



Leisure-time physical activity and artery lumen diameters: A monozygotic co-twin control study.

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Abstract: Exercise is thought to increase the diameter of the conduit arteries supplying the muscles involved. We studied the effects of a physically active vs inactive lifestyle on artery diameters in monozygotic (MZ) twin pairs discordant over 30 years for leisure-time physical activity habits. In a population-based co-twin control study design, six middle-aged (50-65 years) same-sex MZ twin pairs with long-term discordance for physical activity were comprehensively identified from the Finnish Twin Cohort (TWINACTIVE study). Discordance was initially defined in 1975 and the same co-twin remained significantly more active during the 32-year follow-up. The main outcomes were arterial lumen diameters measured from maximal intensity projections of contrast-enhanced MR angiography images. Paired differences between active and inactive co-twins were studied. Compared with inactive members, active members of MZ twin pairs had larger diameters for the distal aorta and iliac and femoral arteries (P0.2 for all comparisons) were found in the dimensions of the carotid arteries. Our genetically controlled study confirms that habitual physical activity during adulthood enlarges arteries in a site-specific manner.

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