Lifestyle Modification: Weight Control, Exercise, and Smoking Cessation

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* FIGURES AND TABLES ARE AT THE END OF THE ARTICLE *

Cigarette smoking, obesity, and sedentary lifestyle are known to increase risk of coronary and other vascular disease. Yet eliminating, or reducing, these risk factors through lifestyle modifications is a significant challenge to patients and their physicians. To help meet this challenge in patients with coronary and other vascular disease, physicians should use an approach similar to that followed in other treatment plans: First, help the patient understand the value of the therapy; second, discuss the way in which treatment will evolve and set appropriate goals; third, follow up by monitoring and encouraging the patient's progress and identifying any barriers or adverse effects. When applying this paradigm to exercise, physicians can motivate patients by making them aware of the benefit of even moderate levels of activity, outlining a specific exercise program and setting appropriate goals, and following up on their patients' progress. Studies show that physicians can have a major positive impact on smoking cessation merely by asking patients whether they smoke and advising smokers to quit. Physicians can further assist smokers by providing educational materials, referring patients to counseling groups when needed, and prescribing nicotine replacement therapy when appropriate. Again, follow-up is essential. Dietary intervention should be tailored to individual patients, their food preferences and ethnic backgrounds. Individuals should be encouraged to try a wide variety of nonfat and low-fat foods and incorporate those they find acceptable into their diet in place of higher-fat alternatives. Educational materials are helpful in motivating patients to modify their eating habits and in providing additional ideas for food substitutions. Am J Med. 1996; 101(suppl 4A):25S-33S.

Lifestyle modifications, including smoking cessation, weight control, and exercise are among the most difficult risk-reduction strategies to implement. Patients with coronary and other vascular disease who understand the rationale behind recommended lifestyle changes and recognize the potential benefits that can result are more likely to cooperate with physicians in implementing treatment. Setting goals, outlining methods for achieving these goals, and monitoring the patient's progress are also critical to the success of lifestyle modification strategies.

EXERCISE

A sedentary lifestyle and low levels of physical activity have been shown consistently to increase the risk of coronary artery disease in individuals with or without prior vascular disease. (1-3) Cardiac rehabilitation studies, though small, support these findings. (4)

Although intense exercise, such as marathon running, reduces the risk of all-cause and coronary death by about one-third, data from the Cooper Clinic indicate that most of the benefit derived from exercise in both men and women is conferred by much lower levels of activity. (l) Consequently, some form of moderate exercise is advisable for most people.

Patient Compliance

Implementation of exercise programs is generally thought to be difficult, but compliance problems can be overcome by formulating and implementing a therapeutic plan such as the one illustrated in Table 1. Such a plan, generally applied to pharmacologic therapy and invasive procedures, can lead to successful implementation of lifestyle modifications as well. The first step in any therapeutic plan is to convince patients that treatment is beneficial.

Benefits of Exercise

Data from multiple studies that have examined the relationship between physical fitness and mortality indicate that moderate levels of fitness are associated with a large reduction in the risk of adverse events, including mortality, although the reduction is less than that seen with greater levels of fitness (Figure 1). (1,2,5) The major protective effect of physical fitness is a reduction in cardiovascular events. (6) Not surprisingly, physical fitness has little impact on mortality from trauma.

Recently published data from Blair et al (6) showed that previously unfit individuals who became fit over a 2-year period had a reduced risk of mortality as compared with those who remained unfit (Figure 2). On the other hand, initially fit subjects who became unfit during follow-up lost much of the benefit associated with fitness. These findings suggest that the process of achieving fitness has a major beneficial effect in helping to reduce the risk of cardiac events. Similar findings have been reported in primary prevention trials and coronary rehabilitation studies. (2,4,7,8)

A number of beneficial effects may contribute to the favorable impact of exercise on cardiovascular risk. Exercise improves serum lipid fractions, both in diabetic and nondiabetic individuals. High-density-lipoprotein (HDL) cholesterol increases in response to exercise, while low-density-lipoprotein (LPL) cholesterol shows no change or a small reduction. Triglyceride levels are also markedly reduced with exercise. Regular exercise transforms small, dense atherogenic LDL particles to more desirable, more buoyant LDL particles. Exercise also affects intermediate-density lipoprotein cholesterol fractions in such a way as to decrease the likelihood of further atherosclerosis. In addition to these favorable effects on the serum lipid profile, exercise protects against the adverse effects of hyperlipidemia on the arterial wall. (9)

Evidence obtained in both humans and animals shows that regular exercise also decreases the detrimental effects of catecholamines on the myocardium. (10,11) Regular exercise is also associated with a small but predictable reduction in arterial blood pressure. The magnitude of this reduction is similar to the reduction expected with diuretic therapy, about 5-10 mm Hg systolic and about 5 mm Hg diastolic. (10,12)

Exercise can also play an important role in weight loss and weight control.

Results of multiple cross-sectional studies indicate that exercise decreases the likelihood of developing diabetes. In the Physicians Health Study, participants who exercised regularly had a dramatically lower incidence of diabetes than those who did not. (13) Similar findings were reported in the Nurses Health Study. (14)

The beneficial effects of physical activity (and perhaps of dietary modification as well) are illustrated by the differences between two tribes of Pima Indians, considered to be genetically predisposed to diabetes, one tribe living in Arizona and the other living in the highlands of Mexico. The Pima Indians in Arizona are obese, hypertensive, and diabetic, and have a high incidence of vascular disease. In contrast, those living in the Mexican highlands, where food is less abundant and work more strenuous, have no hypertension, diabetes, or central obesity. (15)

In addition to these clinically substantiated benefits, experimental studies have shown that regularly exercised animals have a dramatically better outcome after exposure to myocardial ischemia than animals that are not exercised. (16) Data from Ehsani et al (17) suggest, but do not prove, that this is the case in humans as well.

Prescribing Exercise

In helping to set up a fitness program, the physician should discuss with the patient how the program can be set up and what types of exercise might be considered.

Patients should identify training activities that are most acceptable to them and most likely to be carried out on a regular basis--e.g., running, walking, climbing stairs, biking, rowing, cross-

country skiing, skating, dancing, swimming. A specific time of day should be set aside for exercise, e.g., either before or after work. Patients embarking on an exercise program should start slowly, especially if they have been sedentary: 10 minutes of exercise each day is recommended initially, although 20 minutes per day may be appropriate for an individual who has a more active lifestyle. Increases in exercise duration should be in small increments of 5-10 minutes daily each week until a total exercise time of 30-40 minutes/day is reached.

Insist that patients exercise 5 days each week. If one or two sessions are missed, the patient will still have managed at least 3 or 4 days of exercise. The speed at which exercise is performed is not necessarily important; the regularity with which it is performed is important. Goals should be set and systems devised for monitoring these goals. Follow-up can be very simple, using such devices as charts or calendars to monitor compliance and progress with the exercise program. Objective measures of the patient's accomplishments, such as the amount of weight lost or the degree of blood-pressure reduction, should be employed to assess patient progress. Reaching the goals that have been set can encourage patients to continue exercising. If the goals are not met, the program should be reassessed and adjustments made in order to overcome the obstacles to success.

Pre-exercise Evaluation

The evaluation of a patient who is about to begin an exercise program should include a history of past exercise habits and any current limitations to exercise, such as symptoms of coronary disease, claudication, back pain, or previous injuries. A physical examination and laboratory evaluation will help in identifying high-risk individuals with elevated blood-pressure levels and/or lipid abnormalities.

The need for exercise testing prior to initiation of an exercise program has been debated. Exercise testing of everyone beginning an exercise program is impractical. Rather, physicians should be selective in determining which patients are appropriate candidates. The need for evaluation might best be determined by assessing the presence of such risk factors as older age, male gender, family history of premature atherosclerosis, smoking, hypercholesterolemia, hypertension, diabetes, and marked obesity. Patients with established heart disease are clearly in need of exercise testing before beginning an exercise program.

Formal Exercise Programs

It is unclear whether patients need "formal" programs. Some data suggest that self-directed exercise may be as effective as formal programs in patients who are at lower risk. (18) Nonetheless, there is evidence that some patients, especially those at higher risk, may benefit from medically monitored exercise programs. (19,20) Thus, patients who fit into the "high-risk" groups should at least start training in a program. High-risk patients include those with severe exercise-induced arrhythmias, evidence of severe ischemia on provocative tests (> 2 mm ST depression, exercise-induced hypotension, or large perfusion defects on perfusion testing, if perfusion testing is performed), poor exercise capacity (< 7 METS or less than stage 2 of a Bruce exercise test), or survivors of cardiac arrest. A program may also be considered for the initial (first 4-12 weeks) exercise training after an event (MI, or revascularization).

SMOKING CESSATION

The health hazards of smoking are well documented. Smokers experience four times the risk of death from all cardiovascular disease and three times the risk of death from coronary artery disease. (21)

Smoking accounts for approximately 21.5% of deaths from coronary artery disease and 18% of deaths from stroke. (22) The risk of chronic obstructive pulmonary disease is increased 10-fold in smokers. The risk of various cancers, including lung, oral, esophageal, renal, and bladder cancer is also increased by smoking.

There is extensive evidence that smoking cessation reduces the risk of mortality and morbidity from coronary artery disease. Even individuals who smoke less than half a pack a day (1-9 cigarettes daily) are at greater risk of death from coronary artery disease than lifelong nonsmokers (Figure 3). (23) Reduction in cardiovascular risk begins immediately after

smoking cessation and continues over time. Within 5-10 years after cessation, the risk is reduced to a level almost equivalent to that in nonsmokers. (22,24) The risk of death from coronary artery disease rises as the number of cigarettes smoked daily increases. (24) Quitting, however, provides substantial reductions in risk at any level of cigarette consumption.

Smoking as an Addiction

Despite public awareness of the health risks of smoking, millions of U.S. citizens continue to smoke, largely because they are physically and psychologically dependent on nicotine, the addicting drug in tobacco. (25) Continued smoking is also strongly associated with physical and psychological effects that are perceived to be pleasurable--such as skeletal/muscular relaxation, electrocortical stimulation, stress reduction, and oral and tactile gratification as well as with behavioral cues that reinforce nicotine dependence. Smokers frequently regard the bond between the cue and the cigarette as a unit that is difficult to break until the cue is identified as separate and distinct from smoking. Many smokers, for example, automatically have a cigarette when they drink a cup of coffee or an alcoholic beverage, make a phone call, or finish a meal. Nicotine dependence is also reinforced by various external cues, such as advertisements, societal attitudes, and overt or covert messages suggesting that smoking is glamorous, sophisticated, "macho," or "cool."

Smoking Cessation Strategies

For more than a decade, the U.S. Public Health Service has identified smoking as the most important preventable cause of death in this country. It has also characterized smoking cessation as the single most important step that smokers can take to enhance the length and quality of their lives. (26)

There are various strategies that can be used to promote smoking cessation, including advice from a physician, nicotine replacement therapy, behavior modification, and smoking cessation programs. The challenge is to implement these strategies universally and consistently so that smokers who could be helped to quit do not "slip through" the healthcare system unnoticed and untreated.

Physicians are in an excellent position to help their patients stop smoking. With an estimated 70% of U.S. smokers seeing a physician at least once a year, (26) physicians have the opportunity to reach an estimated 38 million of 50 million smokers with the message to quit. A 2-minute physician intervention consisting of questioning patients about smoking, advising them to quit, and providing educational materials, along with appropriate follow-up, has been found to result in a 5% quit rate at the end of 1 year. (27) This percentage translates into 25 exsmokers per U.S. physician each year. Even if only 10% of the 550,000 physicians in the United States achieved this goal, approximately 1,250,000 persons would stop smoking annually.

When advising a patient to quit smoking, the physician should first review the stages of change identified by Prochaska and DiClemente (28) to ascertain the smoker's readiness to quit. Persons in the pre-contemplation stage are not considering quitting (or making any other behavioral change) within the next 6 months and are likely to refuse any advice in this regard. In contrast, those in the contemplation stage are seriously considering quitting within the next 6 months and are amenable to advice, educational materials, and information about the adverse effects of smoking and the benefits of cessation.

Persons in the preparation stage are ready to quit within the next 30 days and are receptive to information about behavioral counseling and nicotine replacement therapy. The first 6 months after cessation is the action stage. This is followed by the maintenance stage, which continues for up to 3 or more years. Physicians should make every effort to encourage patients to quit smoking, since smokers who are well motivated are more likely to be successful than those who are not. However, the reasons for wanting to quit vary from person to person, and a powerful incentive for one may barely motivate another. Frequently cited reasons for wanting to quit are listed in Table II.

Because several of the motivating factors relate to improved physical well-being, it is important that physicians discuss the health consequences of smoking with their patients. It is also important to point out the so-called pleasurable effects of smoking--as well as some of the behavioral cues that trigger it--and suggest substitutes. For example,

activities that keep the hands busy, such as playing with coins or gardening, may provide the tactile satisfaction associated with smoking, while sugar-free gum or hard candy may provide oral satisfaction. Cinnamon sticks that resemble cigarettes both in shape and size can simulate both the oral and tactile components of smoking.

Keeping a smoking diary prior to a quit attempt may help patients to become more aware of their smoking patterns and to identify cues that trigger smoking. (29) Before smoking a cigarette, the patient uses the diary to note the time and activity associated with it and ranks the need for the cigarette on a scale of 1 (most urgently needed) to 3 (smoked as if by reflex) .Identifying smoking triggers and ranking the need for a given cigarette may enhance the patient's readiness to quit and hasten the quit effort.

Abstaining from smoking commonly leads to nicotine withdrawal symptoms, which tend to be most intense during the first week after cessation. Substituting alternative activities for smoking in response to behavioral cues is often effective in coping with these withdrawal symptoms. For example, smokers who enjoy a cigarette immediately after eating may consider brushing their teeth or taking a brisk walk after a meal. External cues with messages conveying the glamour of smoking can be counteracted by negative images of the consequences of smoking, such as death and disease, prematurely wrinkled skin, bad breath, and stained teeth and fingers.

Nicotine replacement therapy, i.e., nicotine gum, transdermal nicotine patch, or the recently approved nicotine nasal spray, has been shown to be an effective aid in smoking cessation and should be considered for patients who smoke, especially if they are highly dependent on nicotine (i.e., smoke >20 cigarettes a day or crave a cigarette within 30 minutes of awakening). It is most effective if used in conjunction with a behavioral-modification smoking-cessation program. Nicotine replacement therapy aids the cessation process by "taking the edge off" nicotine withdrawal symptoms, the most commonly cited reason for relapse. Follow-up by the physician or an office staff member is crucial for checking on the patient's progress, encouraging continued cessation, and offering reassurance. This can be done in the office or by telephone, and takes only a minute or two.

Follow-up is especially important during the first week after smoking cessation, when withdrawal symptoms may be most pronounced and the risk of relapse is highest, and again within the first postcessation month (30) and at 3 months after the quit attempt.

Whereas a physician's advice to quit smoking and self-help educational materials result in higher cessation rates than no intervention at all, more intensive interventions are even more successful. To be most effective, interventions should include either individual or group counseling or contact with a physician, a nonphysician healthcare provider (e.g., nurse, pharmacist), or a nonmedical healthcare provider (e.g., psychologist, social worker, counselor). (30)

Smoking cessation interventions should help smokers recognize and cope with problems encountered in quitting and should provide social support as part of the treatment. Interventions that use some type of aversive smoking--such as rapid smoking or rapid puffing--increase cessation rates and may be used with smokers who desire such treatment or who have been unsuccessful using other interventions. (30)

In general, the greater the number of weeks in which person-to-person or group counseling or treatment is delivered, the more effective it is. Individualized treatment given over 47 sessions appears to be especially effective in increasing cessation rates. Therefore, clinicians should try to meet at least four times with patients who are quitting smoking. (30)

WEIGHT CONTROL

Exercise, which has already been discussed, is one approach to reducing the increased cardiovascular risk associated with obesity. Another approach to weight control is, of course, dietary intervention.

Dietary intervention (discussed later in this supplement) goes beyond presenting patients with a list of foods that they should not eat (Table III). It begins with a dietary history obtained by the physician or a dietitian to identify their patients'

eating habits, usually by asking them what they had to eat during the previous week.

By finding out what patients like to eat, physicians or dietitians can suggest dietary alterations tailored to an individual patient. For example, a patient who likes fried shrimp with tartar sauce may be willing to substitute boiled shrimp with cocktail sauce, which will reduce the number of fat grams dramatically.

The patient's ethnic background should also be considered in suggesting dietary modifications. In many cases, it is possible to help patients comply with therapy by helping them to create low-fat versions of popular ethnic dishes. Baked tortilla chips with little or no fat can be substituted for fried chips, mashed canned asparagus or peas can be used in place of high-fat avocado in guacamole, and low-fat sour cream can replace regular sour cream.

Patients should be advised to try a number of brands of low-fat or nonfat foods and evaluate them for taste, as well as other properties, such as the ability of cheese to melt. Patients may find some brands to be intolerable but others to be satisfactory.

Because the information conveyed during the few minutes available in the office setting is easily forgotten, it is helpful to provide educational materials, such as pamphlets, videotapes, brochures, or booklets, that patients can take home. Many inexpensive recipe books are now available, and most discuss weight control in language that the patient can easily understand. These materials assist the physician in convincing overweight or hypercholesterolemic patients of the benefits of weight control and dietary modification. The recipes are often accompanied by nutrition information regarding fat content, cholesterol, sodium, and/or other nutrients.

Referral to a dietitian and/or Weight Watchers or a similar weight loss program is often helpful. Such programs provide sound dietary advice and some degree of follow-up, and also emphasize long-term lifestyle change (as opposed to quick but temporary weight loss) in a supportive environment. Referral to a dietitian may be preferable for patients who need more comprehensive dietary counseling or for patients who also have diabetes.

CONCLUSIONS

Lifestyle modification strategies, such as regular exercise, smoking cessation, and dietary changes, can greatly reduce risk in patients with cardiovascular disease. Motivating patients to make these changes, negotiating a specific plan for helping them to do so, and monitoring their progress are critical components of any successful lifestyle modification program.

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DISCUSSION HIGHLIGHTS

Harry E. Mayhew, MD (Toledo, Ohio): We have a lot of ground to cover discussing lifestyle modification-diet, exercise, smoking cessation, and stress reduction. I would like to begin by reinforcing the value of the 3- or 7-day diary to record eating habits for patients initiating a dietary

program. The nutritionist or dietitian can then use this list to suggest substitutions that are lower in saturated fat and/or cholesterol, yet are still nutritious. The 7-day diary may also reveal what the Framingham Study referred to as the 10-meal concept--that most people tend to eat the same 10 meals again and again, with occasional variations and additions.

Neil J. Stone, MD (Chicago, Illinois): We stress attitude, knowledge, and skills in our dietary intervention programs. However, before offering advice, we try to determine whether the patient is ready to make a change. Those who are ready are more likely to be compliant, but some patients are not ready to change. We use books rather than handouts for patient education. I have 10-15 cookbooks and diet books that patients can browse through while they are waiting for an appointment. Many of my patients like to photocopy recipes from these books and take them home. Having this type of information available can be part of the educational process. Patients are often reluctant to consult a dietitian because it is costly and not reimbursed by third-party payers. I ask my patients how much they spend each month at the pharmacy for over-the-counter vitamin supplements and home remedies. When they add up these costs, they find that they spend a substantial amount on these products, easily enough to pay for dietary counseling, which theoretically might provide more substantiated and long-term benefits.

Edward Winslow, MD (Chicago, Illinois): Two obstacles that stand in the way of lifestyle changes are unrealistic expectations that our patients will make changes immediately and inadequate follow-up. Most lifestyle changes will be abandoned unless they are reinforced frequently as part of the follow-up evaluation. Instead of asking, "How much chest pain are you having?" you might ask, "How is your exercise program going?" Then you can review how they felt when they were exercising or dieting. They almost always admit that they did feel better and continue with the exercise or diet regimen.

Elliot Rapaport, MD (San Francisco, California): Simply getting a person out of the tense environment of the workplace may contribute to the benefits associated with exercise. I think we have perhaps underplayed the issue of stress relief.

Alan H. Heaton, PharmD (St. Paul, Minnesota): In a primary-care HMO environment, you have about 4.3 minutes per patient to make recommendations. The key in that setting is to solicit ancillary support personnel to assist with patient follow-up. We have a smoking-cessation program that involves incremental dispensing of nicotine patches at 2-week intervals. Patients must return every 2 weeks and show that they have attended the smoking cessation class. We have had a l-year smoking cessation rate of 46% in that group. The same principle applies to dietary modification and exercise. The patient motivation issue is key, especially in the primary-care environment. In the managed-care environment, the employer must be convinced of the benefits of such interventions and be willing to pay for them. Sometimes the message of the value of these interventions gets lost when it must be expressed in terms of benefit to the employer.

Dr. Mayhew: It is important that the physician not overwhelm the patient who has just experienced a coronary event. Instead of presenting him or her with an extensive lifestyle modification program, you should set smaller goals. In dealing with smokers, I have found that it is much better to determine first the patient's opinion of smoking and level of commitment to a program. I have never had a patient who stated that smoking was beneficial. Then I ask how I can help. This approach makes me an ally rather than an adversary .If the patient does not want to deal with the issue of smoking at this time, I then ask when it would be appropriate to discuss the matter again. In this way we set up contracts for motivation, education, initiation of a cessation program, or monitoring success.

Dr. Heaton: We are seeing a tremendous rise in the use of chewing tobacco, especially in our young, male, rural population. Are there any long-term data on the risks associated with chewing tobacco?

Dr. Winslow: There are some data that smokeless tobacco can increase the level of some risk factors for atherosclerosis. (1) There are also data from the Surgeon General that indicate an increased risk for oropharyngeal cancers with the use of chewing tobacco. (2)

John Noble, MD (Boston, Massachusetts): In discussing smoking cessation, special teaching programs and banning of advertisements were

mentioned. With all of our interventions, we may want to try to push beyond the prescription pad. It may be difficult in an academic medical center, but more opportunities may exist in a smaller community. For example, physicians might get patients into an exercise program by inviting them to join a group for walks in the mountains.

Dr. Rapaport: We should not ignore the role of the physician as a role model in lifestyle modification. In some parts of the world, physicians actually smoke more than the general population, although, fortunately, this is much less of a problem in the United States. Physicians who smoke in the office convey the wrong message to their patients.

Dr. Stone: I have a question for Dr. Winslow. In the Lifestyle Heart Trial, the only death in the experimental group occurred in a person who exercised too much. In the Heidelberg Trial, two deaths were due to excessive exercise. How do you manage a patient who appears to be exercising too excessively, despite having heart disease?

Dr. Winslow: A commonly held belief in the United States is that if something is good, more is better. That is not necessarily true. I try to get my patients to tell me why they are doing more than they have to. If that objective is improved health, I point out why more is not necessary.

William Hazzard, MD (Winston Salem, North Carolina): The dose-response relationship is clear. The greatest benefit is derived from moderate exercise relative to the number of calories expended. The incremental or marginal benefit from high-level exercise is less per calorie expended, and the risks begin to increase. As people age, they become fearful about starting to exercise. We have mounted a specific program to try to overcome that fear among older people through the use of videotapes and other forms of communication. Reluctance to start and, to some extent, the fear of beginning may be the most difficult first barriers to exercising.

Dr. Mayhew: Even if physicians have training in diet, nutrition, and lifestyle modifications, they frequently do not have enough time to extensively counsel patients. It is important that physicians, especially in the smaller communities, have a resource person, such as a dietitian at the hospital or a nurse in the office, who will learn more about lifestyle modifications and interact with patients.

Dr. Hazzard: Residents in internal medicine are often uncomfortable in their role as patient educators and members of a team. They do not yet know how to communicate with dietitians because they do not necessarily speak the same language. In the managed-care environment, the physician is not the primary person who delivers the lifestyle modification message and certainly not the reinforcer of that message, but he or she does need to initiate it and support those who do deliver the message. Consequently, development of team behavior and communication skills is important. In smaller practices, you must find other health professionals in the community who will work with you as a team.

Dr. Stone: Unfortunately, we are sharing the spotlight with people making recommendations, such as megavitamin therapy, based on unsubstantiated conclusions. One of the public policy issues facing us today is how to deal with the zealous crusaders who promote these unsubstantiated health claims. We must take back the pulpit.

Dr. Mayhew: These changes definitely constitute a barrier to the implementation of effective lifestyle modifications. However, there are other barriers that we should also be concerned about. According to the Health Belief Model, several factors can modify a patient's perceptions of the threat of disease and barriers to proposed treatment, thus modifying compliance. They include race, age, gender, ethnic origin, personality, social class, socioeconomic status, advice from others, and information from a physician. Other barriers to compliance include cost, the waiting time in the physician's office, the complexity of the regimen, the side effects of treatment, and the quality of the physician-patient relationship. The doctor serves as the patient's coach to educate and motivate him or her to adopt good healthcare practices.

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TABLE I

Therapeutic Plan for Prescribing Exercise

- Explain why exercise is a life-long commitment
- Determine the type of exercise
- Agree on the time of day
- Start slowly
- Set defined goals
- Follow-up progress and results
- Monitor for injury/adverse effects

TABLE II

Frequently Cited Reasons for Smoking Cessation

- To modify health-risk factors and enjoy better health
- To prevent further damage to the cardiovascular and respiratory systems
- To protect other family members from secondhand smoke
- To avoid negative peer pressure at home and on the job (especially in workplaces with a smoke-free policy)
- To regain control over one's behavior
- To participate in sports and other activities without being short of breath
- To have fresher breath and cleaner teeth
- To wear clothing that does not smell of tobacco
- To live in a house or apartment that does not smell of tobacco
- To save money

TABLE III

Suggestions for Successful Dietary Intervention

- Obtain a dietary history
- Tailor suggestions to patient’s food preferences and ethnic background
- Encourage patients to try several brands of low-fat and non-fat products
- Provide educational materials
- Substitute foods instead of prohibiting them
- Refer to a registered dietitian and/or weight loss program as appropriate

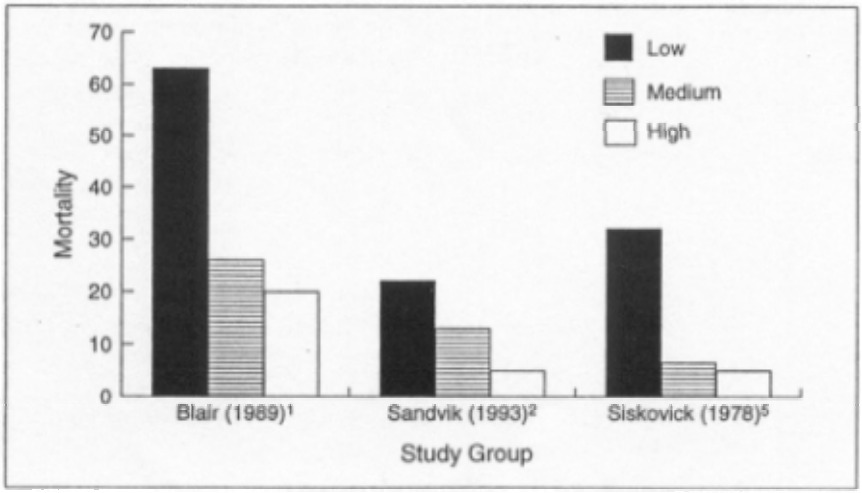

Figure 1. Relationship of fitness levels and mortality

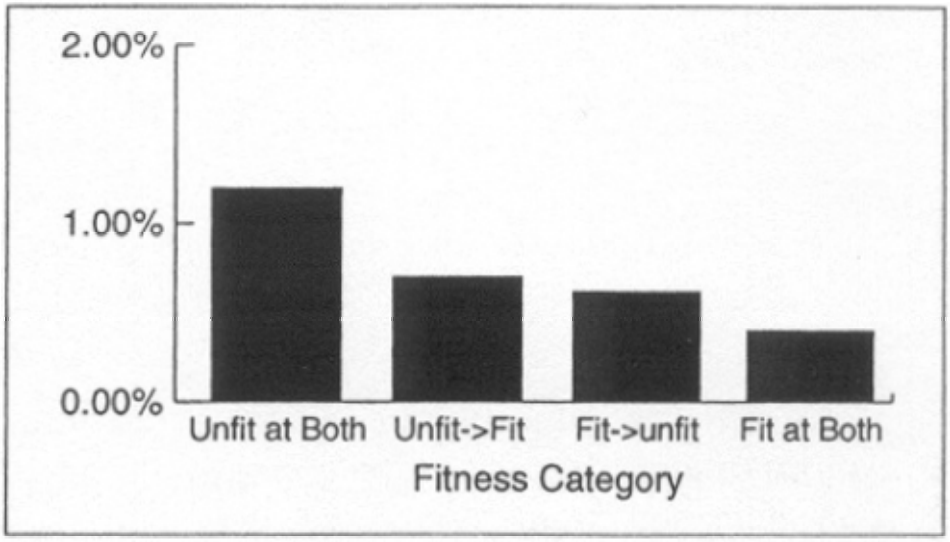

Figure 2. Effect of changes in fitness level on mortality. The word "both" under the first and fourth bars refers to the fitness category at two examinations performed approximately 5 years apart. (Data redrawn from JAMA. (6)

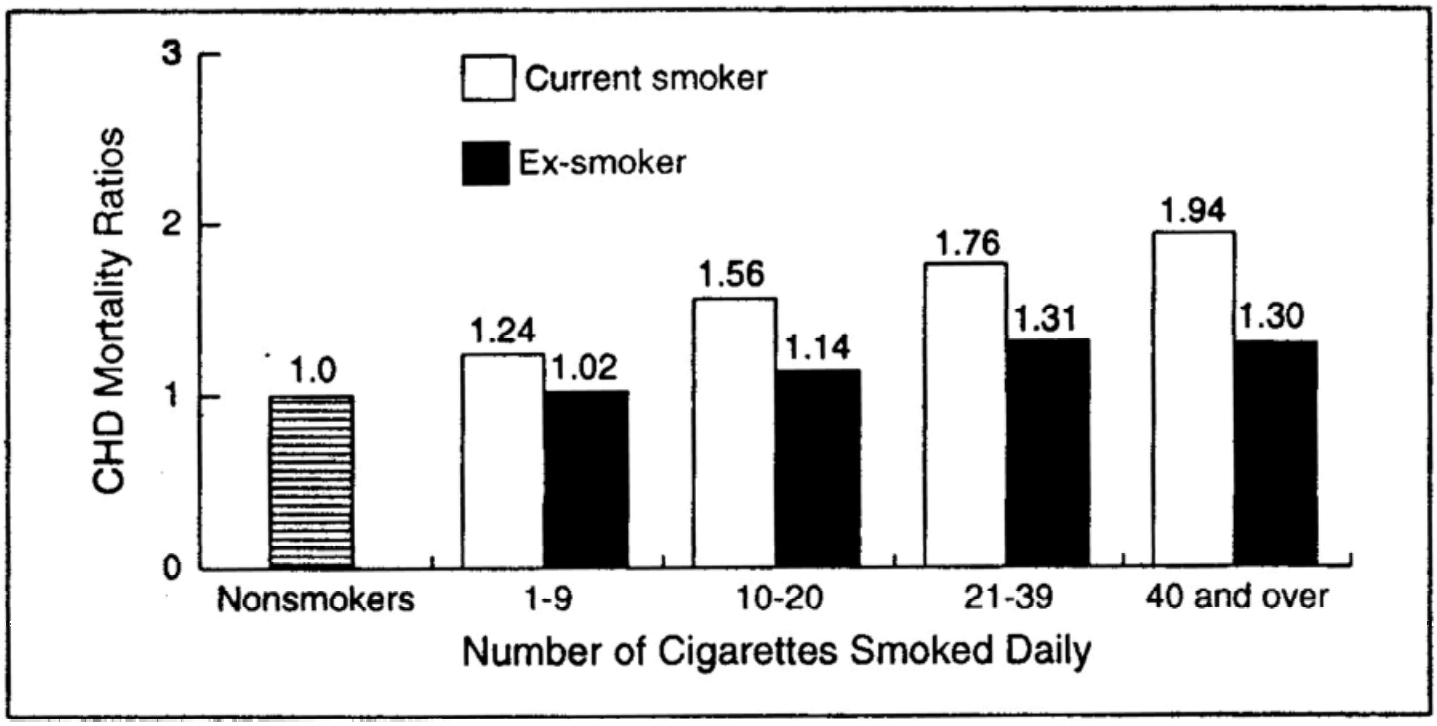

Figure 3. Effect of smoking cessation on coronary artery disease mortality.