for exercise counseling and prescription in daily patient management; and to elicit physician recommendations on how best to adapt the general SA’s framework for behavioral modification to meet the needs for effective exercise counseling and prescription in the Family Medicine setting.

I understand I have the right to not participate in this study. I understand that I may terminate the interview early should I so chose. I understand that my responses will be recorded but my name will not be used or identified. I understand that my deidentified responses may appear in research presentations and publications for the purpose of reporting study results and I give consent for such use. I have been informed that nothing that transpires during this interview, including my choice to terminate the interview early will affect my standing.

The interview will last 30-40 minutes. The benefits of this interview are to obtain a better understanding of how Family Medicine physicians view exercise counseling and prescription in their practices. A better understanding of these views will allow for the development of an instrument to enable exercise counseling and prescription that will be more acceptable to Family Medicine physicians than are current instruments.

I acknowledge that I have had the opportunity to obtain additional information regarding the study and that any questions I have raised have been answered to my full satisfaction. Furthermore, I understand that I am free to withdraw consent at any time and to discontinue participation in the study without prejudice to me.

Finally, I acknowledge that I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: ____________________________  Signed: ____________________________

[Participant]

Signed: ____________________________  Signed: ____________________________

[Principal Investigator or his/her authorized representative] [Person authorized to consent for participant, if required]

Witness: ____________________________
SUBJECT RECRUITMENT LETTER

Dr. John Doe
999 High Street
Provo, UT

Dear Dr. Doe,

As a first year resident at the Utah Valley Family Medicine Residency in Provo, Utah, I am conducting a study along with Steven T. Devor, PhD, FACSM from The Ohio State University. I am contacting board certified Family Medicine physicians practicing in Utah County and inviting your participation.

As a PhD-candidate, I am studying the effects of exercise on chronic disease management and prevention. As you know physical inactivity is a major risk factor associated with cardiovascular disease, hypertension, diabetes, obesity, high triglycerides, and low levels of HDL cholesterol. These conditions represent many of the most common conditions that Family Medicine physicians diagnose and manage on a daily basis. This research study is designed to facilitate the development of an intervention strategy to enable the employment of exercise counseling and prescription in the management of Family Medicine patients.

We are recruiting board certified Family Medicine physicians practicing in the Utah County area to participate. Your participation would involve a single individual interview that I myself would conduct with you. The scheduling of this interview would be at your convenience with regard to both timing and location. The interview script has been designed to take no more than 30-40 minutes to complete and would require no prior preparation on your part. By undertaking this interview process we are seeking to better understand Family Physician’s opinions regarding a number of aspects related to exercise counseling and prescription in patient management. Information acquired through the interview process will serve as the primary basis for the development of a novel intervention strategy aimed at enabling exercise counseling and prescription by Family Physicians within the context of a standard patient encounter.

You will not receive any personal benefits as a result of your participation in this research study. However, we are hopeful that the results will help us better understand exercise counseling and prescription in the Family Medicine setting, and thereby benefit both patients and Family Physicians in the future.

Please contact the study coordinator Jared T. Miner, MD, at (801) XXX-XXXX or jared.miner@jmail.org if you would like to learn more about participating in this study. For your convenience we have also enclosed a postage-paid card that you may return and we will reach out to you through your preferred contact method.

Thank you in advance for considering this request.

Sincerely,

Jared T. Miner, MD
Utah Valley Family Medicine Residency
475 W 940 N
Provo, UT 84604
(801) XXX-XXXX
jared.miner@jmail.org

Steven T. Devor, PhD, FACSM
Associate Professor
The Ohio State University
(614) 688-8436
sdevor@ehec.osu.edu

RSE-1.0
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Approved by the Policy Coordinating IRR, 5/18/00, revised 10/07/08

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INTERVIEW DISCUSSION GUIDE

Warm Up

In conducting today’s interview I hope to be able to understand more about your viewpoints on exercise counseling and prescription in your office. Our intention in conducting these interviews is to evaluate a number of elements and factors that influence patient-physician encounters involving exercise counseling and prescription. There are no right or wrong answers. Your honest opinion will provide valuable information needed to create an acceptable framework to guide such encounters in the future. Since this is a semi-structured interview I will be using a predetermined set of questions to guide our discussion. Please feel confident in expressing your views openly as all responses will be protected with the utmost respect for confidentiality and anonymity. Do you have any questions before we begin?

Questions

1 – Patients often hear the disclaimer to “consult their physician before starting any exercise program to determine if you are healthy enough to do so.” What DO YOU THINK needs to be done to determine if a patient is healthy enough to exercise?

2 – What DO YOU THINK is the best way to assess a patient’s current exercise habits?

3 – What DO YOU THINK is the best way to determine a patient’s level of interest in starting an exercise program?

4 – What DO YOU THINK is the best way to discuss or promote exercise during routine health maintenance visits?

5 – Regarding weekly exercise goals, what DO YOU THINK should be recommended to patients?

6 – What strategies DO YOU THINK are helpful for engaging patients to be more active participants in their own care planning and administration?

7 – What DO YOU THINK are the most common barriers to regular exercise participation among your patients?

8 – What DO YOU THINK physicians can do to assist patients in identifying ways to overcome these specific barriers?

9 – What DO YOU THINK would be the best system for following up or monitoring a patient’s exercise habits on a longitudinal basis?

10 – In what ways DO YOU SEE physical inactivity or a lack of exercise impacting the health of your patients?

11 – What DO YOU THINK is the appropriate role of the Family Physician in promoting exercise?

12 – What barriers DO YOU THINK make it difficult for you to utilize exercise counseling and prescription in your practice?
# CATEGORIES OF RESEARCH ACTIVITIES EXEMPT FROM REVIEW

BY OSU INSTITUTIONAL REVIEW BOARDS

These exemptions DO NOT APPLY when deception of human subjects may be an element of the research, when the activity might expose the human subjects to discomfort or harassment beyond levels encountered in daily life, or when fetuses, pregnant women, human in vitro fertilization, or individuals involuntarily confined or detained in penal institutions are subjects of the activity.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>Description</th>
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<tbody>
<tr>
<td>CATEGORY 1</td>
<td>Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as: a. research on regular and special education instructional strategies, b. research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.</td>
</tr>
<tr>
<td>CATEGORY 2</td>
<td>Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, under: a. information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; AND, b. no disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects’ financial standing, employability, or reputation. (NOTE: The exemption under Category 2 does NOT APPLY to research involving survey or interview procedures or observation of public behavior when individuals under the age of 18 are subjects of the activity except for research involving observations of public behavior when the investigator(s) do not participate in the activities being observed.)</td>
</tr>
<tr>
<td>CATEGORY 3</td>
<td>Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under Category 2, IF: a. the human subjects are elected or appointed public officials or candidates for public office, OR, b. federal statute(s) requires(w) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.</td>
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<tr>
<td>CATEGORY 4</td>
<td>Research, involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded in such a manner that subjects cannot be identified directly or through identifiers linked to the subjects.</td>
</tr>
<tr>
<td>CATEGORY 5</td>
<td>Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: a. public benefit or service programs; b. procedures for obtaining benefits or services under those programs; c. possible changes in or alternatives to those programs or procedures; or d. possible changes in methods or levels of payment for benefits or services under those programs.</td>
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<tr>
<td>CATEGORY 6</td>
<td>Taste and food quality evaluation and consumer acceptance studies, a. if wholesome foods without additives are consumed, or b. if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.</td>
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Appendix E: Recruitment Letter
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Provo, UT 84604
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jared.miner@gmail.org

Steven T. Devor, PhD, FACSM
Associate Professor
The Ohio State University
(614) 688-8436
sdevor@ehe.osu.edu
Appendix F: Consent Form
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(Signature) (Participant)

Signed: ____________________________

(Principal Investigator or his/her authorized representative)

Signed: ____________________________

(Person authorized to consent for participant, if required)

Witness: ____________________________