

Making Exercise and Fitness a High Priority

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“Exercise and temperance can preserve something of our strength in old age.”

—Cicero

As indicated in this classic quotation, the potential benefits of regular exercise training have been noted for centuries and have been more definitively characterized during recent years (1). Clearly, numerous studies have concluded that regular exercise is associated with marked reductions in the long-term risk of major cardiovascular (CV) events, CV mortality, and all-cause mortality (1–7). Unfortunately, this information often does not receive the same degree of publicity as do the risks of exercise. Even in regular exercisers, it is true that a vigorous bout of exercise may increase the risk of a CV event by 2- or 3-fold for about 30–60 minutes following the bout of vigorous exertion. However, major CV events are reduced by 30% to 50% for the remaining 23–23.5 hours of the day, making the net effect of regular exercise markedly beneficial. The numerous potential benefits of regular physical exercise are listed in Table 1 (1).

“And is not bodily habitus spoiled by rest and illness, but preserved for a long time by motion and exercise?”

—Socrates

In addition, numerous studies, particularly data from Blair and colleagues who have studied over 13,000 men and women at the Cooper Clinic (8–11), indicate that objective measures of overall physical fitness correlate strongly with total mortality, as well

as death from CV causes and cancers (8–14). In fact, even in obese individuals or in people with several adverse CV risk factors, high levels of overall physical fitness provide considerable protection against CV events. In addition, improvements in physical fitness over time have correlated with reductions in CV and total mortality (9,11,12).

“Healthy exercise is valuable not only for the maintenance of good physiologic function of the body, but also mental clarity, and the feeling of good health.”

—Paul Dudley White, MD

My partner in preventive cardiology and cardiac rehabilitation, Dr. Richard Milani, and I have focused much of our research on the benefits of phase II cardiopulmonary rehabilitation and exercise training (CRET) programs for patients with known CV disease, and the studies from our group and others have demonstrated significant improvements in major risk factors, improvements in quality of life, and 20%–25% reductions in major CV morbidity and mortality in patients with known heart disease (Table 2) (15,16). In fact, in this issue of *The Ochsner Journal*, we focus attention on a neglected area in cardiology, the role of psychological factors in heart disease, and illustrate the marked benefits demonstrated from our studies on these adverse behavioral characteristics following formal CRET (17–19).

Therefore, an important part of many physician/patient encounters involves the prescription of regular physical exercise (1). This prescription involves recommendations regarding the mode of exercise, intensity, frequency, and duration. Although the details regarding these recommendations are beyond the scope of this editorial and are discussed in detail elsewhere (1), we generally recommend mostly aerobic exercise (walking, jogging, cycling, elliptical machines, swimming, aerobic dance, cross-country ski machines) at least 3–5 times weekly (preferably 6 or 7 days per week) for at least 20–30 minutes per session (preferably 40–60 minutes). Although the aerobic exercise component is more often emphasized, resistance training (also called isometric exercise or weight training) is also important, since typically aging is associated with reductions in

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Key Words: Exercise, fitness

Table 1. Potential beneficial effects of regular exercise.**Benefits related to risk factors for coronary artery disease**

Eases smoking cessation
 Improves glucose metabolism
 Raises serum high-density lipoprotein cholesterol level
 Reduces arterial blood pressure
 Reduces body weight
 Reduces serum triglyceride and possibly low-density lipoprotein cholesterol level
 Reduces stress

Hematologic benefits

Decreases hematocrit and blood viscosity
 Expands blood plasma volume
 Increases red blood cell deformability
 Increases fibrinolytic activity

Other benefits

Decreases atherosclerosis (proven in animals)
 Decreases morbidity and mortality
 Increases coronary collateral circulation (in many species)
 Increases coronary flow reserve
 Increases myocardial capillary density (in most species)
 Increases tolerance of ischemia
 Increases ventricular fibrillation threshold
 Possibly increases epicardial coronary artery size

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muscular mass, probably more so in women. Resistance training may also improve quality of life, reduce osteoporosis and skeletal fracture rates, not to mention provide significant metabolic and CV improvements. I am currently involved in a major National Institutes of Health-sponsored trial in diabetic patients with Dr. Tim Church, previously with the Cooper Heart Clinic and now Medical Director of Pennington Biomedical Research Center, to determine the relative benefits of aerobic exercise, resistance training, and the combination of these two exercises for CV risk factors, muscular skeletal conditioning, and glucose control in patients with type 2 diabetes. Therefore, presently we also recommend light weight lifting at moderate intensity for at least 10–15 minutes 2 or 3 times weekly for most patients, recognizing that more intense weight training may be even more beneficial (20).

In addition, evidence indicates that accumulation of shorter exercise sessions or bouts of physical activity may provide as much protection as one longer, continuous exercise session, thus lending support to the recent recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine stating, “every US adult should accumulate 30 minutes or more of moderate-intensity of physical activity on most,

Table 2. Benefits of cardiac rehabilitation and exercise training programs.

- Improvement in exercise capacity
 - Estimated METS: +35%
 - Peak anaerobic threshold: +11%
 - Peak VO₂: +15%
- Improvements in lipids
 - Total cholesterol: –5%
 - Triglycerides: –15%
 - HDL-C: +6%
 - LDL-C: –3%
 - LDL/HDL: –8%
- Reduction in obesity indices
 - Body mass index: –1.5%
 - Percent fat: –5%
 - Metabolic Syndrome: –37%
- Reduction in inflammation (hs-CRP – 40%)
- Improvement in autonomic function
- Improvement in blood rheology
- Reduction in homocysteine (–10%)
- Improvements in behavioral characteristics (depression, anxiety, somatization, and hostility)
- Improvements in overall quality of life and its components
- Probable reduction in hospitalization costs and overall morbidity and mortality

METS = Metabolic equivalents.

VO₂ = oxygen consumption.

HDL-C = high density lipoprotein cholesterol.

LDL-C = low density lipoprotein cholesterol.

hs-CRP = high sensitivity C-reactive protein.

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preferably all, days of the week” (21). This recommendation was devised to promote physical activity among those who do not enjoy or are unable to participate in more vigorous exercise.

The many barriers to performing regular exercise include lack of motivation, various muscular skeletal abnormalities and degeneration, generalized fatigue or specifically muscular fatigue, and various fears; however, by far the leading obstacles are: 1) no time, 2) lack of time, and 3) cannot find the time! Recognizing the very complex schedules that many clinicians and patients have, the only way to accomplish these exercise goals is to either make exercise a top priority, find a way to make some exercise regimen fit one’s hectic schedule, or utilize a combination of these two approaches.

Recently, while attending the Annual Research Night presentations at Ochsner Clinic Foundation in

Figure 1. The Ochsner CEO, Dr. Pat Quinlan, is shown walking on his office treadmill, which he does from 2–10 times each workday while taking phone calls and email, participating in teleconferences, and giving dictation. In addition, he walks outside for 45 minutes in the mornings approximately 6 times per week and performs Pilates exercises 1 hour twice a week and a vigorous 30-minute weight lifting session weekly.



New Orleans, I discussed some of my research findings, particularly regarding the benefits of CRET for cardiac patients, with our Chief Executive Officer (CEO), Dr. Pat Quinlan. Knowing that Dr. Quinlan has an extremely busy business and administrative schedule and with his original medical background being in dermatology, I assumed that his personal exercise would be somewhat minimal and sporadic. On the contrary, I learned that Dr. Quinlan was extremely knowledgeable about many details of exercise training (both dynamic and isometric), exercise and muscle physiology, caloric intakes/expenditures (e.g., approximately 100 calories are burned for each mile traveled by foot and 3,500 calories are roughly equivalent to 1 pound of fat), and that his personal exercise regimen was not only extensive but also quite innovative. He walks for approximately 45 minutes most mornings (about 6 times weekly) at a slow pace due to arthritis and back concerns, but typically burns 150–200 calories on these mornings. In addition, he does 1 hour of Pilates (a specialized exercise regimen emphasizing muscle strengthening as well as musculoskeletal flexibility) 2 times weekly, and does an intensive 30-minute session per week of vigorous “slow” weight lifting to near muscle exhaustion, which then requires prolonged muscle recovery. To augment caloric burning, he has a very innovative system in his office, where he frequently works while walking slowly on his office treadmill (Figure 1), incorporating phone calls, teleconferences, email, and dictations 2–10 times daily

while burning calories (from 150–1000 calories/day; average 350–400/day on work days). During both my initial email conversations with him and our phone conversation the next morning regarding additional details for this article, he was walking on his office treadmill. Obviously, the Ochsner CEO has made exercise and fitness a top priority (Table 3). By estimation, on a typical week, he is probably burning 3,000–3,500 calories (close to a pound of fat per week), not to mention receiving the extensive health benefits obtained from both the aerobic and isometric (resistance training) exercise. Many Americans typically gain 2–8 pounds/year during many of their adulthood years, which would be virtually impossible to do if one regularly exercises. In fact, burning only 200 calories 3–4 times per week results in approximately 10 pounds/year of weight gain prevention.

Obviously, a regimen that works for one individual’s personal/professional situation may not work for another. However, the only way that most individuals can find time for exercise is to be both innovative and to make this a very high priority. For some individuals, this could involve parking in the very back of the parking lot (as opposed to the first space available) or walking up the stairs (possibly several times per day) instead of using the elevator (which may work reasonably well if one works on an upper level office). For others, it may require setting aside 45 minutes before or after work (or during the lunch break), even exercising very early in the morning or quite late in the

Table 3. Ochsner CEO, Dr. Pat Quinlan, provides personal insights on fitness for life.***Key Principles**

- Develop exercise habits that are incorporated into daily routines.
- Develop routines that minimize or eliminate risk of injury.
- Find routines that are enjoyable and can be maintained.
- Avoid overtraining, which predisposes to fatigue, performance plateaus, and injury.
- Make exercise a part of a personal improvement plan for body, mind and spirit.
- Keep an exercise diary (and a food diary, if necessary) for positive reinforcement.
- Develop an “eating plan” rather than a diet (what you will eat as well as what you will avoid).
- Trans fats and saturated fats will kill you.

Key Facts

- 100 calories/day = 10 lbs/yr.
- 500 calories/day = 1 lb/wk.
- The effects of a sedentary life are often confused with the effects of aging. Strength training reverses many of these effects.

Coming soon to the Ochsner cafeterias – we will begin a focus on proper diet in the workplace. We will make it easier to eat properly and avoid problem foods. For example, did you know that two sugar-containing soft drinks per day (280 calories) will add 28 lbs per year? Proper knowledge combined with good, easy choices will foster success.

* The content of this table was produced by Pat Quinlan, MD.

evening. Taking this initiative and making fitness a top priority may be an issue of life or death!

**“Those who think they have no time for
bodily exercise will sooner or later have to
find time for illness.”
—Earl of Derby**

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