Cardiovascular Disease Mortality and Excessive Exercise in Heart Attack Survivors

To the Editor: In an in-depth study of 2377 patients (mean age, 62.9 years; 32% women) published in the September 2014 issue of *Mayo Clinic Proceedings*, Thompson et al[1] reported that higher levels of physical activity up to 7.2 metabolic equivalent of task-h/d were associated with survival benefits in heart attack survivors. Notably, physical activity beyond this level was found to be associated with poorer prognosis—a 2.6- and 3.2-fold increase in risk for all-cause and ischemic heart disease–related mortality, respectively.

The finding by Thompson et al in these extremely active survivors—representing the most active 5% of their cohort—is thought provoking and deserves attention. However, other studies of heart attack survivors, including our own, have failed to identify this increase in mortality risk from higher levels of physical activity or fitness, despite possible transient increases in risk associated with exercise.[2,3] In the subset of 7794 heart attack survivors in The FIT (Henry Ford ExercIse Testing) Project—a retrospective cohort of patients referred for exercise testing—higher levels of physical fitness were consistently associated with greater survival, with the most fit 8% of heart attack survivors having a 76% lower risk for mortality compared with the least fit patients. Similarly, among 37,855 patients in The FIT Project who were free of coronary artery disease, we did not find any increased risk from higher fitness, even among the most fit patients.[4]

Although we recognize the value of cautioning heart attack survivors to avoid excessive exercise, disproportionate amounts of media attention are commonly given to novel findings at the expense of the larger public health message. We submit that the main message to be taken away by heart attack survivors should not be "exercising too much is dangerous," simply because, for the overwhelming majority of these patients, increasing physical activity and fitness has tremendous benefit. Such a benefit is a testament to the efficacy and safety of exercise prescriptions and cardiac rehabilitation programs.[1,3] Unfortunately, only 1 in 2 adults in the United States today is satisfying the minimum exercise recommendations, and even these individuals typically overestimate the amount of exercise they are performing.[5] Coupling the tendency for patients to overestimate physical activity with cautions about potential hazards of exercise, we fear that both active and inactive individuals may not be fully capitalizing on the maximum survival benefits that can be obtained from lifestyle change.

More research will be needed to verify the relationship between excessive exercise, cardiotoxicity, and mortality in both heart attack survivors and healthier individuals. For now though, we believe it is still too early to sound the alarm on the potential hazards of exercise for all survivors because most patients would not engage in the level of physical activity reported as being potentially harmful. Patients should be encouraged to be as active as their body can tolerate and to avoid strenuous activity that their body is unaccustomed to. We applaud the sound research performed by Thompson et al[1] and will read with great interest their future findings.

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In reply—Cardiovascular Disease Mortality and Excessive Exercise in Heart Attack Survivors

We thank Hung et al for their letter. We agree that these novel results should be approached with caution, and we wish to emphasize that there was a substantial reduction in mortality with increasing exercise up to 30 miles (48 km) per week in our cohort. We suspect that the contrasting findings between The FIT (Henry Ford ExercIse Testing) Project and the National Runners' Health Study and National Walkers' Health Study are due to differences in study design.

The FIT Project measured treadmill exercise performance and found that the most-fit heart attack survivors had the largest reduction in mortality, whereas we found an increase in mortality among our most active runners and walkers who had diagnosed coronary heart disease. Fitness, as measured by treadmill exercise performance, is often equated with habitual physical activity, but these 2 parameters are not identical. Elsewhere we have reported that cardiorespiratory fitness and physical activity have very different relationships to cardiovascular disease.[1] This is especially important in heart attack survivors because cardiorespiratory fitness may be strongly influenced by the severity of the initial heart attack, and the severity of the attack likely affects both exercise capacity and survival. We have not directly