Brisk Walking May Stress Knee Joints in the Obese

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DENVER — Brisk walking appears to place significant stress on knee joints, especially in obese individuals, and that may contribute to musculoskeletal injuries, Ray Browning, Ph.D., reported at the annual meeting of the American College of Sports Medicine.

When walking at 1.5 m/sec (3.4 mph), obese individuals experience about a 50% greater amount of torque at the knee joint than do normal-weight individuals. That increased amount of torque disappears when obese individuals walk at 1 m/sec (2.2 mph).

Dr. Browning, a physiology researcher at the University of Colorado, Boulder, pointed to data from the Centers for Disease Control and Prevention indicating that about one in four obese patients suffer a musculoskeletal injury when they first start walking for exercise, and that 25% of those injured patients never return to exercise. He suggested that prescribing slower walking speeds to obese patients may, in part, alleviate this problem.

The study involved 10 obese patients with an average BMI of 35.5 kg/m^2, and 10 normal-weight individuals with an average BMI of 22 kg/m^2. They walked on a dual-belt, force-measuring treadmill at six speeds between 0.5-1.75 m/sec.

High-speed video in both the sagittal and frontal planes enabled the calculation of ground reaction forces, and this in turn allowed the calculation of torque at the knee joint.

Dr. Browning attributed the increase in ground reaction forces and torque at the knee joint to the fact that obese individuals have a larger step width. In agreement with previous studies on the biomechanics of walking, the investigators found that individuals in the obese group took steps that were about 60% wider than the normal-weight individuals. ■