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# Assessment of practitioner intervention in physical activity

Kristin Thea Schley

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Assessment of Practitioner Intervention in Physical Activity

by

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Thesis

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## Abstract

Lack of physical activity is a serious epidemic that affects one's health. Primary care physicians can play a key role in influencing and changing people's behaviors. The objective of this study was to assess primary care physicians' role in physical activity counseling and what if any guidelines they use. One hundred and forty-seven primary care physicians completed and returned the 23-item Physical Activity Counseling Questionnaire. Most of the respondents were over the age of 50 (58.5%), group practitioners (60.5%), male (59.9%), and have been practicing more than 20 years (50.3%). The majority of physicians "almost always" (47.6%) counseled their patients on physical activity. Time, however (81.6%), was identified as the main barrier. A significant relationship was found between physicians who scheduled follow-ups and referrals ( $\chi^2 (1) = 14.971, p < .001$ ). The four components to physical activity were recommended when counseling. The rate of physician counseling is considerably low, however, when counseling physicians meet the ACSM guidelines.

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## CHAPTER I

### Introduction

Physical activity has been shown to decrease morbidity among sedentary individuals, even at moderate levels, yet more than 60 percent of American adults remain sedentary (CDC, 2005). Sedentary individuals have an increased risk of coronary artery disease (CAD) and other chronic illnesses (Glasgow, Eakin, Fisher, Bacak, & Brownson, 2001; Green, McAfee, Hindmarsh, Madsen, Caplow, & Buist, 2002; Simons-Morton, Hogan, Dunn, Pruitt, King, Levine, & Miller, 2000).

#### *Practitioner Counseling*

Most American adults visit a primary care physician on an annual basis (Marcus, Goldstein, Jette, Simkin-Silverman, Pinto, Milan, Washburn, Smith, Rakowski, & Dube, 1997; Kreuter, Scharff, Brennan, & Lukwago, 1997). This offers the primary care physician an opportunity to question and counsel patients about the importance of physical activity (Glasgow et al., 2001; Green et al., 2002; Simons-Morton et al., 2000). Research has shown that physicians are most likely to counsel patients who are overweight or have already been diagnosed with CAD (Glasgow et al., 2001; Kreuter, 1997; Mullen, Simons-Morton, Ramirez, Frankowski, Green, & Mains, 1997). Unfortunately, however, physicians' counseling rate is generally low and ineffective (Marcus et al., 1997; Chaudhry, Kottke, Naessens, Johnson, Nyman, Cornelius, & Petersen, 2000; Hensrud, 2000; Abramson, Stein, Schaufele, Frates, & Rogan, 2000; Lewis, & Lynch, 1993). Most physicians question their

patients about their smoking habits; however, they do not spend any significant amount of time counseling them on ways to quit. Even fewer physicians address, let alone counsel on, exercise and nutrition (Hensrud, 2000)

There are several ways to improve both the efficacy and frequency of practitioner exercise counseling. These include practitioner training, behavior modification counseling, and physician support staff. Marcus et al. (1997) trained physicians in exercise counseling and found that even though physicians spent only an average of 5 minutes counseling sedentary patients, there was still a significant improvement in self-reported physical activity levels. Previous intervention studies have demonstrated that physicians who used a behavioral approach to counseling, such as the Stages of Change Model, and/or gave education materials had more success in increasing the level of physical activity and compliance rate in sedentary patients (Glasgow et al., 2001; Green et al., 2002; Marcus et al., 1997; Mullen et al., 1997). Also, a support system for physicians, such as office staff and guidelines for exercise counseling, appeared to increase the rate of physician counseling (Marcus et al., 1997; Mullen et al., 1997; Yeager, Croft, Donehoo, Heath, Macera, & Lane, 1996).

#### *Use of ACSM Guidelines*

Sedentary patients have an increased risk of CAD and other chronic illnesses, and physicians play an important role in counseling patients. For increased cardiorespiratory fitness, the American College of Sports Medicine (ACSM) recommends a minimum of 3-5 days/week of physical activity at an intensity level of 65-90 percent maximal heart rate or 55-64 percent maximal heart rate for unfit individuals, for 20-60 continuous minutes of aerobic

activity (ACSM, 2006). Thus, physicians need to counsel patients over these guidelines to address the frequency, intensity, duration, and mode of exercise. Several studies have determined methods of physician counseling (Abramson et al., 2000; Camaione, Burns, & Chatterton, 1997; Glasgow et al., 2001; Wee et al., 1999; Yeager et al., 1996) but few have directly addressed the details of the exercise prescription. In fact, very little is known about how physicians prescribe frequency, intensity, duration, and mode of exercise. Glasgow et al. (2001) found that only 40 percent of patients who received counseling received a detailed plan. Patients who received a detailed exercise prescription were more likely to meet the current recommendations set by the ACSM. Marcus et al. (1997) found that patients who received an exercise prescription increased their self-reported duration, frequency, and adherence.

It is known that physicians may counsel sedentary patients on CAD and exercise behavior. Thus, physicians play an important role in altering patients' exercise behavior. It is not known if physician exercise counseling addresses the frequency, intensity, duration, and mode of exercise.

#### Statement of the Purpose

The purpose of this study is to survey primary care practitioners on intervention techniques in physical activity counseling and to determine if the current ACSM guidelines are utilized.

## Justification and Significance of Study

With the high rate of cardiovascular disease among sedentary patients, practitioners may play a large role in counseling patients in physical activity. However, it is not known how physicians counsel patients when prescribing physical activity. There are physical activity (ACSM) guidelines that have been designed to reduce the incidence of cardiovascular disease. It is not known if practitioners follow these guidelines when prescribing exercise for their patients. The significance of this study is to evaluate the exercise prescription guidelines utilized by practitioners.

## Research Questions

1. To what extent do practitioners routinely counsel patients on the importance of physical activity?
2. To what extent are practitioners using the ACSM guidelines when counseling patients on physical activity?
3. To what extent do practitioners provide educational materials to their patients when counseling about physical activity?
4. To what extent do practitioners follow up with their patients on physical activity counseling.
5. To what extent are practitioners referring their patients for physical activity counseling?
6. To what extent do background characteristics (i.e. age, gender) of practitioners relate to the frequency of patient counseling on physical activity?

## Limitations

1. The sample was limited to active primary care practitioners working in the metropolitan Detroit area. The list of practitioners was provided by the Michigan State Medical Society.
2. The instrumentation used was a self-reported survey and therefore may be inaccurate and unreliable (Cantania, Gibson, Chitwood, & Coates, 1990).
3. There was no way to ensure that the primary practitioner, and not an assistant or nurse was completing the survey.

## Definition of Terms

1. *American College of Sports Medicine* – A nationally known sports medicine and exercise science organization that aims to educate and enhance one's quality of life.
2. *Co-morbidity* – Presence of one or more diseases in addition to the primary disease being treated.
3. *Coronary Artery Disease* – Narrowing of the arteries of the heart that carry oxygen-rich blood, which may result in a heart attack if completely blocked.
4. *Elements of Exercise* -  
Frequency – Number of weekly exercise sessions.  
Intensity – Difficulty or level of exercise.  
Mode – Type of activity or equipment used during exercise.  
Duration – Time spent exercising.

5. *Exercise* – A planned, structured, repetitive form of physical activity, longer than 20 minutes, that improves or maintains one’s physical fitness.
6. *Primary Care Physician* – A board-certified family doctor or internist who has a broad knowledge and background with common medical ailments.

## CHAPTER II

### Review of the Literature

#### *Extent of the Problem*

Despite the positive relationship and proven health benefits of physical activity, obesity and chronic disease remain a growing problem. The Centers for Disease Control and Prevention (CDC) reports that more than 50 percent of adults are not getting an adequate amount of physical activity to achieve the necessary health benefits (2007). The Global Burden of Disease Study placed physical inactivity and smoking in a list of the top ten risk factors to jeopardize health (Erikssen, Liestol, Bjornholt, Thaulow, Sandvik, & Erikssen, 1998). Obesity can lead to many chronic diseases such as hypertension, heart disease, Type 2 diabetes, arthritis, depression, and strokes. Camaione, Burns, and Chatterton (1997) reported in their review of a 1995-1996 Connecticut Survey on counseling for physical activity that 22 percent of the Connecticut population are not physically active, which represents a large portion of their population who are at risk for premature mortality.

The total cost of obesity in 2000 was estimated to be \$117 billion, with \$61 billion for direct medical costs and \$56 billion for indirect costs (CDC, 2007). The CDC reported that in the last 30 years the prevalence of obesity has more than doubled for adults, from 15.0 percent in 1976-1980 to 32.9 percent in 2003-2004. Placing the emphasis on prevention of disease versus treatment may be a critical factor for not only improving health but also in lowering the cost of treating chronic diseases. Given the current obesity epidemic, these numbers will continue to rise without immediate intervention.

### *Health-related Benefits of Physical Activity*

The known health benefits of physical activity include improvements in cardiovascular function, which includes lower blood pressure, positive changes in cholesterol, improved blood lipid concentrations, and improved body mass index (ACSM, 2006; Eyster, Brownson, King, Brown, Donatelle, & Heath, 1997). Other benefits of physical activity include decreased risk of certain types of cancer, a reduced risk of osteoporosis, and improved mental health (CDC, 2007; Eyster et al., 1997). Erikssen et al. (1998) studied the relationships among physical fitness, changes in physical fitness, and mortality in healthy middle-aged men over a 22-year period. As expected, it was found that over time, good physical fitness was related to a positive risk factor profile, which included cardiovascular health, systolic blood pressure, heart rate, blood lipid profile, body mass index, and smoking status. Similarly, those participants who improved their physical fitness over the course of the study also improved their risk factor profile. Erikssen and colleagues also indicated that even moderate improvements in physical fitness can bring about substantial improvements in health. Therefore, physical activity is a known and effective low cost intervention that helps reduce the incidence of premature mortality and morbidity.

The known benefits of physical activity are greater than just physiological. They include decreased anxiety and depression and improved feelings of self, which all affect and enhance one's life. While primary prevention is the most effective and ideal in terms of health outcomes and even cost savings, secondary and tertiary prevention are also important. The majority of deaths today are a result of chronic diseases, such as heart disease, diabetes,

and lung and liver disease, and they are a direct result of lifestyle and health behaviors (Hensrud, 2000). It is important for people to understand the risks and take responsibility for their health.

### *Physician Physical Activity Referrals*

Most Americans visit their physician at least yearly if not more. This allows physicians an opportunity to play a key role in effecting change in their patients' activity habits. Abramson, Stein, Schaufele, Frates, and Rogan (2000) report that 80 percent of Americans refer to their physician for information about health related issues. Despite the face-to-face contact with their patients, physicians' counseling/referral rate is generally low and ineffective (Abramson et al., 2000; Chaudhry et al., 2000; Hensrud, 2000; Lewis & Lynch, 1993; Marcus et al., 1997). Most physicians question their patients about their smoking habits; however, little time is spent counseling patients on ways to quit smoking. Even fewer physicians address exercise and nutrition (Hensrud, 2000). Lack of time and knowledge are the greatest hurdles for busy physicians to overcome (Abramson et al., 2000; Chaudhry et al., 2000; Eakin, Glasgow, & Riley, 2000; Bull & Jamrozik, 1998; Lewis et al., 1993; Morton, Hogan, Dunn, Pruitt, King, Levine, & Miller, 2000).

Aittasalo, Milunpalo, Stahl and Kukkonen-Harjula (2006) examined the effect of a Physical Activity Prescription Programme (PAPP) over a four-year period in Finland to increase primary care physicians' physical activity counseling. PAPP targeted primary care physicians working in municipal health centers, occupational health care, and private clinic and rehabilitation centers. The participating physicians were given a prescription guide called "Prex" to counseling patients. The "Prex" guidelines included the five A's of counseling: (1)

assessing the patient; (2) advising; (3) agreeing on goal setting and instruction; (4) assisting; and (5) arranging any additional monitoring (Aittasalo et al., 2006). Physicians were trained in the use of “Prex,” provided a “User’s Guide” with a block of 20 prescriptions and given free access to a web page for additional printed material.

Aittasalo et al.’s. (2006) evaluation of the program followed the RE-AIM framework, which included the following: (1) *Reach* – How many prescriptions were delivered? (2) *Effectiveness* – Did physicians increase counseling habits? (3) *Adoption* – How often was the “Prex” or other written material used? (4) *Implementation* – How effective was the process? (5) *Maintenance* – Was the approach to counseling adopted and maintained? It was reported that 3,048 blocks of prescription were distributed, with 50 percent to municipal health centers, 15 percent to occupational health centers, 24 percent to local projects, and 11 percent to hospitals, private clinics, and rehabilitation centers. The effectiveness of the program in increasing physicians’ rate of assessing patients on their physical activity habits increased from 64.9 percent in 2002 to 66.8 percent in 2004. Due to the large sample size in the study (n=9,435), the reported change of 1.9 percent was considered statistically significant by Aittasalo et al. (2006). With regard to the adoption phase of the RE-AIM framework, it was found that the number of physicians using “Prex” or other written material declined from 12.2 percent in 2002 to 11.0 percent in 2004. The implementation and further development of “Prex” was not successful, mainly due to a lack of demand for the on-line resources. However, 898 physicians participated in the users’ training, which represented 19 percent of municipal health centers and 16 percent of the occupational health centers. Aittasalo and

colleagues also found that by the end of 2004, 14 local projects has adopted the “Prex” guidelines to physical activity counseling and two nationally important health programs were implementing and adopting the program.

The PAPP program was successful in three of the five RE-AIM goals: reach, implementation, and maintenance. The researchers stated that the modest outcomes in effectiveness and adoption might be due to the length of the study and self-report measures. Because of the numerous factors that affect a health care setting, the adoption of a new program may be slower than anticipated. Change occurs slowly. The self-report surveys may have been a reflection of what the physicians thought they should be doing rather than what they were actually doing. Aittasalo et al. (2006) reported that the effectiveness and adoption phases could have been more successful by boosting physicians’ confidence and knowledge in counseling along with a better adoption of “Prex” on both a local and regional level.

### *Educational Material*

Lewis et al. (1993) looked at the effects of three intervention techniques and the changes in exercise habits after one-month in patients of family practice physicians. The three intervention techniques included (1) advice on exercise from the physician, (2) patient handout on exercise, and (3) a one month follow-up phone call from a staff member. Three hundred and ninety-six patients participated in the study and were separated into an experimental and control group. The participants’ pretest and posttest exercise habits were measured by using the Exercise Habit and Attitude Survey (EHAS), which addresses exercise habits in the past month, including frequency, distance, duration, attitude about physical activity, type of support system they have at home, and whether or not their

physician addressed exercise during their examination. The physicians participating in the study were also divided into an experimental and control group. The physicians in the experimental group were provided training on giving exercise advice. The patient intervention included a 2- to 3-minute oral instruction on exercise with an educational handout and the promise of a one-month follow-up telephone call from the staff. The advice portion consisted of three steps as follows: *ask* about their current exercise habits, *assess* the patient's response, and *advise* accordingly (Lewis et al., 1993). If patients were exercising more than 500kcal/week, it was considered adequate and their habits were simply reinforced, while those exercising less than 500/kcal/week were encouraged to initiate or increase their activity level.

Lewis and colleagues found that the physicians in the control group still gave "unprompted" exercise advice fairly frequently but the physicians in the experimental group were twice as likely to give advice. It was also found that the patients who received exercise advice significantly increased the amount of time spent exercising per session but not the number of times per week. There appeared to be little, if any, compliance during the one-month follow-up phase of the intervention program. It was found that most of the patients neglected this phase of the study.

Even though Lewis et al. (1993) did find positive results, there were some limitations to the study design. The physicians used for the study were family medicine residents. Residents may be more open-minded and flexible with their patient visits early on in their practice. A physician who has been practicing for years may find it harder to incorporate a change in their practice. Also, the sample used in this study - single, unemployed mothers on

Medicaid - is not very representative of the general population. However, it is encouraging that positive health behavior changes were seen in a population that may not have adequate resources available.

Bull, Jamrozik, and Blanksby (1999) took their previous study a step further and compared two levels of intervention: a standard educational handout with oral advice from a family physician versus an individualized tailored handout with oral advice from the family physician. The standard handout specifically addressed both the barriers to and benefits of regular physical activity, self-efficacy towards increasing physical activity, defined physical activity with examples, and contained six photographs of different ways to being physically active. It was aimed at sedentary patients who were in the precontemplation and contemplation stages of readiness (Bull et al.). The tailored handouts were individually created and addressed the patients' three most important barriers to physical activity, their preferred type of exercise, and included photographs of males or females being physically active, depending on participants' gender. The title on the tailored handout varied depending on their stage of change.

Patients completed a series of initial questionnaires that categorized them as participating in "vigorous exercise," "less vigorous exercise," or "walking in the previous two weeks." The questionnaires identified them by their readiness to change, and they were either in the preparation stage, contemplation stage, or precontemplation stage. Patients were also asked to identify their preferred type of exercise by choosing one of the following: fits into your day, separate from your day-to-day tasks, you can do at home, you can do with a friend, and a group or class activity (Bull et al., 1999). Last, gender, age, and main barriers to exercise were identified on the questionnaire.

Following the initial visit with the family physician, the standard or tailored handout was mailed to their home address. Additionally, all subjects were sent a follow-up questionnaire at one, six, and twelve months. A smaller subset received a telephone interview to verify changes in physical activity reported on their questionnaire.

Bull et al. (1999) considered the participants in both groups *now active* if they reported being physically active at least once during the prior two weeks. The amount of time spent being physically active was also compared to the total number of sessions. With regard to the educational handout, participants were asked questions on their recall of the handout and if they still had the material. Even though more participants in the tailored group (68%) than the standard group (57%) recalled receiving the handout, there was no significant difference. The majority of the participants in both groups (90 percent tailored; 94 percent standard) stated they had read the handout, but few still had and utilized the material (39 percent tailored; 36 percent standard).

At one-month follow-up, approximately 38 percent of the standard participants and 41.3 percent of the tailored were *now active*. There was little change in the results at six months (39.4 percent standard; 36.0 percent tailored) and twelve months (34.3 standard; 37.3 tailored). Bull et al. (1999) similarly reported no significant difference between groups at follow-up for number of reported sessions and total time spent being physically active.

One explanation for the lack of significance between the two experimental groups may be the strength in quality of the standard handout (Bull et al., 1999). The standard handout cited current literature for the sections on barriers to exercise and advantages of exercise. The participants cited similar barriers to exercise in their questionnaire as those reported in the literature. Therefore, two of the five sections of the handout were similar for

both the tailored and standard groups. Although Bull et al. did not report any significant differences between the standard and tailored groups, it is important to note that the combination of oral and written material did produce significant changes in physical activity level in the short term.

### *Effectiveness of Physical Activity Counseling*

Bull and Jamrozik (1998) examined the effectiveness of physical activity counseling along with written material on 763 sedentary adults. The participants were considered *sedentary* if they answered “no” to participating in any vigorous exercise, walking for health, or any recreational fitness activities in the two weeks prior. The intervention consisted of a brief counseling session on physical activity followed by either standard or tailored written material that was mailed to the participant’s home address. Participants were sent a reply-paid follow-up questionnaire at one, six, and twelve months. The control group received no intervention.

Change in exercise was determined based on the follow-up questionnaire. Participants were considered *now active* if they responded to being physically active the day before completing the questionnaire. Bull and Jamrozik (1998) made the assumption that all non-responders at follow-up were sedentary. A significant difference was reported between the control and intervention groups at 1 and 6 month follow-up, with no significant difference at 12 months. Thirty-one percent of controls and 40 percent of the intervention group reported being physically active at 1 month, and 30 percent of the controls and 38 percent of the

intervention group reported being physically active at 6 months. No significant differences were reported between the two groups at the 12-month follow-up, with 31 percent of the control and 36 percent of the intervention group being active (Bull & Jamrozik, 1998).

Bull and Jamrozik (1998) measured two of the four components to physical activity: frequency and duration. The recommendations were that participants be physically active for five sessions per week or at least three hours per week. Frequency was measured as the total number of sessions in the previous two weeks: 1-6 sessions, 6-9 sessions, and 10 or more sessions. Duration was similarly measured as 1-3 hours, more than 3 hours but less than 5, and 5 or more hours. The only significant difference between the control and experimental group was frequency at the one month follow-up, with 22 percent of the control and 36 percent of the intervention group reporting 10 or more sessions.

In addition to previous research, the Bull and Jamrozik (1998) study demonstrated that both oral and written advice from a physician might significantly increase short-term physical activity in sedentary patients. However, the researchers also reported significant long term (6 months) adherence to physical activity. However, results were based on self-report measures that considered the participant *now active* if he/she had undertaken a minimum of one episode of moderately intense physical activity in the preceding two weeks. The ACSM defines frequency and duration as a minimum of 3-5 days/week of physical activity at an intensity level of 65-90 percent maximal heart rate or 55-64 percent maximal heart rate for unfit individuals, for 20-60 continuous minutes of aerobic activity (ACSM, 2006). Participants may not have really been meeting ACSM's guidelines.

Marcus et al. (1997) similarly examined the effects of physician advice on physical activity on 44 middle-aged and older adults. Participants were divided into an experimental and a control group. The physicians were trained in the following five areas prior to activity counseling: (1) asking the patient about their activity level; (2) assessing their history and stage of change; (3) advising; (4) assisting the patient on how to increase activity; (5) arranging for a follow-up visit.

The counseling intervention employed used the Stages of Change Transtheoretical Model (Prochaska, 1979). The Transtheoretical Model (stages of change) looks at behaviors from the following five stages: precontemplation, contemplation, preparation, action, and maintenance. Individuals who do not currently engage in physical activity and do not plan to start are in the *precontemplation stage*. The *contemplation stage* includes those individuals who are not physically active but would like to start. The *preparation stage* includes individuals who are physically active but not on a regular basis. Those individuals in the *action stage* are regularly physically active but have been for less than 6 months, and last, the *maintenance stage* includes those who have been physically active for 6 months or longer (Marcus et al., 1997).

The participants were placed into one of the above five stages based on a questionnaire that was designed to assess their current exercise behavior. The physicians' counseling session was then based on their current stage of change. An educational booklet on physical activity was also given to the patient. Information about frequency, intensity, type, and amount of time to exercise were given to those patients who were interested in improving their level of activity.

The participants were also assigned a Physical Activity Scale for the Elderly (PASE) score, which was determined by a telephone interview and ranges from 0-360 (Marcus et al., 1997). The PASE questionnaire divides physical activity into leisure time activity, household activity, and occupational activity and measures frequency, duration, and type. PASE scores for the experimental group increased from a mean score of 148 to 154 after the intervention, while the control groups' scores were unchanged. However, there was no significant difference between the groups in the follow-up once the baseline PASE scores were controlled. Physicians were asked to rate the intervention program on a scale of 1-5 (1=not acceptable, 5=extremely acceptable) in terms of feasibility and confidence of counseling. Feasibility scores ranged from 3-4.75, and confidence scores ranged from 4.25-4.5. In summary, the Marcus study demonstrated that physician counseling did increase short-term adoption of physical activity; however, the long-term effects need to be addressed. The physicians reported an average of 5 minutes spent on activity counseling, which produced positive results. With further follow-up and longer counseling sessions, physicians could make a large impact on the activity level of their patients. The utilization of the Stages of Change Model is no doubt beneficial for activity counseling but is not always practical in the office setting because of the time involved. It is encouraging, however, that the physicians found the counseling sessions feasible to incorporate into their practice.

Norris et al. (2000) examined the effects of the Physician Based Assessment and Counseling for Exercise (PACE) intervention techniques on 812 healthy patients, age 30 years and older, who were scheduled for a well visit. Patients were randomly placed into a control group or an intervention group. The intervention group was counseled by the physicians based on their level of activity and readiness to change. Patients were identified as

precontemplators, contemplators, or active. The intervention group received a follow-up phone call approximately four weeks after the initial visits to answer any questions and reinforce the initial counseling. A smaller subset of the intervention group received additional follow-up at 2, 3, 4, and 5 months to determine if additional guidance would enhance physical activity.

At the six-month follow-up, the intervention group had a significantly higher PACE score than the control group with the contemplators significantly increasing their PACE score ( $p=0.03$ ) but not the precontemplators or actives (Norris et al., 2000). There were no significant differences between the control group and intervention group for physical activity variables, which included the Paffenbarger physical activity index, PASE scores, total physical activity in minutes per week, or total time spent walking. Based on patient reports, both the intervention and control providers increased their rate of counseling, but only the intervention group increased significantly ( $p=0.001$ ). Comparisons between the intervention group and the enhanced intervention group reported no significant increases in physical activity measures.

Norris et al. (2000) did not report the PACE counseling to have significantly increased physical activity levels in the present study. The patient population at baseline reported to be very physically active prior to participation and may not have benefited from counseling. Forty-eight percent of the participants reported to be engaged in moderately intense activity three or more times per week, which did not make this an ideal sample. Based on participant reports, the control providers increased their counseling from 55-81 percent, which made it difficult to determine any between-group differences. It was also suggested that the negative results could have been due to seasonal variability in Washington

state, self-report measures, and insufficient follow-up. Although no significant changes were reported in increased physical activity in an already active population, reinforcing and encouraging the behaviors may enhance long term adherence and improve health.

Morton et al. (2000) examined the factors associated with different physical activity levels from the Activity Counseling Trial (ACT), which was a 5-year multi-center trial. Participants of the trial included inactive primary care patients aged 35-75 years without any evidence of cardiovascular disease and whose energy expenditure was less than 35kcal/kg/day. Measured variables included gender, age, race, education, income, employment status, marital status, resting blood pressure, blood lipid profile, body mass index, smoking history, psychosocial variables, physical activity level, and Vo<sub>2</sub>max (Morton et al., 2000). Participants were placed into one of the following three groups: (1) no moderate or vigorous physical activity, (2) some moderate intensity but no vigorous activity, (3) some vigorous activity.

Results from Morton et al.'s (2000) analysis revealed that 90 percent of the participants were under 65 years of age, more than 40 percent had incomes of \$75,000 or more, 80 percent were employed, 90 percent were or had been married, and less than half of the women and two-thirds of the men used alcohol. One-third of the patients were hypertensive, with a mean blood pressure of 130/83, and 43 percent had uncontrolled hypertension at  $\geq 140/90$ . Lipid profiles showed that one-quarter of the patients had high cholesterol, with a mean LDL of 165 mg/dl. Three-quarters of the patients were considered overweight, and 85 percent had one or more risk factor besides physical inactivity for cardiovascular disease. Ninety percent reported being non-smokers.

Physical activity measures based on a 7-day PAR revealed that, on average, participants spent 11.5 min/day in moderate physical activity and only 2.0 min/day in vigorous physical activity. Measured VO<sub>2</sub>max results showed that 85 percent had poor to fair physical fitness and < 5% had good to excellent fitness. Morton et al. (2000) found significant ( $P < 0.05$ ) unadjusted relationship between demographic and socioeconomic status and the three physical activity categories. Characteristics of those more likely to participate in vigorous physical activity included being male, being under the age of 65, being Caucasian, having a higher level of education, having a higher income level, and using alcohol. Homemakers (who were mainly women), retired individuals, and women were more likely to participate in moderate activity. In the present analysis, stress and symptoms of depression, surprisingly, did not have any significant relationship to physical activity levels. However, self-efficacy did have a significant ( $P < .001$ ) relationship to physical activity level. As expected, those participants with greater self-efficacy participated in some moderate to vigorous activity.

One important finding from Morton et al.'s (2000) analysis is that 85 percent of the participants had at least one risk factor for cardiovascular disease, other than the fact that they were physically inactive. A criterion for participation was to have no history or evidence of heart disease. Physical activity plays an important role in the prevention and treatment of cardiovascular disease, thus this patient population would benefit greatly from physician counseling on physical activity. Generally, it is safe to say that individuals who are inactive place less value on physical activity and are less informed about the positive health and emotional benefits of physical activity. That is why education and counseling for this population is important. It is also difficult to generalize these relationships because the

majority of the participants had higher educational and income levels. The participants may have been more knowledgeable about the health benefits of physical activity and therefore more motivated to participate.

Eakin et al. (2000) reviewed primary care physical activity interventions using the RE-AIM framework. After an electronic search for the years 1980-1998, Eakin et al. included fifteen articles for final review that included randomized controlled trial or quasi-experimental studies using a comparison group. The intervention was delivered or initiated in a primary care setting, and the studies reported at least one measure of physical activity (Eakin et al.).

Eakin et al. (2000) found that the majority of physical activity studies are successful in changing physical activity habits in the short-term, but most long-term follow-up is not as successful. In addition, there was not a clear relationship between who delivered the counseling and the effectiveness. Of the seven studies reviewed that showed significant short-term improvements in physical activity, four had the physician delivering the counseling, one a nurse, and two a health educator/physician combined. In the three studies that showed significant long-term results, the counseling was delivered in one study by a physician, one by a nurse, and one by a public health student (Eakin et al.). These results suggest that patient education on the benefits of physical activity does not depend on the professional level of the person delivering the information.

Eakin et al. (2000) found that walking was the most frequently recommended activity and that brief counseling, 3-10 minutes, was just as effective as longer counseling sessions. Interventions that were tailored to the individuals' characteristics affected behavior in six of the seven studies that reported significant short-term results and only one of the three that

reported long term effects. Similarly, six of seven studies reported that written materials affect short-term adherence and two of three studies used written materials that reported long term effects. Overall, Eakin et al. found that theory-based studies, such as the social-cognitive theory, did not appear to be more successful than those that did not use a theory-based intervention technique. Along with Aittasalo et al. (2006), Eakin et al. (2000) reported that with RE-AIM, the adoption and maintenance phases need additional research. In summary, Eakin et al. recommend, based on their review, that intervention should focus on physical activity as opposed to multi-risk factors during the initial intervention. Changing more than one unhealthy behavior at a time may not be as effective. Both written materials and tailoring to an individual's needs can enhance a patient's program success. Last, Eakin et al. suggest that physical activity counseling can be successful when delivered by health care providers other than physicians. This is an important recommendation since most physicians find time as the number one barrier to counseling.

Another important aspect for physicians to consider when counseling their patients on physical activity is to clearly explain and define the difference between physical activity and exercise. Many patients may be physically active, doing such things as gardening, walking the dog, mowing the lawn, and daily housework; however these activities do not achieve the same heart healthy benefits of regular exercise. For patients to achieve the necessary health benefits of exercise, their heart rate needs to remain elevated continuously for at least 20 minutes, with a gradual increase in duration and intensity over time (ACSM, 2006). Physicians can make a great impact on their patients by accurately informing them about their risk and about the great benefits of implementing a simple exercise program. Again, this is a simple, low cost intervention to enhance an individual's health and life.

Adherence rates, however, were only measured short term. Future research needs to address long-term adherence rates. These studies, however, have not determined the exercise prescription and programming guidelines recommended by the physician. Also, the literature is lacking information on the physician's role in the patient's exercise adherence. The main barriers identified by physicians for the lack of physical activity counseling are lack of time and inadequate knowledge or skills (Abramson et al., 2000; Chaudhry et al., 2000; Cram et al., 1998; Hensrud, 2000; Yeager et al., 1996).

## CHAPTER III

### Methods

#### *Institutional Review Board Approval*

This research protocol was approved by the College of Health and Human Services, Human Subjects Review Committee at Eastern Michigan University.

#### *Research Design*

A descriptive, cross-sectional design was used for the proposed study. With this technique, information was collected and used to describe primary care physicians' current level of physical activity counseling.

#### *Instrumentation*

##### The Physical Activity Counseling Questionnaire

The Physical Activity Counseling Questionnaire, a 23-item instrument, was used to assess the physical activity intervention techniques used by health practitioners during routine medical check-ups. The first section of the survey consisted of sixteen physical activity counseling questions, followed by seven demographical questions (Appendix A). Abramson et al. (2000) used a similar survey to evaluate the personal exercise habits and counseling practices of pediatricians, family practitioners, internists, and geriatrists. It was found that the physicians themselves were more likely to participate in aerobic conditioning over strength training and those that were active had a higher rate of counseling (Abramson et al., 2000). The overall response rate was 25 percent. The following is a brief description of the scales that were used to measure the variables of interest.

### *Physical Activity Counseling*

Ten items were used to measure the participants' physical activity counseling rates and practices. For example, participants were asked how much time they spend during a routine visit counseling patients on the importance of physical activity. If the participants do counsel, they were asked follow-up questions such as whether they refer patients for physical activity guidance and whether they schedule any follow-up.

### *Exercise Prescription*

Six items were used to measure the participant's use of an exercise prescription. They were asked if they prescribed a specific exercise intensity, frequency, duration, and mode for their patients. They were also asked what they felt was the biggest obstacle to physical activity counseling.

### *Demographics*

Seven items addressed the participants' demographics such as, age, gender, and specialty.

## Procedure

### *Sample and Sample Recruitment*

A mailing list of active primary care physicians was obtained from the Michigan State Medical Society (MSMS). The selection criteria for physicians who received the survey were active, non-student, registered primary care physicians working in the Washtenaw and Wayne County area. Based on the list received from the MSMS, 560 physicians received the survey.

### *Data Collection*

Questionnaires and Letters of Consent (see Appendix B) were mailed to 560 physicians in June 2007. If the physician was not the person responsible for counseling patients on physical activity, he or she was directed (via a cover letter) to pass the questionnaire and Letter of Consent to the person with those responsibilities (physician assistant, nurse practitioner, etc.). Participants were not compensated for their willingness to participate. An identification number was assigned to each participant. The identification number was used for data entry purposes and to match the participant to the original mailing list, if a participant requests that the results be sent to them (as indicated on the survey). Participants were asked to complete the survey and return it to the investigator in a self-addressed, stamped envelope within three weeks of receipt. One month after the initial mailing, a follow-up letter and questionnaire was sent.

## *Data Analysis*

This study sought to answer six key questions: (1) To what extent do practitioners routinely counsel patients on the importance of physical activity? (2) To what extent are practitioners using the ACSM guidelines when counseling patients on physical activity? (3) To what extent do practitioners provide educational materials to their patients when counseling about physical activity? (4) To what extent do practitioners follow up with their patients on physical activity counseling? (5) To what extent are practitioners referring their patients for physical activity counseling? (6) To what extent do background characteristics (i.e. age, gender) of practitioners relate to the frequency of patient counseling on physical activity?

Univariate summary statistics and cross tabulations were used to describe the sample with respect to specialty, years in practice, type of practice, gender, and age. The Statistical Package for the Social Sciences (SPSS) version 14.0 was used to conduct frequency analysis and cross tabulations. Frequency distributions were run to analyze and measure physicians' physical activity counseling behaviors, type of guidelines given (specifically ACSM), the use of educational materials with counseling, and if any type of follow-up was recommended. Results will be considered significant with a p value of less than 0.05.

## CHAPTER IV

### Results

The present descriptive study sought to determine the level of physical activity counseling performed by physicians. This chapter includes a description of the sample that was surveyed and the results from statistical analysis.

#### Description of the Sample

The Physical Activity Counseling Questionnaire was sent by mail to 560 primary care physicians in Washtenaw County and Wayne County, Michigan. As a result of the two mailings, 147 registered, active, primary care physicians completed the 23-item survey. Eighty-nine physicians completed and returned the survey after the first mailing, and 58 surveys were completed and returned after the second mailing (see Table 1). The majority of respondents were internal medicine practitioners (55.1%). Approximately half of the respondents (50.3%) had been in practice for 20 or more years, and more than half (58.5%) were over the age of 50. Most of the respondents were in a group practice (60.5%), and approximately 60 percent were male.

Table 1

*Demographical Characteristics*

Characteristics	Number (n)	Percent (%)
Gender		
Females	55	37.4
Males	88	59.9
Missing	4	2.7
Age		
<30 years old	2	1.4
30-35 years old	6	4.1
35-40 years old	16	10.9
40-45 years old	11	7.5
45-50 years old	22	15.0
> 50 years old	86	58.5
Missing	4	2.7
Specialty		
General Practice	5	3.4
Internal Medicine	81	55.1
Family Practice	34	23.1
Other	26	17.7
Missing	1	0.7
Type of Practice		
Solo	31	21.1
Group	89	60.5
Hospital	14	9.5
Clinic	10	6.8
Missing	3	2.0
Years in Practice		
< 5 years	12	8.2
6-10 years	19	12.9
11-15 years	18	12.2
16-20 years	21	14.3
> 20 years	74	50.3
Missing	3	2.0

### *Physical Activity Counseling*

Participants were asked to identify whether physical activity counseling took place, and, if so, how often it occurred. Nearly half (47.6%) stated that physical activity counseling took place “*almost always*,” 36.1 percent reportedly counseled “*sometimes*,” and 16.3 percent “*always*” counseled patients on the health benefits of physical activity. Chi-square tests for independence were calculated comparing physical activity counseling to area of specialty, years in practice, gender, age, and type of practice. No significant relationships were found (see Table 2).

With regard to counseling, participants were asked to identify how much time on average each spent counseling patients on physical activity. Only 2 percent counseled for 10 minutes, while 12.2 percent counseled 6-10 minutes. The majority of physicians (69.4%) counseled patients for 1-5 minutes, while 16.3 percent counseled less than one minute. When asked to rate the level of comfort each felt when prescribing physical activity, less than half (48.3%) of the respondents felt “*very comfortable*.”

Table 2  
*Cross-Tabulations of Physical Activity Counseling*

	Always		Almost Always		Sometimes	
	(n)	(%)	(n)	(%)	(n)	(%)
<b>Gender</b>						
Females	10	6.8	27	18.4	18	12.2
Males	14	9.5	41	27.9	33	22.4
Missing	0	0	2	1.4	2	1.4
<b>Age</b>						
<30 years old	1	0.7	1	0.7	0	0
30-35 years old	2	1.4	2	1.4	2	1.4
35-40 years old	3	2.0	10	6.8	3	2.0
40-45 years old	1	0.7	4	2.7	6	4.1
45-50 years old	3	2.0	5	3.4	14	9.5
> 50 years old	14	9.5	47	32	25	17
<b>Specialty</b>						
General Practice	2	1.4	1	0.7	2	1.4
Internal Medicine	13	8.8	39	26.5	29	19.7
Family Practice	3	2.0	19	12.9	12	8.2
Other	6	4.1	10	6.8	10	6.8
Missing	0	0	1	1.7	0	0
<b>Type of Practice</b>						
Solo	6	4.1	17	11.6	8	5.4
Group	15	10.2	42	28.6	32	21.8
Hospital	2	1.4	5	3.4	7	4.8
Clinic	1	0.7	5	3.4	4	2.7
Missing	0	0	1	0.7	2	1.4
<b>Years in Practice</b>						
< 5 years	5	3.4	5	3.4	2	1.4
6-10 years	2	1.4	9	6.1	8	5.4
11-15 years	1	0.7	9	6.1	8	5.4
16-20 years	2	1.4	11	7.5	8	5.4
> 20 years	14	9.5	35	23.8	25	17.0
Missing	0	0	1	0.7	2	1.4

### *Educational Material*

Participants were asked if educational materials were provided when physical activity counseling took place, and, if so, what type of materials were used. Only 36.1 percent provided educational material. Of the educational material provided, written material was the most frequently provided. Table 3 shows the frequency and type of educational material provided.

Table 3  
*Educational Material Provided During Counseling*

	Frequency	Percent
Educational Materials Provided		
Yes	53	36.1
No	94	63.9
Type of Material Provided		
Written Material	53	100
Video/DVD	0	0.0
Website	8	5.4
Other	1	0.7

### *Follow-up Visit*

In response to whether follow-up appointments were scheduled following advice given to patients on improving physical activity levels, less than half (42.2%) stated that appointments were made. A chi-square test of independence was calculated comparing the frequency of recommending follow-up visits and the frequency of referrals. A significant interaction was found ( $\chi^2 (1) = 14.971, p < .001$ ). Those physicians who scheduled follow-up visits were more likely to refer their patients to physical activity specialists.

### *Physical Activity Referrals*

Participants were asked how often patients were referred to a specialist for physical activity guidance. Less than half (46.9%) reported that patients were referred to an exercise specialist. Those who did refer patients often sought assistance from a physical therapist (31.1%).

### *Rate of ACSM Guideline Use*

Participants were asked if ACSM guidelines were being followed when counseling patients on physical activity. In particular, the four components of physical activity - frequency, intensity, mode, and duration - were measured. Results indicated that the majority of respondents did recommend the four components of physical activity when counseling patients: Frequency (92.5%); Duration (89.1%); Intensity (86.4%); and Mode of Exercise (85%). Table 4 provides a detailed account of the specific recommendations made by the participating physicians.

### *Greatest Obstacle to Physical Activity Counseling*

Participants were asked to identify the biggest obstacle to physical activity counseling. The most frequently indicated obstacle was time (81.6%), with 27.9 percent indicating that reimbursement was the biggest obstacle; 20.4 percent, knowledge; and 16.3, other reasons.

Table 4  
*Recommended Physical Activity Guidelines*

	Frequency	Percent
Days Per Week		
3 days	28	19.0
4-5 days	73	49.7
6-7 days	28	19.0
missing	18	12.3
Intensity Level		
40-49%	33	22.4
55-64%	22	15.0
60-80%	32	21.8
70-85%	7	4.8
Depends	13	8.8
Missing	40	27.2
Duration (minutes)		
< 30 minutes	34	23.1
30-45 minutes	81	55.1
46-60 minutes	5	3.4
Missing	27	18.4
Mode		
Walking	104	32.6
Running	17	5.3
Bicycle	48	15.0
Swimming	64	20.0
Aerobic Class	19	2.8
Weight Training	23	7.2
Elliptical	14	4.3
Other	30	9.4

## Chapter V

The present study assessed primary care physicians' intervention techniques in physical activity counseling and tried to determine if the ACSM guidelines were being utilized. This chapter will present the conclusions and recommendations from the assessment conducted in this study. The following research questions guided this study:

1. To what extent do practitioners routinely counsel patients on the importance of physical activity?
2. To what extent are practitioners using the ACSM guidelines when counseling patients on physical activity?
3. To what extent do practitioners provide educational materials to their patients when counseling about physical activity?
4. To what extent do practitioners follow up with their patients on physical activity counseling?
5. To what extent are practitioners referring their patients for physical activity counseling?
6. To what extent do background characteristic (i.e. age, gender) of practitioners relate to the frequency of patient counseling on physical activity?

### Summary of Procedures

The 23-item Physical Activity Counseling Questionnaire was mailed to 560 physicians in the Washtenaw and Wayne County area. Participants were asked to complete

the survey and return it to the investigator in a self-addressed stamped envelope. After one month, a follow-up questionnaire was mailed. Each participant was assigned an identification number on his/her survey for data entry purposes.

## Summary of Findings and Discussion

### *Physical Activity Counseling*

Of the 147 respondents, nearly half (47.6%) “*almost always*” counsel, 36.1 percent counsel “*sometimes*,” and 16.3 percent “*always*” counsel on the importance of physical activity. These values are considerably low, given that approximately 80 percent of the population depends on their physician for advice and recommendations on physical activity (Abramson et al., 2000). No significant differences were found for physical activity counseling and demographics; however, male physicians (59.9%), over the age of 50 (58.5%), who were internal medicine specialists (55.1%), who worked in a group practice (60.5%), and have been in practice for more than twenty years (50.3%), were more likely to counsel. It is surprising that in today’s practices, the younger physicians had such a lower rate of counseling given how much attention and resources are spent on obesity and the many chronic diseases associated with a sedentary lifestyle.

When counseling, the majority of respondents spent 1-5 minutes for physical activity guidance. Previous research identifies lack of time as the greatest barrier to physical activity counseling (Abramson et al., 2000; Chaudhry et al., 2000; Cram et al., 1998; Hensrud, 2000; Yeager et al., 1996). The results of the current study also identified time (81.6%) as the greatest obstacle to counseling. Considering that most sedentary people have little if any knowledge of the importance of physical activity, less than five minutes seems like hardly

enough time to educate and provide the tools necessary to get started in a physical activity program. However, Marcus et al. (1997) reported a significant improvement in self-reported physical activity with only five minutes of counseling.

### *Use of ACSM Guidelines*

ACSM suggests a minimum of 3-5 days/week of physical activity at an intensity level of 65-90 percent maximal heart rate or 55-64 percent maximal heart rate for unfit individuals, for 20-60 continuous minutes of aerobic activity (ACSM, 2006). This recommendation includes the four components to physical activity: frequency, intensity, mode, and duration. For frequency, nearly half (49.7%) recommend 4-5 days/week, which falls in the ACSM minimum guidelines. The results for intensity level were a little more varied, with approximately 22 percent recommending both 40-49 percent and 60-80 percent intensities. Only 15 percent suggested an intensity of 55-64 percent. Intensity is a difficult component to counsel on without first performing a cardiovascular assessment to determine specific heart rate zones. The use of a heart rate monitor is also important during physical activity to make sure the participant is staying in the recommended intensity range. Last, depending on any co-morbidity, intensity level may vary. More than half (55.1%) of the respondents followed the ACSM guidelines for duration by recommending 30-45 minutes of physical activity. For those participants who did give a detailed plan, a specific mode was always suggested, with walking being the number one mode of choice (32.6%), followed by swimming (20%) and biking (15%). These are all low impact and fairly accessible modes for an individual beginning a physical activity program. The results suggest that when physicians are

counseling patients on physical activity, they are likely to meet the ACSM recommendation. Previous research has also shown that when a patient is given a detailed physical activity program, he/she has a greater rate of adherence (Glasgow et al., 2001; Marcus et al., 1997).

#### *Use of Educational Material*

Previous research has demonstrated that providing educational material when counseling increases the rate of adherence in the short term (Bull et al., 1999; Eakin et al., 2000; Marcus et al., 1997). Of respondents in the current study, only approximately 36 percent were providing educational material with their counseling. Written material was the primary form of educational material given or suggested to patients. All of the 53 respondents who indicated “yes,” they provide educational material, indicated that written material is the main form. An educational handout appears to be the simplest and most cost-effective way to provide information. There is little research available on the effects of a “tailored” versus a “standard” handout on physical activity adherence. One would think that having a tailored handout to one’s individual needs would increase rate of adherence. However, Bull et al. (1999) found that there were no significant differences between a “tailored” group and “standard” group.

#### *Patient Follow-Up and Referral*

Less than half (42.2%) reported that follow-up appointments were made for their patients. This is not surprising given that time is the number one barrier reported, in the current study and in previous research, that physicians report for not counseling on physical activity (Abramson et al., 2000; Chaudhry et al., 2000; Cram et al., 1998; Hensrud, 2000;

Yeager et al., 1996). If physicians do not have the time during the initial evaluation, most likely time will be limited for future visits as well. Those who reported scheduling follow-up visits were also more likely to refer the patient to a specialist for physical activity assistance. In fact, a significant interaction was found between frequency of recommending follow-up and frequency of referring ( $p < 0.001$ ). Physical therapists were the most frequently reported specialist to whom the physicians in the current study referred patients. Physicians and exercise specialists who work together and development a working relationship could not only benefit the health and well-being of the patient but also free up time for busy physicians and clarify their knowledge in physical activity. There is little if any research that directly measures follow-up visits and referrals.

### Limitations

The present study's results were limited to physicians practicing in Washtenaw and Wayne counties, which cover only a small area of the metro Detroit area and are difficult to generalize. The rate of response was better than expected but still low (26%) considering how many surveys were mailed. Given that time was the number one reason for not counseling on the importance of physical activity, those same time barriers may be the cause of the low response rate. Participants were asked to identify whether physical activity counseling took place and, if so, how often it occurred by choosing one of the four choices: (1) never; (2) sometimes; (3) almost always; and (4) always. For more accurate and reliable measures, these choices need to be quantified. The results obtained were self-reported and therefore are not very reliable or accurate (Cantania, Gibson, Chitwood, & Coates, 1990).

There was no way to ensure that the physician was the one who completed the survey. Also, as previously reported, the physicians may have been reporting more of what they should be doing than what they are doing (Aittasalo et al., 2006).

### Recommendations for Future Research

It would be interesting to do a similar study that examines physicians from across the country. Are physicians in healthier states doing more counseling, or will the trend be the same? Given that time and knowledge were the main barriers identified in this study, more time should be spent on increasing physicians' confidence and knowledge in physical activity counseling (Aittasalo et al., 2006). Marcus et al. (1997) reported that training physicians to counsel on physical activity increased short-term patient adherence rates. Given the time restraints placed on physicians, future physical activity counseling training should include more support staff.

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## APPENDICES

## APPENDIX A: The Physical Activity Counseling Questionnaire

(Please check or write-in the response that most appropriately describes you and your practice)

### Physical Activity Counseling

1. Who in your office/practice routinely counsels patients on the importance of physical activity?

Primary Care Physician    \_\_\_\_\_ MD    \_\_\_\_\_ DO  
\_\_\_\_\_ Physicians Assistant  
\_\_\_\_\_ Nurse Practitioner  
\_\_\_\_\_ Medical Resident  
\_\_\_\_\_ Other  
\_\_\_\_\_ All that apply

2. During a routine patient visit, how often do you ask if your patients are physically active?

\_\_\_\_\_ never    \_\_\_\_\_ sometimes    \_\_\_\_\_ almost always    \_\_\_\_\_ Always

3. During a routine patient visit, how often do you counsel your patients on the health benefits of physical activity?

\_\_\_\_\_ never    \_\_\_\_\_ sometimes    \_\_\_\_\_ almost always    \_\_\_\_\_ Always

*\*\* Note if 'never' skip to question #16*

4. Approximately how much time do you spend when counseling patients on physical activity?

<1 minute    \_\_\_\_\_    1-5 minutes    \_\_\_\_\_  
6-10 minutes    \_\_\_\_\_    >10 minutes    \_\_\_\_\_

5. Do you provide any types of educational materials with your physical activity counseling?

Yes    \_\_\_\_\_    No    \_\_\_\_\_ (skip to # 7)

6. If you answered yes to #5 what type of educational materials do you provide?

Written Material    \_\_\_\_\_    Website    \_\_\_\_\_  
Video/DVD    \_\_\_\_\_    Other (please specify)    \_\_\_\_\_

7. Do you schedule follow-up visits after you have given a physical activity prescription?

Yes \_\_\_\_\_ No \_\_\_\_\_

8. How comfortable do you feel prescribing physical activity guidelines for your patients?

Very comfortable \_\_\_\_\_  
Comfortable \_\_\_\_\_  
Somewhat comfortable \_\_\_\_\_  
Not comfortable at all \_\_\_\_\_

9. Do you refer your patients to a specialist for physical activity guidance?

Yes \_\_\_\_\_ No \_\_\_\_\_

10. If you answered yes to #9, which specialist do you refer the most?

Exercise Physiologist \_\_\_\_\_  
Personal Trainer \_\_\_\_\_  
Physical Therapist \_\_\_\_\_  
Other (please specify) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. When you do suggest that your patient becomes physically active, do you recommend a specific frequency (days per week)?

Yes \_\_\_\_\_ No \_\_\_\_\_

12. When you do suggest that your patient becomes physically active, do you recommend a specific intensity (low, moderate, high)?

Yes \_\_\_\_\_ No \_\_\_\_\_

13. When you do suggest that your patient becomes physically active, do you recommend a specific mode (walking, swimming, etc.)?

Yes \_\_\_\_\_ No \_\_\_\_\_

14. When you do suggest that your patient becomes physically active, do you recommend a specific duration (time)?

Yes \_\_\_\_\_ No \_\_\_\_\_

15. If you answered yes to questions #11-14, what guidelines do you typically recommend? (Please describe)

Times per week \_\_\_\_\_ (days)

Intensity level 40-49% \_\_\_\_\_ 55-64% \_\_\_\_\_

60-80% \_\_\_\_\_ 70-85% \_\_\_\_\_

Duration of physical activity per session \_\_\_\_\_ (minutes)

Mode of physical activity (list these below)

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16. What do you feel is the greatest obstacle(s) to physical activity counseling? (Choose all that apply)

Time \_\_\_\_\_ Lack of Knowledge \_\_\_\_\_

Reimbursement \_\_\_\_\_ Other (please list below)

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**Demographics**

1. What is your specialty?

General Practice \_\_\_\_\_  
Internal Medicine \_\_\_\_\_  
Family Practice \_\_\_\_\_  
Other \_\_\_\_\_

2. How many years have you been in practice?

5 or less \_\_\_\_\_  
6-10 \_\_\_\_\_  
11-15 \_\_\_\_\_  
16-20 \_\_\_\_\_  
20 or more \_\_\_\_\_

3. Which of the following best describes your practice?

Solo \_\_\_\_\_  
Group \_\_\_\_\_  
Hospital \_\_\_\_\_  
Clinic \_\_\_\_\_

4. Gender

Male \_\_\_\_\_  
Female \_\_\_\_\_

5. Age

<30 \_\_\_\_\_ 30-35 \_\_\_\_\_  
35-40 \_\_\_\_\_ 40-45 \_\_\_\_\_  
45-50 \_\_\_\_\_ >50 \_\_\_\_\_

6. Would you like a copy of the results of this survey?

Yes \_\_\_\_\_  
No \_\_\_\_\_

7. Who completed this survey?

Primary Care Physician \_\_\_\_\_ MD \_\_\_\_\_ DO  
\_\_\_\_\_  
Physicians Assistant  
\_\_\_\_\_  
Nurse Practitioner  
\_\_\_\_\_  
Medical Resident  
\_\_\_\_\_  
Other  
\_\_\_\_\_  
All that apply

*Your time and participation are greatly appreciated!*

Comments:

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## APPENDIX B: Statement of Informed Consent

### Eastern Michigan University School of Health Promotion and Human Performance Information of Risk

#### **Description of the Study:**

The purpose of this research study is to survey health care professionals on intervention techniques in physical activity counseling. Additionally, we will be trying to determine if the current American College of Sports Medicine guidelines are being used.

#### **Benefits and Risks:**

As a participant in this study you will not benefit personally. However, you will be helping to understand what intervention techniques and counseling strategies are being used to address the lack of physical activity in our area. The risks are minimal if any. If for any reason, you experience distress during the course of this study, please notify the researcher.

#### **Voluntary Participation:**

Your participation is completely voluntary. If you have any questions or concerns during the course of the study please feel free to contact the investigator. You will in no way be compensated or credited for your participation.

#### **Right to Withdraw:**

You have the right to refuse participation and withdraw from the study at any time. You may refuse to answer specific questions. There will be no negative consequences from your withdrawal or refusal to answer.

#### **Confidentiality:**

All responses are treated as confidential, and in no case will responses from any individual be identified. No names will be placed on the testing instruments at any time during the study. The completed questionnaires will be kept in a locked file drawer in the principal investigator's office.

#### **Results of the Study:**

The results of the study will be shared with the investigator's thesis committee and may be presented at an exercise physiology professional conference.

#### **Completion and return of the questionnaire signifies consent to participate.**

If you have any questions or concerns related to this study, please contact:

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Chair  
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