

Personal Exercise Habits and Counseling Practices of Primary Care Physicians: A National Survey

Scott Abramson, MD, Joel Stein, MD, Michael Schauffele, MD, Elizabeth Frates, MD, and Shannon Rogan, BS

Department of Physical Medicine and Rehabilitation, Harvard Medical School and Spaulding Rehabilitation Hospital, Boston, Massachusetts

Objective: Regular physical activity can reduce the incidence and prevalence of many chronic diseases. A vast majority of Americans cite their physician as their primary source of information regarding healthy lifestyle decisions. This study was designed to obtain information about the personal exercise behavior and counseling practices of primary care physicians, to evaluate the relationship between their personal and professional exercise practices, and to determine whether physician specialty is associated with these practices.

Design: A cross-sectional survey was mailed to a randomly selected sample of primary care physicians in the United States. A questionnaire was used to obtain detailed information on the personal exercise habits, counseling practices, and barriers to counseling of these physicians, regarding both aerobic exercise and strength training.

Participants: 298 primary care physicians, comprising 84 family practitioners, 79 pediatricians, 58 geriatricians, and 77 internists.

Main Outcome Measures: Frequency of physician exercise, exercise counseling, and relationship between these practices.

Results: Physicians who perform aerobic exercise regularly are more likely to counsel their patients on the benefits of these exercises, as are physicians who perform strength training. Pediatricians and geriatricians counsel fewer patients about aerobic exercise than family practitioners and internists. Counseling regarding strength training is less common in all physician groups surveyed, and lowest among pediatricians, of whom 50% did not advise these exercises for any of their patients. Inadequate time was noted by 61% and inadequate knowledge and/or experience by 16% of respondents as the major barriers to counseling regarding aerobic exercise.

Conclusion: Physicians who exercise are more likely to counsel their patients to exercise. Inadequate time and knowledge/experience regarding exercise are the most common barriers to counseling identified. These findings suggest strategies that might increase physician exercise counseling behavior.

Key Words: Counseling—Exercise—Primary care physicians.

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The United States Surgeon General's report addressing physical activity and health promotion recommends that people of all ages engage in a minimum of 30 minutes of physical activity of moderate intensity on most if not all days of the week.¹ It further states that cardiorespiratory activity should be supplemented with strengthening exercises at least two times per week for adults, to improve musculoskeletal health, maintain independence in performing the activities of daily life, and reduce the risk of falling. These recommendations are based on the growing scientific literature of the health-enhancing effects of physical activity and exercise.

Epidemiologic research has demonstrated the benefits of exercise in the prevention and treatment of coronary artery disease,² hypertension,³ non-insulin-dependent

diabetes,⁴ osteoporosis,⁵ cancer,⁶ depression and anxiety,⁷ and obesity.⁸ Studies have shown that low levels of habitual physical activity and physical fitness are associated with markedly increased all-cause mortality rates.⁹ Morbidity from falls and fractures and disability at the end of life can also be avoided or postponed with higher levels of physical activity in midlife and late adulthood.¹⁰ Given the significant impact that exercise can have in reducing the prevalence of chronic diseases, disability, and mortality, examination of the counseling practices of physicians regarding aerobic exercise and strength training is crucial.

Lewis et al.¹¹ reported that physicians can reduce years of life lost and contain health care costs through counseling of persons who engage in risk-taking behaviors that adversely affect their health. More efforts, however, are necessary to increase the effectiveness of physician advice for at-risk patients,¹² especially in regard to counseling about aerobic exercise and strength training.¹³ Physicians report having limited medical school and residency training education about the benefits of physical activity, inadequate knowledge of writing an

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Dr. Abramson is currently with the Rehabilitation Hospital of the Cape and Islands, Sandwich, Massachusetts.

Address correspondence and reprint requests to Joel Stein, MD, Spaulding Rehabilitation Hospital, 125 Nashua Street, Boston, MA 02114.

exercise prescription or referral, and poor reimbursement as barriers to counseling regarding exercise.¹⁴ Recommendations to improve physician counseling include enhancing their personal exercise practices, so that their advice to patients can be more realistic and effective.¹⁵

Recent studies have indicated that in the United States, at least 24% of the population is sedentary,¹⁶ 33% of adults are overweight,¹⁷ 26% of children are watching 4 or more hours of television per day¹⁸ and only 22% of the adult population are meeting the current Surgeon General's recommendations on physical activity.¹ The role of the physician in promoting physical activity is increasingly important: 80% of Americans cite their physician as their primary source of information about health, and the average adult makes 2.7 visits to a physician per year.¹⁹

Previous studies of the counseling practices of physicians have focused primarily on internists and aerobic exercise counseling practices for the general adult, middle-aged population.¹¹⁻¹⁴ Recent research indicates that the benefits of physical activity, including both aerobic exercise and strength training, extend across a person's lifetime.^{1,16,20,21} To our knowledge, this is this first study to investigate and compare the exercise habits and counseling practices of pediatricians, family practitioners, internists, and geriatricians and to evaluate strength training counseling practices in these physicians. Our hypotheses were: 1) physicians' exercise counseling practices are related to their personal exercise behaviors; 2) different primary care specialists may have different counseling practices; 3) there is less physician counseling about and participation in strength training than aerobic exercise; and 4) physicians identify a lack of knowledge or experience as a major barrier for counseling patients about physical activity.

SUBJECTS AND METHODS

Study Population

A random sample of 1,200 primary care physicians, including 300 each from internal medicine, family practice, geriatrics, and pediatrics, was generated from the American Medical Association (AMA) information database for this cross-sectional survey. For inclusion, physicians had to be currently practicing in the United States and registered as a primary care physician. Initial surveys were mailed in December 1997. Two follow-up mailings were performed to nonresponders in March and April of 1998. The study was approved by the Institutional Review Board at Spaulding Rehabilitation Hospital.

Survey Instrument

The survey instrument used in this study was designed to obtain detailed information about the personal exercise habits of primary care physicians and their exercise counseling practices (see Appendix). Physicians were asked to indicate their counseling practices for "routine patient check-up" visits. Information obtained included physician age and gender, specialty, practice setting, number of years in practice, and an estimate of the percent of primary care patients in their practice.

In the section on personal exercise habits, we obtained information about the frequency, duration, and intensity of both aerobic exercise and strength training. In assessing exercise counseling practices, physicians were asked to estimate the percentage of patients counseled regarding each type of exercise and the amount of time devoted to counseling.

Statistical Methods

Analyses involving physician age were performed by means of *t* tests, and Fisher exact tests were used for analyses comparing different specialties. Logistic regression was used for the remainder of the analyses. Results were considered significant at a *p* value less than 0.05.

RESULTS

The survey was mailed to 1,200 physicians, with an overall response rate of 25%. Of the 304 surveys returned, six were from nonprimary care physicians, and were excluded from further analysis. Respondents consisted of 84 family practitioners, 58 geriatricians, 77 internists, and 79 pediatricians, including 199 men and 99 women. The average age of the physicians surveyed was 50 years, and 43% had been in practice for longer than 15 years (Table 1). Most physicians (83%) surveyed indicated that their practice consisted of more than 75% primary care visits. Aerobic exercise was much more widely practiced by physicians (73%) than strength training (41%), without significant differences among different specialties.

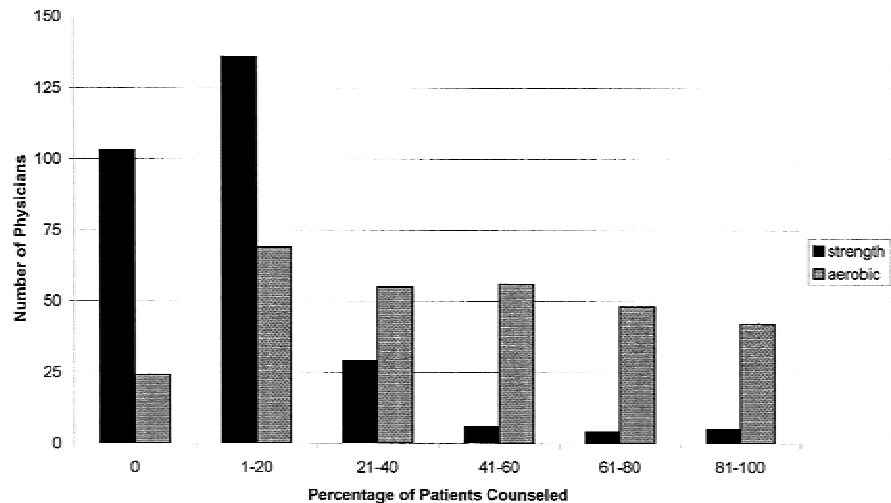
Female physicians were equally likely to perform aerobic exercise as male physicians, but were less likely to perform strength training exercises (odds ratio [OR] 0.59; 95% confidence interval [CI] 0.36-0.98; *p* = 0.042). There was no difference in the mean age between physicians who performed aerobic or strength training exercises and those who did not. The mean age of physicians who reported counseling their patients about aerobic exercise was younger than that of physicians who did not report such counseling (*t* = 4.67, *p* < 0.0005). Similarly, the likelihood of counseling regarding aerobic exercise was lower for physicians who had been in practice longer (OR 0.61; 95% CI 0.38-0.96; *p* = 0.032).

Physicians who performed aerobic exercise regularly themselves were more likely to counsel their patients about aerobic exercise than those who did not perform aerobic exercise (OR 5.72; 95% CI 2.41-13.54; *p* < 0.0005). Physicians who performed strength training themselves also were more likely to counsel their pa-

TABLE 1. Length of time in practice by physicians surveyed

No. of Years	No. (%) of Physicians
0-5	46 (16)
6-10	50 (17)
11-15	72 (24)
>15	127 (43)

FIG. 1. Physician counseling regarding strength training and aerobic exercise. The number of physicians who reported counseling is plotted against the percentage of patients counseled on strength training (dark bar) and aerobic exercise (light bar).



tients about strength training than those who did not perform strength training (OR 4.55; 95% CI 2.61–7.91; $p < 0.0005$).

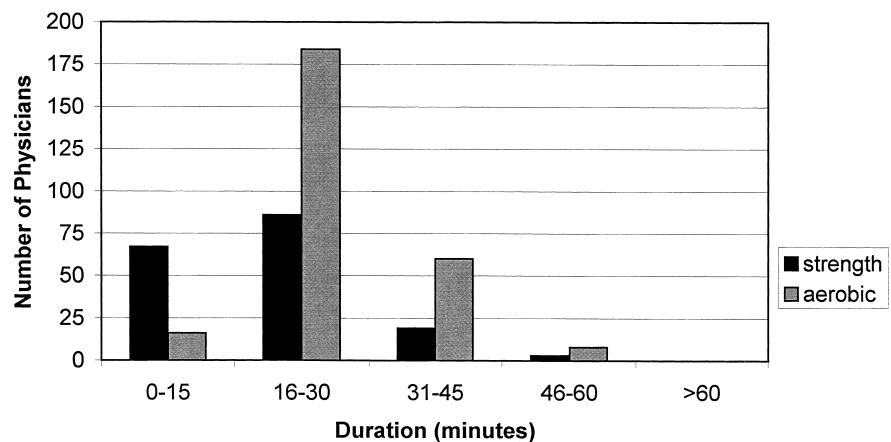
Significant differences in counseling practices among different medical specialties were found, with 12% of pediatricians, 22% of geriatricians, 38% of family practitioners, and 48% of internists reporting counseling more than 60% of their patients on the benefits of aerobic exercise ($p < 0.0005$). Counseling for strength training was less common, with 50% of pediatricians, 33% of geriatricians, 32% of family practitioners, and 30% of internists reporting that they did not counsel any of their patients to perform strength training exercises (Figure 1). This difference in strength training was only significant when comparing internists and pediatricians (OR 2.39; 95% CI 1.20–4.64; $p = 0.013$). Physician recommendations regarding duration and frequency of exercise are illustrated in Figures 2 and 3, respectively.

The reasons physicians gave for counseling their patients about strength training and aerobic exercise are listed in Table 2. The major barriers reported to counseling about aerobic exercise were inadequate time ($n = 181$, 61%), inadequate knowledge or experience ($n = 49$, 16%), and patient disinterest or noncompliance ($n = 32$, 11%). The barriers identified to counseling about

strength training were similar, with inadequate time most commonly identified, but with a larger number of physicians indicating inadequate knowledge or experience ($n = 80$, 27%) and some indicating that strength training was not beneficial ($n = 25$, 8%). Of the physicians who provided counseling on aerobic exercise, 10% reported spending less than 1 minute counseling, 43% reported spending 1 to 2 minutes counseling, 40% spent 3 to 5 minutes, and 7% spent more than 5 minutes counseling. Physicians who reported spending more time counseling reported that a higher percent of their patients followed their recommendations (OR 1.44, 95% CI 1.11–1.86, $p < 0.006$).

Virtually all respondents who reported counseling regarding exercise provided verbal counseling. Many physicians used more than one counseling strategy, and 34% of physicians advising aerobic exercise and 47% advising strength training referred their patients to a physical therapist. Athletic trainers were more commonly used for strength training (20%) than for aerobic exercise (7%). Written materials were used by 14% of respondents for aerobic exercise information, and by 9% for strength training education. Physicians performed some demonstration of exercises (8% of aerobic and 17% of strength training). Exercise physiologists were used by 6% of

FIG. 2. Physician recommendations for exercise duration. The number of physicians who reported counseling is plotted against the duration of time counseled (minutes) on strength training (dark bar) and aerobic exercise (light bar).



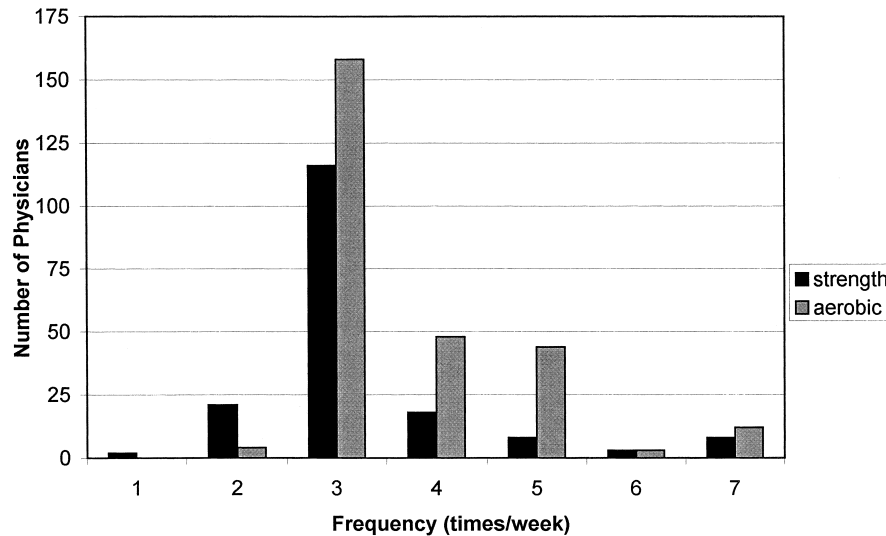


FIG. 3. Physician recommendations for exercise frequency. The number of physicians who reported counseling is plotted against the frequency counseled (times per week) on strength training (dark bar) and aerobic exercise (light bar).

respondents for aerobic training and 4% for strength training. Less than 1% of respondents relied on other physicians for either form of exercise counseling.

DISCUSSION

Our study of primary care physicians indicates that physicians who perform aerobic exercise and strength training are more likely to counsel their patients on the benefits of these exercises. Further, physicians who report spending more time counseling their patients also report better compliance. Although objective confirmation of both the time spent counseling and the actual rate of compliance would be useful, a relationship between time spent counseling and compliance is not unexpected. It is not surprising in today's practice environment that a substantial percentage of the physicians in our study group indicated that inadequate time is a major barrier to exercise counseling.

A significant number of respondents indicated inadequate knowledge of or experience in exercise. Further, in many cases the actual exercise recommendations reported by respondents did not meet the Surgeon General's recommendation for duration and intensity. This lack of knowledge regarding exercise is particularly notable in our sample, in which a large percentage of respondents reported that they perform regular exercise themselves. As previous studies indicate, as many as 80% of the population rely on physicians for recommendations on physical activity.¹⁹ Hence, our results emphasize the importance of improving education of physicians regarding exercise, and of promoting physical activity among physicians.

Regular physical activity is essential to improve the health of the population. Studies have shown that efforts early in life to promote cardiovascular health may have a dramatic impact beyond the pediatric age,²⁰ and that starting an exercise program that includes regular strength training in mid- to late life is vital to help maintain independence and postpone disability at the end of

life.^{9,10} The pediatricians and geriatricians in our study reported counseling less intensely about aerobic exercise during their routine primary care visits than did the family practitioners and internists. All four groups also reported low rates of counseling about strength training, although it should be noted that the health benefits of strength training in the pediatric population have not yet been clearly defined. It is evident that education of all physicians, especially those who practice primary care, is needed to emphasize the importance of promoting physical activity to all patients.

Our study is limited by several factors. These include a response rate of 25%, despite repeated mailings, which we attribute to the same time pressures that our respondents indicated were a significant barrier to counseling their patients about exercise. The relatively high rate of participation in aerobic exercise among our respondents suggests a bias toward physically active physicians re-

TABLE 2. Reasons given for counseling patients about strength training and aerobic exercise

Reasons for Counseling	Physicians Reporting Each Reason (%)*	
	Strength Training	Aerobic Exercise
Cardiovascular disease prevention/treatment	35	86
Osteoporosis prevention/treatment	55	61
Diabetes prevention/treatment	21	55
Musculoskeletal injury prevention/treatment	60	33
General health maintenance	67	90
Psychological benefit	42	64
Social interaction	16	23
Cancer prevention	7	9
Weight control	40	85
Physical appearance	37	32

* Percentages exclude physicians who do not counsel patients regarding corresponding form of exercise (aerobic or strength training). Numbers add up to more than 100% because multiple reasons were provided by many respondents.

sponding to our survey. Given the relationship we have found between personal exercise habits and counseling behavior of physicians, it is likely that our results overstate the actual rates of exercise counseling among physicians. Finally, the highly subjective nature of a survey study may predispose physicians to overstate their compliance with published recommendations, again suggesting that our results may overestimate the actual amount of counseling practiced.

Our results are similar to the findings of previous survey studies by Sherman and Hershman¹³ and Wells et al.,²² in which the data suggested that physicians who exercise are more likely to counsel patients on exercise. We also identified similar barriers to counseling by physicians about exercise, such as time constraints and inadequate training or experience. To our knowledge, this survey is the first to address the issue of physician counseling on strength training. The Surgeon General's report of 1995 recommends that strength training be incorporated into a regular exercise program at least 2 days per week. In our cross-sectional survey, however, 35% of primary care physicians reported not counseling any patients about the benefits of strength training, and only 5% reported counseling more than 40% of their patients in this area.

Physicians play an important role in advising, encouraging, and educating patients about the importance of health promotion. As physicians gain more insight into their own health and health habits, advice to patients can be realistic and effective.¹⁵ We have shown in our study that physical activity counseling is related to the physician's own personal exercise habits. Our results also show that pediatricians and geriatricians are providing less counseling about exercise despite the fact that physical activity in early and late life is a necessary component to lowering rates of morbidity and mortality. Counseling about strength training is being provided infrequently by primary care physicians, despite its demonstrated benefits for adults. Increasing physician knowledge of and participation in exercise may benefit both physicians and their patients.

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APPENDIX



SPAULDING REHABILITATION HOSPITAL EXERCISE STUDY

(Unless specified to “check all that apply”, please check or write-in the one most appropriate answer)

Demographic Information

1. Please place a check by your specialty:

Family Practice Internal Medicine
 Pediatrics Geriatrics
 Other (please list): _____

2. Please indicate the percentage of primary care patients in your practice:

0-25% 26-50% 51-75% 76-100%

3. How long have you been in practice?

5 years or less 6-10 years
 11-15 years >15 years

4. Which one of the following best describes your practice?

Solo Practice Group Practice Hospital employee Academics VA/Gov.
 HMO Employee Other? _____

5. Male? Female?

6. What is your date of birth? _____

Personal Exercise Habits

(Unless specified to “check all that apply”, please check or write-in the one most appropriate answer)

I. Cardiovascular/Aerobic fitness:

1. Do you participate in aerobic exercise on a regular basis?

Yes No
 (If “No”, please skip to question 6 on page 2 of this section)

2. On average, how many days per week do you participate in aerobic exercise (please check one)?

1 2 3 4 5 6 7

3. On average, how much time do you spend in each aerobic exercise session (in minutes)?

0-15 16-30 31-45 46-60 >60

4. Using the following examples, please categorize the intensity of the majority of your aerobic exercises:

Light: (walking 1-2 mph, cycling leisurely < 5mph, swimming slowly, stretching, golf with electric cart)
Moderate: (walking 3-4 mph, cycling 6-10 mph, swimming moderate pace, double tennis, golf with pull cart)
Heavy: (jogging slower than 10 min/mile, cycling 11-14 mph, swimming fast, single tennis, golf carrying bag)
Vigorous: (jogging faster than 10 min/mile, cycling >15 mph, swimming vigorously, racquetball)

5. *Why do you perform aerobic exercise? (please check all that apply)*
- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| cardiovascular disease prevention / treatment | <input type="checkbox"/> | | |
| osteoporosis prevention / treatment | <input type="checkbox"/> | | |
| diabetes prevention / treatment | | <input type="checkbox"/> | |
| musculoskeletal injury prevention / treatment (please describe): _____ <input type="checkbox"/> | | | |
| general health maintenance | <input type="checkbox"/> | cancer prevention | <input type="checkbox"/> |
| psychological benefit | <input type="checkbox"/> | weight control | <input type="checkbox"/> |
| social interaction | <input type="checkbox"/> | physical appearance | <input type="checkbox"/> |
| other (please describe): _____ | <input type="checkbox"/> | | |
6. *What are the barriers you perceive to aerobic exercise? (please check all that apply)*
- | | | | |
|---|--------------------------|--|--------------------------|
| Not enough time | <input type="checkbox"/> | I do not believe it offers any benefit | <input type="checkbox"/> |
| Lack of Motivation | <input type="checkbox"/> | | |
| Physically unable (please describe): _____ <input type="checkbox"/> | | | |
| Other (please describe): _____ <input type="checkbox"/> | | | |

II. Strength Training

(Unless specified to “check all that apply”, please check or write-in the one most appropriate answer)

1. *Do you participate in strength training?*
- Yes No
- (If “No”, please skip to question 7 of this section)
2. *On average, how many days per week do you participate in strength training? (please check one)*
- 1 2 3 4 5 6 7
3. *On average, how much time do you spend in each strength training period? (in minutes)*
- 0-15 16-30 31-45 46-60 >60
4. *What areas do you focus on for strength training? (choose all that apply)*
- | | | | | | |
|-----------------|--------------------------|-----------------|--------------------------|---------|--------------------------|
| Upper Extremity | <input type="checkbox"/> | Lower Extremity | <input type="checkbox"/> | Abdomen | <input type="checkbox"/> |
| Back | <input type="checkbox"/> | Neck | <input type="checkbox"/> | | |
5. *What type of equipment or method do you use for strength training? (choose all that apply)*
- Free weights Nautilus (or similar) Calisthenics (e.g. push-ups, sit-ups)
6. *Why do you perform strength training? (please check all that apply)*
- | | | | |
|---|--------------------------|--------------------------|--------------------------|
| cardiovascular disease prevention / treatment | <input type="checkbox"/> | | |
| osteoporosis prevention / treatment | <input type="checkbox"/> | | |
| diabetes prevention / treatment | | <input type="checkbox"/> | |
| musculoskeletal injury prevention / treatment (please describe): _____ <input type="checkbox"/> | | | |
| general health maintenance | <input type="checkbox"/> | cancer prevention | <input type="checkbox"/> |
| psychological benefit | <input type="checkbox"/> | weight control | <input type="checkbox"/> |
| social interaction | <input type="checkbox"/> | physical appearance | <input type="checkbox"/> |
| other (please describe): _____ | <input type="checkbox"/> | | |
7. *What are the barriers you perceive to strength training? (please check all that apply)*
- | | | | |
|---|--------------------------|--|--------------------------|
| Not enough time | <input type="checkbox"/> | I do not believe it offers any benefit | <input type="checkbox"/> |
| Lack of Motivation | <input type="checkbox"/> | | |
| Physically unable (please describe): _____ <input type="checkbox"/> | | | |
| Other (please describe): _____ <input type="checkbox"/> | | | |

Exercise Counseling Practices

(Unless specified to “check all that apply”, please check or write-in the one most appropriate answer)

A. Aerobic Exercise

1. On a routine patient check-up, what percentage of your patients do you counsel on aerobic exercise?
(If "0" percent please skip to question 7 of this section)

0 1-20 21-40 41-60 61-80 81-100

2. When counseling patients regarding aerobic exercise how much time do you devote to this subject?

<1 minute 1-2 min. 3-5 min. 6-10 min. >10 min.

3. For those patients that you counsel on aerobic exercise, what are your general recommendations?

Frequency (times per week):

1 2 3 4 5 6 7

Time (minutes per session):

0-15 16-30 31-45 46-60 >60

4. How do you counsel your patients on aerobic exercise? (please check all that apply)

Verbally Demonstration Pamphlet

If you refer to a specialist please choose which specialist you utilize most:

Physical Therapist Exercise Physiologist
Athletic Trainer Nurse / Nurse Practitioner
other MD (please indicate specialty) _____
other (please describe): _____

5. Why do you counsel your patients on aerobic exercise? (please check all that apply)

cardiovascular disease prevention / treatment
osteoporosis prevention / treatment
diabetes prevention / treatment
musculoskeletal injury prevention / treatment (please describe): _____
general health maintenance cancer prevention
psychological benefit weight control
social interaction physical appearance
other (please describe): _____

6. What percentage of your patients do you believe follow your aerobic exercise recommendations?

0 1-20 21-40 41-60 61-80 81-100

7. What are your barriers you perceive to counseling on aerobic exercise? (please check all that apply)

Not enough time
I do not believe it offers any benefit
Not enough knowledge or experience
Other (please describe): _____

B. Strength Training Counseling

(Unless specified to "check all that apply", please check or write-in the one most appropriate answer)

1. On a routine patient check-up, what percentage of your patients do you counsel on strength training?
(If "0" percent please skip to question 8 of this section)

0 1-20 21-40 41-60 61-80 81-100

2. When counseling patients regarding strength training how much time do you devote to this subject?

<1 minute 1-2 min. 3-5 min. 6-10 min. >10 min.

3. For those patients that you counsel on strength training, what are your general recommendations?

Frequency (times per week):
1 2 3 4 5 6 7

Time (minutes per session):
0-15 16-30 31-45 46-60 60

4. How do you counsel your patients on strength training? (please check all that apply)

Verbally Demonstration Pamphlet

If you refer to a specialist please choose which specialist you utilize most:

Physical Therapist Exercise Physiologist
Athletic Trainer Nurse / Nurse Practitioner
other MD (please indicate specialty) _____
other (please describe): _____

5. What type of equipment or method do you recommend for strength training? (choose all that apply):

Free weights Nautilus (or similar) Calisthenics (e.g. push-ups, sit-ups)

6. Why do you counsel your patients on strength training? (please check all that apply)

cardiovascular disease prevention / treatment
osteoporosis prevention / treatment
diabetes prevention / treatment
musculoskeletal injury prevention / treatment (please describe): _____
general health maintenance cancer prevention
psychological benefit weight control
social interaction physical appearance
other (please describe): _____

7. What percentage of your patients do you believe follow your strength training recommendations?

0 1-20 21-40 41-60 61-80 81-100

8. What are your barriers you perceive to counseling on strength training? (please check all that apply)

Not enough time
I do not believe it offers any benefit
Not enough knowledge or experience
other (please describe): _____

THANK YOU FOR YOUR TIME!!!

Comments: _____

