

Perspective: Sedentary Death Syndrome— Where to From Here?

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Introduction

The 2003 John Sutton Lecture and accompanying review article by Lees and Booth in this issue of the journal are aptly named “Sedentary Death Syndrome.” Physical inactivity is a risk factor for coronary artery disease, stroke, hypertension, type 2 diabetes, colon cancer, breast cancer, osteoporosis, and other “diseases of civilization.” Given the overwhelming and widely disseminated evidence (Bouchard et al., 1994; U.S. Dept. of Health and Human Services, 1996) that physical inactivity is a major risk factor for chronic disease, why are so many Canadians physically inactive? As part of a strategy to increase public awareness and compliance with active living, Lees and Booth call for more research into the molecular basis of Sedentary Death Syndrome. They argue that until a clear mechanistic link is made between physical inactivity and chronic disease, there will be continued resistance on the part of the population for adopting physically active lifestyles. This is a laudable recommendation—one that will greatly strengthen the knowledge base linking physical inactivity to specific health outcomes in a more definitive manner.

While it is clear that much more mechanistic research on the issue of physical activity and health is required, we are currently faced with an epidemic of physical inactivity and an impending health care crisis. According to the 2000/01 Canadian Community Health Survey, 54% of Canadians are completely sedentary in their leisure time (expending $< 1.5 \text{ kcal}\cdot\text{kg}^{-1}\cdot\text{day}^{-1}$), whereas only 23% are active enough to reap the health benefits of an active lifestyle (expending $\geq 3 \text{ kcal}\cdot\text{kg}^{-1}\cdot\text{day}^{-1}$) (Statistics Canada, 2002). Physical inactivity is taking an exacting toll on our health care system and accounts for more than 21,000 premature

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deaths every year in Canada (Katzmarzyk et al., 2000). Thus the time for concerted action is upon us, and we may not have the luxury of waiting for the outcome of the mechanistic research to tell us about the molecular basis underlying the epidemiological findings.

History teaches us that widespread public health transformations can occur in the absence of confirmatory mechanistic research. Back in 1854, John Snow provided evidence that the source of cholera, which had been epidemic in London, was in the drinking water (Snow, 1855). Widespread public outcry ensued, followed by public health reform, even though the causative agent, *Vibrio cholerae*, was not yet known. A more recent example is the highly successful anti-smoking campaign conducted in Canada over the last three decades. In the absence of any randomized controlled trials linking smoking behavior to adverse health outcomes, the epidemiological evidence was strong enough to inform public health campaigns to the extent that smoking rates have declined from 50% in 1965 (Health and Welfare Canada, 1988) to 20% in 2003 (Health Canada, 2004).

Over this time frame, social norms changed significantly enough to force a societal shift in the perception/acceptance of smoking as a risky behavior. Thus, although I agree that there is a pressing need for more mechanistic research of the relationship between physical inactivity and disease outcomes, I believe that the epidemiologic evidence base is sufficient to proceed with public health strategies to combat Sedentary Death Syndrome.

What can be done? From a public policy perspective a number of steps have been taken in recent years. Federal and Provincial/Territorial Ministers of Health announced in 2002 that a Pan-Canadian Healthy Living Strategy would be developed with its initial focus on promoting physical activity and healthy eating, leading to the attainment of healthy weight. In 1997 and again in 2003, the Canadian Federal and Provincial/Territorial Ministers responsible for sport and recreation set national goals to increase levels of physical activity across the country. In 1997 they set a 5-year target to decrease by 10% the proportion of Canadians who do not meet a minimal threshold of physical activity, a target that was achieved, according to data from the Canadian Fitness and Lifestyle Research Institute. In 2003 the Ministers reaffirmed their commitment to physical activity promotion and set a more aggressive target by announcing their desire to see a 10 percentage point increase in the proportion of Canadians meeting the minimum threshold for physical activity in each province and territory by the year 2010. In the spring of 2004 the same Ministers met to discuss strategies to reach this goal.

The strategies include the establishment of an Expert Advisory Group to provide advice on achieving the 2010 goal and implementing a national plan of action, a national public education initiative, creating supportive environments that encourage participation in physical activity, conducting research, and monitoring progress toward the achievement of the 2010 goal (FP/T Ministers, 2004). Working in parallel with the government, the Coalition for Active Living has developed and recently released its Pan-Canadian Physical Activity Strategy, which focuses on creating physical-activity friendly communities and building the physical activity movement in Canada (Coalition for Active Living, 2004). These initiatives all have merit; the degree to which they will be fiscally supported, and in turn effective at mobilizing the population, remains to be seen.

In the meantime, it remains the responsibility of physical activity and exercise science researchers to continue to aggressively conduct both mechanistic and population-level research on the relationship between physical activity and health, and to enhance the research capacity in this area. At the Canadian National Roundtable on Physical Activity Research held in Edmonton in early 2003, both population-level and intervention research conducive to mechanistic studies were identified as important priorities (National Roundtable on Physical Activity Research, 2003). Both of these complementary avenues of research must continue hand in hand to best advance our understanding of the full range of health effects associated with Sedentary Death Syndrome. Finally, as researchers we need to better advocate for more resources to be devoted to physical activity research, monitoring, and program implementation. In sum, I wholeheartedly echo the message of Lees and Booth: We must continue to expand our knowledge base on the most pressing public health issue facing us in the 21st century—the Sedentary Death Syndrome.

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