

EXERCISE FOR HEALTH AND FUNCTIONALITY – THE WHYS AND THE HOWS.

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Exercise has been universally accepted to be the 'magical pill' to prevent, treat and cure series of diseases either acute or chronic and numerous musculoskeletal injuries. This in turn will influence a person's 'wellness' and functionality to be able to cope and enjoy their daily challenges. Preferably, a person should have an acceptable level of all the components of physical fitness in a perfectly balanced ratio. Precise exercise prescription based upon sound principles will yield positive acute changes and long term adaptations. On the other hand, exercising without conforming to sound guidelines may not only be an extravagant effort but may invites series of injuries and serious physiological implications. The significant factor is to design and implement a simple and practical program for the individual or we call the correct dosage to provide the proper amount of physical stress to conquer maximal benefit with the lowest risk injuries. The real challenge here to 'convert the unconverted' to adopt exercise as a way life. Second, what is the correct way to exercise? Just for body to have the ultimate benefit of exercise.

Physicians play an important role in the dissemination of physical activity (PA) recommendations to a broad segment of the population, as over 80% of Canadians visit their doctors every year and prefer to get health information directly from them. PA prescription has the potential to be an important therapeutic agent for all ages in primary, secondary and tertiary prevention of chronic disease (2). Non-communicable disease is a leading threat to global health. Physical inactivity is a large contributor to this problem; in fact, the WHO ranks it as the fourth leading risk factor for overall morbidity and mortality worldwide.(3) PA prescription has the potential to be an important therapeutic agent for all ages in primary, secondary and tertiary prevention of chronic disease. Non-communicable disease is a leading threat to global health. (Physical inactivity is a large contributor to this problem; in fact, the WHO ranks it as the fourth leading risk factor for overall morbidity and mortality worldwide(4).

PA prescription has the potential to be an important therapeutic agent for all ages in primary, secondary and tertiary prevention of chronic disease. Exercise prescription is effective at increasing PA levels (7-9) and can generate positive clinical outcomes such as reduced blood pressure and glycosylated hemoglobin (10-12), as well as important positive effects on mental health,(13-15) reducing risk of depression (15) and improving cognitive function in older adults. Such counselling becomes even more effective in a range of situations in which: there is an increased risk of chronic disease; the encounter includes an individual assessment of needs, motivation, habits, preferences and barriers; the message and goals are clear, simple and realistic; valid behavioural change approaches are used and proper follow-up, self-monitoring and social support are available. (5)

PA interventions were more effective than drug treatment among patients with stroke and were as effective as medications for the prevention of diabetes and secondary treatment of CV disease. Several high-level systematic reviews have also identified risk reductions of 25–50% or more in most major chronic diseases for individuals who achieve 150 min of MVPA per week.²² Self-screening instruments such as the Physical Activity Readiness Questionnaire (PAR-Q+) or the American College of Sport Medicine (ACSM) health screening guidelines direct people to a physician for further evaluation when current symptoms suggestive of CV, metabolic or renal disease or complex comorbidities are present. In these cases, the physician should evaluate the clinical condition of the patient through a history and physical examination that will focus on contraindications to exercise. (16)

Patients with unstable angina, uncharacterized arrhythmias or decompensated heart failure should not perform vigorous exercise before their conditions stabilise. High-intensity interval training (HIIT) has been promoted based on several systematic reviews, showing greater benefits on CV fitness compared to lower intensity continuous training.(17) HIIT involves alternate bursts of short, intense PA interspersed with recovery periods and appears to be safe for rehabilitation of patients with coronary artery disease and heart failure, although there are conflicting opinions in the literature as to its effectiveness and safety for population-level exercise.(18). Both types of training generally reduce pain and increase function.(19) Avoiding these and other potential obstacles is of particular concern for lower socioeconomic groups; medical professionals must be aware that those most at risk of disease are often the least able to

afford the cure. A qualified exercise professional is most indicated for patients with conditions classified as high risk of morbidity and mortality associated with the lack of PA (CV disease and type 2 diabetes). In many patients with chronic disease such as diabetes, exercise programmes are most effective when supervised.(20). It is important to remember that patient empowerment is essential and the physician must communicate his or her belief that the patient is capable of change.

How Much Exercise Do I Need?

The 2008 Physical Activity Guidelines for Americans recommend at least two hours and 30 minutes (150 minutes) of moderate aerobic activity per week. If you enjoy vigorous aerobic activities, you can pare this down to at least one hour and 15 minutes (75 minutes) per week. Health benefits kick in when you expend between 500 and 1,000 calories per week through physical activity, although many studies find additional and extended health benefits flow from expending closer to 2,000 calories a week. You focus on overall time per week. Generally, though, experts recommend spreading activity throughout the week and being active at least three days a week. Whether you are healthy or have medical issues, moderate activity is safe for most people and does plenty to improve your health. Higher-intensity activities raise your chances for muscle or joint injury and very slightly increase the odds of developing a serious heart problem.(1)

Death By Exercise

Edmund Burke, Ph.D., who was to serious endurance cycling what Fixx was to running. He died on a training ride last fall, at age 53. Frederick Montz, David Nagey, or Jeffrey Williams, three brilliant physicians at Johns Hopkins University who died while running. The oldest of the three was 51. Thomas Bassler, M.D., went so far as to say that anyone who could finish a marathon in less than 4 hours could not have serious heart problems. He conducted a study on 14 marathoners who had died of cardiovascular disease, and concluded that all were malnourished. One death per 17,000 men who exercise vigorously 1 to 19 minutes a week. One death per 23,000 men who exercise vigorously 20 to 139 minutes a week. One death per 13,000 men who exercise vigorously 140 or more minutes a week.

The highest death rate is among the men who exercise long and hard, and is much higher than that of the men who exercise short and hard. Worse, the guys who do hardly any vigorous exercise had a lower death rate than the guys who do the most. The Harvard Alumni Health Study found that heart-disease risk starts going down when you expend more than 500 calories a week and continues to decrease until you get to 2,000 calories a week. Once you get past the 75th percentile of physical activity--guys who exercise more than three-quarters of the population--protection against heart disease levels off.

In fact, among the most active, it actually declines slightly, according to a review in *Medicine & Science in Sports & Exercise*. In other words, the super active are more likely to die than the merely active. It's easy to see why frozen precipitation scores such a high body count. Heart rates go up like a maximal treadmill test. Combine that with cold weather, which constricts arteries, and you have a prescription for disaster. The men who shovel off to meet their makers following a snowstorm, or who have to call an EMT after putting ax to wood, aren't doing aerobic activities. There's no endurance component.

Snow shoveling and wood chopping are anaerobic activities--strenuous efforts that can't be continued longer than a few minutes without stopping to rest. Strength training protects your heart in two ways: First, says Franklin, you get a predictable increase in diastolic blood pressure, which governs the return of blood to your coronary arteries. (If your blood pressure is 120 over 80, 80 is the diastolic number.) That's different from aerobic exercise, in which systolic blood pressure (the first number) rises but diastolic pressure stays the same or possibly even decreases. Both numbers go up by quite a bit when you lift, which means blood is being pushed back to your heart with equivalent force. Second, most of us tend to hold our breath briefly while lifting. This increases blood pressure dramatically and used to scare the daylights out of doctors, who feared aneurysms could result.

Brief breath-holding actually exerts a sort of counter pressure on arterial walls that neutralizes the rise in blood pressure. Aneurysm avoided. In other words, your body seems designed to protect itself during brief, heavy exertion and lifters shouldn't ever have to worry about death by exercise. The fact that hardly anyone dies during strength training doesn't prove it can't happen. Barry Franklin points out that the men at greatest risk of sudden death during exercise are middle-aged; most lifters are young. And that's the most reasonable conclusion one

can draw about death by exercise: The best way to avoid it is to exercise. "The person who's at greatest risk of an exercise death is the person with known or hidden coronary artery disease who is habitually sedentary—a couch potato, all year round," says Franklin. Some endurance exercise is fine, if you like it. Strength training is probably more than fine--it specifically prepares your body for the shock of sudden, strenuous exertion, such as shoveling snow, which is most likely to kill you if your body isn't ready for it. (21)

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