

# Fitness Sharply Cut Death in High-BMI Diabetics

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MUNICH — Middle-aged men with type 2 diabetes can reduce their long-term mortality risk by roughly 14% for each 1-MET increase they achieve in peak exercise capacity through improved physical fitness, according to a large epidemiologic study.

The findings provide a persuasive new impetus to advocate moderate-intensity physical activity in all patients with diabetes, regardless of their body mass index (BMI), Dr. Peter Kokkinos said at the annual congress of the European Society of Cardiology.

The survival benefit varies according to BMI category. A normal-weight man (with a BMI below 25 kg/m<sup>2</sup>) reduces his adjusted mortality risk by 11% for every 1-MET gain in fitness, an overweight individual lowers his risk by 16%, and an obese man reduces his risk by 17%, Dr. Kokkinos reported.

A dose-response relationship between peak exercise capacity and survival was observed. For example, a moderately fit, normal-weight diabetic man, defined in this study as one capable of achieving 5.1-8

reduction in risk, Dr. Kokkinos continued.

The survival benefit of exercise capacity in obese type 2 diabetic men didn't show the same strong, graded, dose-response relationship as in the overweight and normal-weight men. Moderately fit obese subjects had a 52% lower mortality than those who couldn't achieve more than 5 METs. However, then there was a leveling off or perhaps even a suggestion of a J-shaped curve, as highly fit obese men had only a 44% lower mortality.

Audience members noted that this was not an intervention study, and that Dr. Kokkinos had not actually shown that patients with type 2 diabetes who increase their fitness level reduce their mortality. Dr. Kokkinos replied that that has already been shown to be the case in studies by him and others. What's new here is that the size of the study and the demonstrated benefit across the full range of BMIs, he added.

"If anything, I think this study actually

underestimates the effects of exercise on mortality. The trend is that as we age, we are less likely to exercise. If you are fit today, you are likely not to be as fit 10 years later—yet that protection at time zero is carried forward," Dr. Kokkinos said.

Dr. John H. Horgan of Beaumont Hospital in Dublin called the V.A. study results "very impressive," adding, "I think that we need to encourage our diabetic patients to enter exercise programs and be trained." ■



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DR. KOKKINOS

METs on a treadmill exercise test using a Bruce protocol, had an adjusted 41% lower mortality risk than a normal-weight man with a low level of fitness. A highly fit, normal-weight man who achieved more than 8 METs reduced his risk by 60%, explained Dr. Kokkinos of the Veterans Affairs Medical Center, Washington.

He reported on 2,690 men with type 2 diabetes who underwent an exercise stress test at the V.A. centers in Washington, or Palo Alto, Calif., where the policy for 2 decades has been to routinely administer a stress test to all diabetic patients. Roughly 60% of patients were African American.

The purpose of the study was to learn whether the benefits of physical activity attenuate the well-documented deleterious effects of obesity in a diabetic population. This indeed proved to be the case.

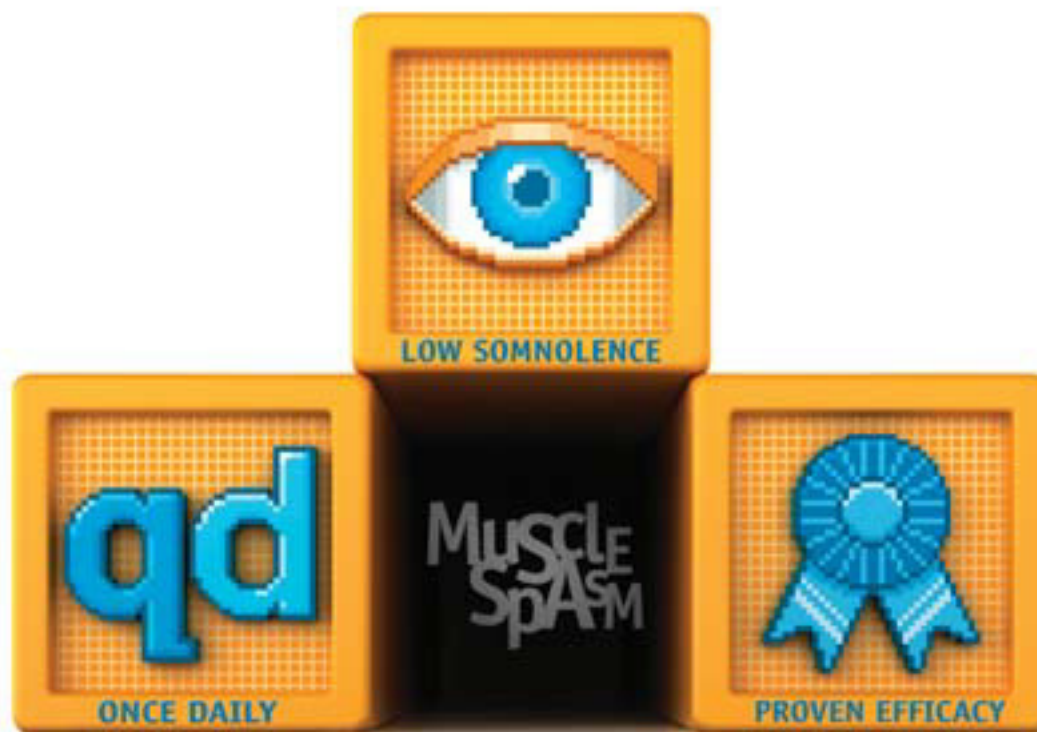
During a mean 7.2 years of follow-up after the stress test, there were 762 deaths: 172 in the 406 normal-weight patients, 334 in the 1,088 overweight men, and 256 in the 1,196 obese men.

Exercise capacity at baseline proved to be the strongest predictor of mortality in a multivariate analysis that included the standard cardiovascular risk factors, age, and medications.

An overweight individual who scored in the moderately fit range on his exercise stress test had a subsequent adjusted 42% lower mortality risk than did an overweight man with a low level of fitness, whereas a highly fit individual had a 65%

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Reference: 1. Data on file. Studies 1105 and 1106. Cephalon, Inc.; 2004.



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