

# **Physicians' Physical Activity Assessment and Counseling Practices**

## **A Study of North Dakota Primary-Care Practitioners**

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### **BACKGROUND AND PROBLEM DEFINITION**

Regular physical activity reduces the risk of developing many chronic diseases including coronary heart disease, hypertension, colon cancer, and diabetes mellitus. It also improves mental health and is important for the health of muscles, bones, and joints. (1) Regular physical activity maintains the functional independence of older adults and enhances the quality of life for people of all ages. (2) Although these benefits have long been assumed, it wasn't until recently that many national organizations including the American Heart Association (AHA) and the American College of Sports Medicine (ACSM), developed formal recommendations to the public regarding physical activity. This is largely due to research that has been accumulating on physical activity in recent years. (1)

Original recommendations from these groups were specific to improving fitness levels, recommending sustained vigorous physical activity lasting at least 20 minutes on three or more days per week. (1) Although research supports the fact that physical activity is essential for good health, most Americans dislike vigorous exercise and are discouraged by their inability to adhere to an exercise program. Hence, more research focused on the benefits of less vigorous physical activity, and recommendations for physical activity changed accordingly. Currently the ACSM and the AHA, along with the Centers for Disease Control and Prevention (CDC), the President's Council on Physical Fitness and Sports (PCPFS), and the National Institutes of Health (NIH), all recommend regular, moderate-intensity physical activity for those who get little or no exercise. (1)

The specific recommendation from all the groups is that “most American adults should accumulate 30 minutes of moderate physical activity on most, preferably all, days of the week.” Moderate physical activity is defined as that which is similar to the pace of a brisk walk. Additional benefits are gained by further increasing either the intensity or the amount. (1)

The term physical activity needs to be distinguished from the terms exercise and physical fitness. Physical activity is defined as bodily movement that is produced by the contraction of skeletal muscles and that substantially increases energy expenditure; exercise is defined as planned, structured, and repetitive bodily movement done to improve or maintain one or more components of physical fitness; and physical fitness is a set of attributes that people have or achieve that relates to the ability to perform physical activity. (2) Besides the differences in definitions, the term physical activity seems to carry the added benefit of being less intimidating to the inactive person than the terms exercise and physical fitness.

Unfortunately, although many Americans are aware of the need to be physically active, most do not engage in this healthful behavior on a regular basis. Nationally, more than 60 percent of adults are not regularly physically active, and 25 percent are not active at all. (1) In North Dakota, 57 percent of adults over age 18 are not regularly active, and 33 percent of North Dakota adults are not active at all. (3) Physical inactivity can also contribute to obesity, another risk factor for many chronic diseases. In North Dakota, 33 percent of adults are overweight, an increase since 1994 when 27 percent of North Dakota adults were overweight. (3)

In addition to the importance placed on physical activity by the above organizations, it is also one of the opportunities identified by the U.S. Department of Health and Human Services in the *Healthy People 2010* document to improve the health of all Americans. These national health objectives were originally set in 1979. Their

progress has been monitored, and the objectives have been revised accordingly. One of the Healthy People 2010 objectives is to “increase to at least 30 percent the proportion of people aged 18 and older who engage regularly, preferably daily, in sustained physical activity for at least 30 minutes per day.” (2) Unfortunately only 19 percent of North Dakotans met this objective in 1998. (3)

Many factors affect an individual’s willingness to be physically active. Behavioral research has been done on physical activity in adults, adolescents and children, and special population groups such as minority groups and the overweight. This research includes both the factors influencing physical activity and the strategies and programs to increase this behavior. Because the majority of Americans are not physically active, the researchers continue to look for effective strategies to increase participation in this healthful activity. (1)

Channels for promoting behavior changes include schools, communities, worksites, and health care settings. (4) Ideally, promotions done in one setting would complement those done in other settings. The focus of this study is health care settings.

Approximately eighty percent of the U.S. population sees a physician during a one-year period. (1) This provides health professionals an opportunity for counseling patients on healthful behaviors. However, the amount and the quality of physician counseling regarding physical activity behaviors is not clear. Also unclear is the effectiveness of physician counseling on increasing physical activity levels of their patients, although recent studies support the concept that physicians can positively affect a patient’s physical activity levels. (5,6,7)

Cardiovascular disease (heart disease) is the leading cause of death in both the United States (8) and in North Dakota. (9) Three of the primary risk factors for cardiovascular disease are physical inactivity, a diet high in fat, and smoking. Data analyzed from CDC's National Ambulatory Medical Care Survey (NAMCS) indicate that

counseling for the prevention of cardiovascular disease was not included in a high proportion of office visits in 1995. Physicians reported offering counseling about physical activity during only 19.1 percent of office visits (general medical or routine gynecologic examinations). Counseling was reported more commonly for persons aged 50-64 years and more commonly for men than for women.

Recommendations to physicians regarding counseling do exist. The U.S. Preventive Services Task Force specifically recommends physical activity assessment and counseling to all patients, and that the physical activity be tailored to their individual health status and lifestyle. This handbook concurs with the recommendations listed above to incorporate 30 minutes of moderate physical activity into one's daily routine. This recommendation for counseling exists because of the proven benefits of physical activity as it relates to reducing an individual's risk of disease. (10)

In addition, one of the physical activity objectives in the *Healthy People 2010* document is to "increase to at least 50 percent the proportion of primary and allied health care providers who routinely assess and counsel their patients regarding their physical activity practices." This objective is one of the physical activity objectives that did not make progress toward the year 2000 target, which also was 50 percent. Internists were one group that did make progress toward the goal, although did not reach it. (2)

Past studies have explored barriers to physician counseling. One study concluded that time constraints, lack of reimbursement, and lack of professional training were the root causes of failing to counsel about physical activity. Another study linked physician advice to their attitudes about physical activity. In this 1991 study, 59 percent of primary-care physicians believed that engaging in regular physical activity was very important for their patients, yet only 24 percent reported that they thought they would be able to modify patient behavior. (8)

Another article supports the idea that many physicians do not feel adequately prepared to prescribe exercise to their patients. In this article the authors recommend following the new guidelines for moderate activity, agreeing that an active lifestyle does not need to include a formal, uninterrupted, vigorous exercise program, and with continued support and encouragement from their physicians and families, these persons may progress to higher levels of activity that will further reduce their risk for disease. (11)

## **RESEARCH QUESTIONS AND HYPOTHESES**

This study of North Dakota practitioners helps to determine whether primary practitioners who are in a position to encourage physical activity in their patients take the opportunity to counsel them on the current physical activity recommendations. This study explores the physicians' attitudes about physical activity and their knowledge of the current guidelines for physical activity. It attempts to answer the following questions:

1. Do primary-care providers in North Dakota, who are in a prime position to encourage physical activity in their patients, take the opportunity to counsel them?
2. What is the knowledge of these physicians of the current physical activity guidelines?
3. Does the physicians' knowledge of the current physical activity guidelines affect the amount of counseling done?
4. Does the physician's own level of physical activity or intent to be physically active affect his/her behaviors related to physical activity counseling?

The following hypotheses were tested:

H1: Primary-care providers' knowledge of the current physical activity guidelines affects the physical activity assessment and counseling of their patients regarding physical activity.

H2: Primary-care providers who are physically active are more apt to assess and counsel patients regarding their physical activity.

## METHODS

### Variables and Measures

The independent variable in the first hypothesis is the physicians' knowledge about the current physical activity guidelines. This was measured using question 11 from the survey. A series of six statements were provided (see Figure 1), and the physicians checked each of the statements with which they agreed.

#### Figure 1:

11. With which of the following statements do you agree? (Check all that apply.)

- 1. In order for physical activity to be beneficial, it must be vigorous.
- 2. Unless there is a physical limitation, every adult should engage in some form of physical activity on a daily (at least 5 days/week) basis.
- 3. Moderate physical activity can provide health benefits.
- 4. Physical activity accumulated in 10 minute intervals throughout the day is beneficial to overall health.
- 5. In order for physical activity to be beneficial, one's heart rate must be at least 65-75% of their maximum heart rate.
- 6. In order for physical activity to be beneficial, the activity must be continuous for at least 20 minutes.

Choices numbered 2, 3, and 4 were regarded as "true" statements, while choices numbered 1, 5, and 6 were regarded as "false" statements. Those who agreed with the three true statements, and not the three false statements, were given an index of "3," indicating good knowledge of the current physical activity guidelines. Those who missed one of the "true/false" statements were given an index of "2," indicating fair knowledge of the current guidelines, and those who missed two or more of the "true/false" statements were given an index of "1," indicating poor knowledge of the current guidelines.

The independent variable in the second hypothesis is the individual physician's level of physical activity or intent to be physically active. This was measured using question 23 in the survey. (See figure 2.) The first response relates to the highest level of physical activity or intent to be active, with each subsequent response relating to a lesser level of physical activity. Physicians were asked to choose the statement that best described them. The statements were constructed to identify their physical activity level or intent to be physically active using Prochaska's stages of change model. (12 )

**Figure 2:**

23. Which of the following best describes you? (Choose only one.)

- 1. I am currently physically active or exercise on a regular basis and have been for more than 6 months.
- 2. I am currently physically active on a regular basis but have been for less than 6 months.
- 3. I have a plan to become more physically active within the next month.
- 4. I am seriously thinking about becoming more physically active within the next 6 months.
- 5. I am not planning to become physically active at this time.

The dependent variables in both hypotheses are the physicians' counseling and assessment. Assessment was measured using question number 10 in the survey. The first response relates to the highest level of assessment, with each subsequent response relating to a lesser level of assessment. (See Figure 3.)

**Figure 3:**

10. Which of the following statements best describes your assessment of your patients' physical activity levels? (Choose only one.)

- 1. I routinely question all my patients regarding their physical activity practices.
- 2. I routinely question my patients who have a pre-existing condition or who exhibit other risk factors for chronic disease, (i.e., overweight, high blood pressure, high cholesterol levels, high blood sugars) regarding their physical activity practices.
- 3. I occasionally question my patients regarding their physical activity practices.
- 4. I do not routinely question my patients regarding their physical activity practices.

The frequency of physician counseling was measured using questions 1a, 1b and 1c in the survey, indicating frequency of counseling for overweight, normal weight, and underweight patients. A response of "always" indicated the highest frequency of counseling, with each subsequent response relating to a lesser frequency of counseling.

Physician counseling was also measured using question six (see figure 4), which investigated whether the physicians counseled patients in accordance with the current physical activity guidelines. Physicians were asked to choose a statement from a provided list that best described their physical activity recommendation to patients who ask. From the list, choices 2 and 3 correspond to the current physical activity guidelines and were given an index of "1", while choices 1, 4 and 5 do not, and were given an index of "0."

#### **Figure 4:**

6. Which best describes your physical activity recommendation to any of your patients who ask?  
(Choose only one.)

- 1. I recommend they increase to 20 minutes of continuous vigorous activity at least 3 days each week.
- 2. I recommend they increase to 30 minutes of continuous moderate activity on most (at least 5) days of the week.
- 3. I recommend that they increase to 30 minutes of moderate physical activity on most (at least 5) days of the week, but this can be accumulated in shorter time intervals (such as 10 minute intervals) throughout the day.
- 4. I recommend they be active, but do not give specific guidelines.
- 5. I do not give physical activity recommendations.

#### **Data Collection**

A mail survey of primary-care providers in North Dakota was used to investigate physicians' physical activity assessment and counseling practices. Because pediatricians and family and general practice physicians are most apt to see patients for routine medical examinations, these specialties were selected to represent the primary-care providers.

An initial survey (attachment 1) and cover letter (attachment 2) were sent to primary-care providers in North Dakota. The cover letter was co-signed by the Chief Medical Officer in the North Dakota Department of Health and the past-president of the North Dakota Academy of Family Physicians. One week following the initial mailing, a light-hearted reminder postcard (attachment 3) was mailed to all physicians who had not yet responded. Two weeks following the postcard mailing, a second copy of the survey along with a revised cover letter (attachment 4), signed by the original co-signers, was sent to all non-respondents.

#### **Participant Selection**

The North Dakota Medical Association provided a mailing list of general practice physicians, family practice physicians and pediatricians. These specialties are self-designated and do not necessarily indicate that the physician has been trained or has

special competence to practice in that specialty. Since all physicians listed in these specialties were sent the survey, it was not necessary to sample the population. The combined list consisted of 429 physicians. Five of the 429 were undeliverable, resulting in a total of 424 surveys delivered to physicians. Of these, 253 physicians returned their survey, resulting in an overall response rate of 60 percent. Of the 253 returned, eight stated that they are not doing direct patient care, leaving a total of 245 surveys to be analyzed. Because the individual specialties were not indicated on the mailing labels, the response rate for each group was not possible to calculate. However, on the survey, each respondent did indicate their specialty. Respondents included 174 family practice physicians (including 8 residents), 39 pediatricians, 21 general practitioners, three emergency medicine physicians, one psychiatrist, and one internist. Hence, the makeup of the respondents was 69 percent family practice physicians, 15 percent pediatricians, eight percent general practitioners, two percent "other", and six percent unknown.

The mean age of the physicians who responded was 43.2 years. The breakdown of respondents by gender was 73 percent male and 27 percent female.

## **Analysis**

Using SPSS software, frequencies were conducted to describe the data. To be able to determine if relationships existed between the variables listed above, Pearson correlations and crosstabs with chi square were conducted. In addition to the variables described above, age and gender were also included in the calculations. Crosstabs were done when looking for relationships with nominal data, such as gender. Because question number six was indexed, as described above, this was also nominal data. Pearson correlations were conducted on the remaining variables. Two-tailed significance tests were applied to the correlation coefficients, and chi-square tests of independence

were conducted on all crosstabs, using .05 as the level of significance. Multiple regression was also performed on the data with no significant findings.

## RESULTS

### Knowledge

Thirty-five percent of physicians surveyed received a “good” rating for knowledge. Nineteen percent received a “fair” rating, and 46 percent received a “poor” rating. (See table 1.)

**Table 1**

	FREQUENCY	PERCENT
Good	85	34.7
Fair	47	19.2
Poor	113	46.1
Total	245	100.0

**Physicians knowledge of the current physical activity guidelines.**

### Physical Activity Level

Sixty-two percent of the physicians stated that they are currently active or exercise on a regular basis and have done this for more than six months. Seven percent stated they are currently active on a regular basis, but have been for less than six months; 15 percent stated they have a plan to become physically active within the next month; 10 percent stated they are seriously thinking about becoming more physically active within the next six months; and six percent stated they are not planning to become physically active at this time. (See table 2.)

**Table 2**

	FREQUENCY	PERCENT
Regularly active, more than 6 months	146	62%
Regularly active, less than 6 months	17	7%
Have a plan to be more active within next month	36	15%
Seriously considering being more active in next 6 months	23	10%
Do not plan to become active	13	6%
Total	235	100%

**Physicians' level of physical activity or intent to become physically active.**

### Counseling

When asked how frequently physicians talk to overweight, normal weight, and underweight patients or their caregivers about physical activity, overweight patients were most frequently talked to regarding physical activity with 87 percent of physicians stating that they “always” or “most times” speak to their overweight patients about physical activity. This compares to 52 percent stating they “always” or “most times” discuss physical activity with their normal weight patients, and 43 percent stating they “always” or “most times” speak to their underweight patients about physical activity. (See table 3.)

**Table 3**

	N	ALWAYS	MOST TIMES	SOMETIMES	NEVER
Overweight patients	243	43%	45%	10%	2%
Normal weight patients	239	11%	42%	43%	4%
Underweight patients	236	10%	34%	47%	9%

**Percent of physicians who speak to their patients about physical activity.**

Eighteen percent of the physicians surveyed stated that someone else in their office talks about physical activity to their patients. The most frequently listed person in the office who talks about physical activity with the patients is the office nurse (50%). The next most common is a dietitian/nutritionist (23%). One respondent indicated that the secretary is the person in the office who discusses physical activity with their patients. Thirty-five percent stated that they refer those who are physically inactive to someone else, outside of their office. The most likely person for the patient to be referred to is either a physical therapist (44%) or an exercise physiologist (40%). Dietitians/nutritionists were next most common with (12%) of the referrals. Because this research focused specifically on the physicians' counseling practices, relationships were not explored with those who refer to other health professionals.

When asked to describe their physical activity recommendation to any patient who asks, 53 percent chose one of two statements that most closely described the new physical activity guidelines. Thirty-four percent stated that they recommend their patients increase to 20 minutes of continuous vigorous activity at least three days each week, which is more in line with the former guidelines for physical activity. Eleven percent recommended that they be active, but do not give specific recommendations and two percent stated they do not give physical activity guidelines.

## **Assessment**

The physicians' level of physical activity assessment was determined by asking them to choose one statement that best describes their assessment of their patients' physical activity. Twenty-four percent stated they routinely question all of their patients regarding their physical activity practices. Fifty-six percent stated they routinely question their patients who have a pre-existing condition or who exhibit other risk factors for chronic disease (i.e., overweight, high blood pressure, high cholesterol levels, high

blood sugars), regarding their physical activity practices. Seventeen percent stated they occasionally question their patients regarding their physical activity practices. Four percent stated they did not routinely question their patients regarding their physical activity practices. (See table 4.)

**Table 4**

	FREQUENCY	PERCENT
Routinely question all patients	59	24%
Routinely question only patients with risk factors or pre-existing condition	135	56%
Occasionally question patients	40	17%
Do not routinely question patients	9	4%
Total	243	101%*

**Physicians' level of assessment of physical activity in their patients.**

\*Due to rounding, percentages equal more than 100%.

**Relationships Identified**

A significant relationship was found between those who have a higher knowledge of the current guidelines and those who counsel according to the current guidelines. (See table 5.) A relationship was found between those who provided recommendations according to current guidelines and those who more often counsel normal weight patients. (See table 5.) No significant correlations were found between the physicians' knowledge of the current physical activity guidelines and the frequency of counseling done with overweight, normal weight, or underweight patients. Also, no significant correlations were found between the physicians' direct knowledge and frequency of assessment regarding their patients' physical activity.

However, significant correlations were found between physicians who are more apt to assess their patients' level of physical activity and those who more frequently counsel their overweight (.469), normal weight (.515) and underweight (.488) patients. (See table 6.)

In addition, significant correlations exist between frequency of counseling overweight patients and normal weight patients (.579) and between frequency of counseling overweight patients and underweight patients (.451). A more substantial correlation (.712) exists between frequency of counseling normal weight and frequency of counseling underweight patients. (See table 6.)

Weak positive correlations were found between physicians' own level of physical activity and the frequency of counseling done with normal weight (.154) and underweight (.188) patients, but no correlation was found with overweight patients. A weak positive correlation (.183) was found between the physicians' own level of physical activity and the frequency of assessment. (See table 6.) A weak, but significant relationship was also found between those who provided recommendations according to current guidelines and those who are more apt to assess their patients. (See table 5.)

**Table 5**

	KNOWLEDGE	COUNSEL NORMAL WEIGHT PATIENTS	FREQUENCY OF ASSESSMENT
Counsel according to the current guidelines	.075 (.000)	.046 (.016)	.055 (.005)

**Goodman and Kruskal tau correlations indicating relationships between variables with corresponding chi-square levels of significance in parentheses. Relationships are significant at the .05 level.**

A weak negative correlation (-.162) did exist between age of the physician and level of knowledge regarding the physical activity guidelines, indicating that the younger physicians had somewhat increased knowledge of the guidelines. (See table 6.) No significant relationships were found regarding gender.

**Table 6**

	KNOWLEDGE	PHYSICAL ACTIVITY LEVEL OF PHYSICIAN	COUNSEL OVER-WEIGHT PATIENTS	COUNSEL NORMAL WEIGHT PATIENTS	COUNSEL UNDER-WEIGHT PATIENTS
Counsel overweight patient				.579 (.000) n=239	.451 (.000) n=236
Counsel normal weight patients		.154 (.019) n=231			
Counsel underweight patients		.188 (.004) n=229		.712 (.000) n=235	
Frequency of assessment		.183 (.005) n=235	.469 (.000) n=243	.515 (.000) n=239	.488 (.000) n=236
Age	-.162 (.013) n=236				

**Pearson correlations with corresponding significance levels shown in parentheses. Correlations are significant at the 0.05 level (2-tailed).**

### Other Findings

Questions were asked regarding sedentary activities such as television watching. Seventy percent surveyed stated that they “sometimes” or “never” assessed their patients participation in sedentary activities such as watching television, compared to 30 percent who stated “always” or “most times.” In addition, 33 percent stated that they “always” or “most times” recommend their patients limit participation in sedentary activities such as watching television, compared to 68 percent stating they “sometimes” or “never” make that recommendation.

Only nine percent of physicians surveyed stated they “always” (1%) or “most times” (8%) provide written materials or brochures about physical activity to their patients. Ninety-one percent stated they provide brochures “sometimes” (54%) or never (38%).

The physicians were asked to choose from a list of suggestions those which would be most useful to them in promoting physical activity, and were allowed to choose all that applied. Twenty-nine percent stated they could use additional training in

physical activity and patient behavior; 72 percent stated they would like educational materials to provide to patients; and 53 percent stated they would like a proven behavior change program for patients. Seven percent chose the response, “Nothing. I feel adequately training in physical activity promotion and have adequate resources available to me.” Respondents were also given the opportunity to add their own suggestions. Four respondents indicated that adequate reimbursement would be helpful, with one adding that he is still the best educator. Three respondents indicated that they needed more time.

Overall, physicians believe that during routine check-ups, it is important to talk about physical activity to their patients. Seventy-eight percent believed that it was important (indicated by choosing a one or a two on a scale from one to four) to talk about physical activity with young children or their caregivers; 81 percent with adolescents or their caregivers; 88 percent with healthy adults; 94 percent with seniors; 97 percent with overweight patients; 97 percent with patients with diabetes; and 94 percent with patients with arthritis.

When asked if they believe their counseling as a physician improves their patients’ physical activity levels, two percent stated “always,” 23 percent stated “most times,” 73 percent stated “sometimes,” and two percent stated “never.”

When asked about having adequate time during a routine check-up to counsel their patients about physical activity, four percent stated “always,” 51 percent stated “most times,” 43 percent stated “sometimes,” and four percent stated “never.”

When asked if they are adequately reimbursed if they, or the person to whom they refer, counsel about physical activity, seven percent stated yes, 47 percent stated no, and 46 percent stated they did not know.

## DISCUSSION

### Survey Design and Process

A concern when doing a survey is obtaining an acceptable response rate. To maximize the response rate, this survey was intentionally limited in size to one page, front and back, and did not include open-ended questions. A stamped, addressed, return envelope was included to further improve response rate. The original plan was to include an informational booklet on physical activity with the survey as an incentive to return the survey; however, the additional mailing costs prohibited this from occurring. A monetary incentive was then considered since this would not increase mailing costs. One study of physicians demonstrated that a monetary incentive of one dollar elicited a higher response rate than an informational booklet (13); however, this alternative was also rejected because of lack of resources. The only incentive provided and described in the initial cover letter is the knowledge that the results of this survey will be used to advance physical activity programs at the state and local level. Physicians were also told that the results of the survey would be made accessible to them.

To further improve the response rate, the cover letter had two endorsements, the State Medical Officer in the North Dakota Department of Health, who happens to be a pediatrician, and the past-president of the North Dakota Academy of Family Physicians. The cover letter was printed on North Dakota Department of Health stationary, and was funded by the Preventive Health and Health Services Block Grant that funds the Cardiovascular Health Program in the North Dakota Department of Health.

Although a 60 percent response rate and a sample size of 245 is good, it is not large enough to be able to generalize results to all primary-care providers. A recognized limitation of the study is that those physicians most interested in physical activity were the ones that responded. This is demonstrated when looking at the numbers of respondents who indicated that they are regularly active. A definition of “regularly

active” was intentionally not provided to test the assumption that the physicians’ consideration of themselves to be active might have a greater influence on their assessment and counseling behaviors than their empirical physical activity level.

Another factor when considering internal validity are the survey questions themselves. These survey questions were primarily taken from a survey of pediatricians and family practice physicians recently completed, although not yet analyzed, by the Centers for Disease Control and Prevention (CDC). The questions were provided to this researcher by the lead epidemiologist of this study, Janet Fulton, PhD. For the North Dakota survey, many of the CDC questions were deleted, some questions were adapted slightly, and some questions were added. Differences in the North Dakota survey and the CDC survey include the facts that the CDC survey looked only at physician counseling practices in adolescents and children, and did not include adults; the CDC survey was done by telephone rather than mail; the CDC survey was much longer; and the CDC survey did not explore physicians’ knowledge of the current physical activity guidelines. Once this national survey is analyzed and distribute, comparisons between national and North Dakota could be made with the questions that were unaltered.

Although the questions from the CDC survey have not yet been validated, they are the product of many experienced and intelligent researchers at a reputable organization, the Centers for Disease Control and Prevention. Using these already developed questions is assumed to have improved the validity of the North Dakota survey. To further improve the validity of the North Dakota questions, the survey was reviewed by a committee who made recommendations regarding the survey questions and design. This committee included staff in the North Dakota Department of Health with experience in survey development and members of the North Dakota Healthy Heart Council who work with physicians and have experience in physical activity promotion. The survey questions were also reviewed by two physicians.

A recognized limitation to this study is that the physicians are self-reporting their own counseling behaviors. In writing the survey questions, attempts were made to correct for this by asking slightly different versions of some of the questions and by altering the order of desirable responses in other questions.

## **Testing Hypotheses**

Regression analysis was conducted on the variables to investigate the possibility of being able to predict a variable from one or more of the other variables. No significant results were found and each of the models tested did not fit the data. Possible explanations for this include the type of data obtained, the sample size, and the distribution of the results. Looking first at the type of data, this study does not have any interval data, but only nominal or ordinal data. While it might have been possible to do regression, this also might have affected the results. It is also possible that with a larger sample size, the model might have fit the data better. Another possible explanation is that some of the results, in looking at the frequencies, are nonnormal or skewed, resulting in data that does not resemble the standard normal distribution. This is likely an explanation for a lack of findings when doing some correlations also. The specific occurrences regarding the correlations will be discussed later.

Although no correlations were found between direct knowledge of the current physical activity guidelines and the frequency of assessment and counseling regarding physical activity, the following two significant relationships were found:

1. Those who have a higher knowledge of the current guidelines are more likely to counsel according to the current guidelines as opposed to counseling according to the former guidelines or doing no counseling at all.
2. Those who counsel according to the current guidelines are more likely to assess their patients' current physical activity levels.

Because of these two significant relationships, this study was able to support the second portion of the first hypothesis that primary-care providers' knowledge affects the physical activity counseling of their patients regarding physical activity. This study did not support the portion of the hypothesis stating that knowledge affects the frequency of assessment, thus the null hypothesis of no relationship was retained for that portion.

The second hypothesis that primary-care providers who are physically active themselves are more apt to assess and counsel their patients on physical activity was partially supported. Physicians who are more physically active are more likely to assess their patients regarding their physical activity, which supports the first portion of this hypothesis. However they are not necessarily more likely to counsel their patients, thus this portion of the hypothesis was rejected and the null hypothesis of no relationship was retained. Interesting to note, however, is that those who are more likely to assess their patients are also more likely to counsel according to the current physical activity guidelines.

Although some of the portions of the two hypotheses are not supported, many findings are still important, including findings not related to the hypotheses. One result not related to the hypotheses is that which indicated that younger physicians have somewhat more knowledge of the current guidelines than older physicians. This, however, was not a surprising result.

The correlations between frequency of counseling overweight, normal weight and underweight patients, with the strongest correlation being between those apt to counsel normal weight and underweight patients, were also not surprising. The frequency of physicians who counsel overweight patients was very high, with 88 percent indicating they always or most times counsel their overweight patients. Because this is not a normal distribution, making predictions or correlations with counseling of overweight

patients was not possible. The distribution of physicians who counsel normal weight and underweight patients more closely resembles a normal curve.

A nonnormal distribution was also found when looking at the amount of assessment of physical activity levels done, with 24 percent assessing all of their patients and 56 percent assessing those with a pre-existing condition or risk factor for chronic disease, for a total of 80 percent scoring in the highest two levels of assessment. This nonnormal distribution could have played a role in attempting to make predictions regarding the level of assessment.

## **Conclusions and Recommendations**

Overall, physicians believe it is important to talk to all patients regarding physical activity, especially patients with risk factors for chronic disease, such as being overweight and having diabetes. Also, most physicians assess at least those patients with a pre-existing condition or a risk factor for chronic diseases. However, they are not likely to believe that their counseling as a physician improves their patients' physical activity levels.

Important to note is the fact that although physicians are very likely to counsel their overweight patients regarding physical activity, they are much less likely to counsel their normal weight or underweight patients. This is missed opportunity for counseling since people of all weights need to be physically active, not only the overweight population.

Much of the useful information collected from this survey is the exploratory portion and provides insight regarding physicians' attitudes and behaviors. This information will be useful to program planners who are developing strategies to improve physical activity levels in North Dakota.

The North Dakota Healthy Heart Council, a statewide partnership to improve nutrition and physical activity, and coordinated through the North Dakota Department of Health, has a goal to educating health care providers. A specific goal of that group is "to ensure that health care providers have current resources for initiation and support of risk reduction and strategies for behavior change." (14)

A useful finding was that a large number (almost three-fourths) of physicians indicated they would like educational materials provided to them. According to this survey, not many physicians actually provide brochures to their patients. Program planners need to remember that although physicians might feel these would be useful, creating behavior change in patients will not usually result merely by providing them with written materials. Patient education materials might, however, successfully complement other efforts.

While the knowledge results indicate need for physicians to be more aware of the current physical activity guidelines, only 29 percent felt they needed additional training in physical activity and patient behavior. Efforts to increase physicians' awareness of the current guidelines and awareness of their lack of knowledge of these guidelines could occur by presenting the results from this study at their state meetings.

Another potential opportunity for improvement is in the area of assessment and counseling for sedentary activities such as watching television. Increased television use is documented to be a significant factor leading to obesity. (15) As these findings show, the majority of physicians do not assess or make recommendations regarding television watching. Increasing physicians' awareness and education in this area could be beneficial.

Concerns also exist regarding adequate time for the physicians' to counsel their patients during a routine check-up and their level of reimbursement for physical activity

counseling. These items, as well as increasing knowledge of the current guidelines, could be addressed by the North Dakota Healthy Heart Council.

As stated earlier, current research does support the concept that physicians' advice can positively influence their patients' behaviors. (5,6,7) Additional research needs to be done on the influence of other health care providers who might also be in a position to counsel patients on physical activity, such as nurse practitioners or physician's assistants.

The North Dakota Healthy Heart Council will be using the results from this study to assist in determining future strategies for working with health care providers in the area of physical activity promotion.

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## Cover Letter

*(printed on ND Dept. of Health letterhead)*

February 2000

Dear Colleague,

*As you know, regular physical activity reduces the risk of developing many chronic diseases. Physical inactivity contributes to obesity, a rising problem for children and adults in North Dakota. Unfortunately, most North Dakotans are completely inactive or not regularly active.*

Enclosed you will find a survey regarding physicians' physical activity counseling practices. **Please take a couple of minutes to complete this survey and return it in the enclosed envelope by February 29, 2000.** The results of this survey will be used to develop and enhance programs related to physical activity promotion at state and local levels. The overall results will be made available to North Dakota physicians.

The Institutional Review Board at the University of North Dakota has approved this survey. The survey is coded with a number only for the purpose of following up with non-respondents. Individual responses will not be correlated with an individual name. All responses will be confidential and used only in aggregate form. Your responding to this survey indicates consent to use your answers in aggregate form.

We appreciate your willingness to participate in this study. If you have any questions, please call Deanna Askew, principal investigator, at 701-328-1983.

Sincerely,

Stephen McDonough, M.D.  
Chief Medical Officer  
North Dakota Department of Health  
Physicians

Dale Klein, M.D.  
Past-President  
North Dakota Academy of Family

**Cover Letter**

*(printed on ND Dept. of Health letterhead)*

March 2000

Dear Colleague,

Last month we mailed a survey regarding physicians' physical activity counseling practices. We are resending the survey to you because we are very interested in your responses. If you have not already done so, **please take a couple of minutes to complete this survey and return it in the enclosed envelope by March 22, 2000.** The results of this survey will be used to develop and enhance programs related to physical activity promotion at state and local levels. The overall results will be made available to North Dakota physicians.

The Institutional Review Board at the University of North Dakota has approved this survey. Your responding to this survey indicates consent to use your answers in aggregate form.

We appreciate your willingness to participate in this study. If you have any questions, please call Deanna Askew, principal investigator, at 701-328-1983.

Sincerely,

Stephen McDonough, M.D.  
Chief Medical Officer  
North Dakota Department of Health  
Physicians

Dale Klein, M.D.  
Past-President  
North Dakota Academy of Family

# Survey of Physicians' Physical Activity Counseling Practices

Please answer the following questions thinking about well-care or routine medical check-ups of your patients. Please check your response.

1. How frequently do you talk to the following patients or their caregiver about physical activity?
  - a. Overweight patients  1.Always  2.Most times  3.Sometimes  4.Never
  - b. Normal weight patients  1.Always  2.Most times  3.Sometimes  4.Never
  - c. Underweight patients  1.Always  2.Most times  3.Sometimes  4.Never
2. Does someone else in your office talk about physical activity to your patients?  
 1. Yes  2. No (Skip to question 4)  3. Don't know
3. If yes, who is the person in your office who generally talks to patients about physical activity?
  1. Another physician  2. Office nurse
  3. Nurse practitioner  4. Physician assistant
  5. Dietitian/nutritionist  6. Health educator
  7. Physical therapist  8. Exercise physiologist or specialist
  9. Other \_\_\_\_\_
4. Do you refer patients who are physically inactive to someone else, outside of your office?  
 1. Yes  2. No (Skip to question 6)  3. Don't know
5. If yes, who is the person outside of your office that you most often refer your patients to?
  1. Another physician  2. Office nurse
  3. Nurse practitioner  4. Physician assistant
  5. Dietitian/nutritionist  6. Health educator
  7. Physical therapist  8. Exercise physiologist or specialist
  9. Other \_\_\_\_\_
6. Which best describes your physical activity recommendation to any of your patients who ask?  
(Choose only one.)
  1. I recommend they increase to 20 minutes of continuous vigorous activity at least 3 days each week.
  2. I recommend they increase to 30 minutes of continuous moderate activity on most (at least 5) days of the week.
  3. I recommend that they increase to 30 minutes of moderate physical activity on most (at least 5) days of the week, but this can be accumulated in shorter time intervals (such as 10 minute intervals) throughout the day.
  4. I recommend they be active, but do not give specific guidelines.
  5. I do not give physical activity recommendations.
7. Do you assess your patients' participation in sedentary activities such as watching television?  
 1. Always  2. Most times  3. Sometimes  4. Never
8. Do you recommend that your patient limit participation in sedentary activities such as watching television?  
 1. Always  2. Most times  3. Sometimes  4. Never
9. Do you provide written materials or brochures about physical activity to your patient?  
 1. Always  2. Most times  3. Sometimes  4. Never
10. Which of the following statements best describes your assessment of your patients' physical activity levels?  
(Choose only one.)
  1. I routinely question all my patients regarding their physical activity practices.
  2. I routinely question my patients who have a pre-existing condition or who exhibit other risk factors for chronic disease, (i.e., overweight, high blood pressure, high cholesterol levels, high blood sugars) regarding their physical activity practices.
  3. I occasionally question my patients regarding their physical activity practices.
  4. I do not routinely question my patients regarding their physical activity practices.

11. With which of the following statements do you agree? (Check all that apply.)
- 1. In order for physical activity to be beneficial, it must be vigorous.
  - 2. Unless there is a physical limitation, every adult should engage in some form of physical activity on a daily (at least 5 days/week) basis.
  - 3. Moderate physical activity can provide health benefits.
  - 4. Physical activity accumulated in 10 minute intervals throughout the day is beneficial to overall health.
  - 5. In order for physical activity to be beneficial, one's heart rate must be at least 65-75% of their maximum heart rate.
  - 6. In order for physical activity to be beneficial, the activity must be continuous for at least 20 minutes.

12. During routine check-ups, how important do you believe it is for physicians to talk about physical activity to: (Circle your response.)

	Very important	Moderately important	Not important	
1. Young children, or their caregivers	1	2	3	4
2. Adolescents, or their caregivers	1	2	3	4
3. Healthy adults	1	2	3	4
4. Seniors	1	2	3	4
5. Overweight patients	1	2	3	4
6. Patients with diabetes	1	2	3	4
7. Patients with arthritis	1	2	3	4

13. Do you believe that your counseling as a physician improves your patients' physical activity levels?

1. Always     2. Most times     3. Sometimes     4. Never

14. What is the average amount of time you spend with patients during routine medical checkups? \_\_\_\_\_ minutes

15. Do you have adequate time during a routine check-up to counsel your patients about physical activity?

1. Always     2. Most times     3. Sometimes     4. Never

16. Are you adequately reimbursed if you (or the person to whom you refer your patient) counsel about physical activity?  1. Yes     2. No     3. Don't know

17. Which of the following would be most useful to you in promoting physical activity with your patients?

(Check all that apply.)

- 1. Additional training in physical activity and patient behavior
- 2. Educational materials (i.e., brochures) to provide to patients
- 3. A proven behavior change program for patients
- 4. Nothing. I feel adequately trained in physical activity promotion and have adequate resources available to me.
- 5. Other. Please explain.

**Please answer the following questions about yourself for classification purposes:**

18. What year did you graduate from medical school? \_\_\_\_\_

19. Are you a  1. Family Practice Physician     2. General Practice Physician     3. Pediatrician  
 4. Other \_\_\_\_\_

20. Are you currently board certified in your specialty?  1. Yes     2. No

21. How old are you? \_\_\_\_\_

22. Are you  1. male or  2. female?

23. Which of the following best describes you? (Choose only one.)

- 1. I am currently physically active or exercise on a regular basis and have been for more than 6 months.
- 2. I am currently physically active on a regular basis but have been for less than 6 months.
- 3. I have a plan to become more physically active within the next month.
- 4. I am seriously thinking about becoming more physically active within the next 6 months.
- 5. I am not planning to become physically active at this time.

**Thank you very much for taking the time to complete this survey. Please return in the enclosed envelope by Feb. 29 or fax to: ND Dept. of Health, Dept. 301, Division of Health Promotion and Education, 600 E. Boulevard Ave., Bismarck, ND 58505-0200. Phone: 701.328.1983. Fax: 701.328.1412**