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The 'Neglected Dimension': Lancet Series Highlights Global Burden of Physical Inactivity

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July 17, 2012 (London, United Kingdom) — The Olympic Games are coming to London in just over a week, and this has provided the *Lancet* with an opportunity to publish a series of papers on the magnitude of the problem posed by physical inactivity, as well as some of the potential solutions [1]. The global effort, undertaken by the ***Lancet* Physical Activity Series Working Group**, suggests that physical inactivity is responsible for 6% of the burden of coronary heart disease and 7% of the burden of type 2 diabetes [2]. In addition, the research group notes than one in 10 breast and colon cancers are attributed to a lack of exercise.

"It no coincidence that we're publishing the series at a time when the country and much of the world is gripped with Olympic fever," **Dr Pamela Das**, Executive Editor of the *Lancet*, said during a press conference announcing the results of the studies. "This has provided us with an opportunity to raise awareness of the benefits of activity. . . I think it's fair to say that physical activity has been a neglected dimension of prevention and intervention worldwide. We all know that physical activity is good for us. We're told all the time that we should be doing more of it, but today there has been quite a lot more focus--as there should be--on the individual. For a number of reasons, existing approaches to mobilize large segments of the population to do even minimal levels of physical activity are just not working."

Dr I-Min Lee (Brigham and Women's Hospital, Boston, MA) led the study quantifying the effect of physical inactivity on major noncommunicable diseases, telling **heart*wire*** that physical inactivity is responsible for nearly 10% of premature deaths worldwide, or more than 5.3 million deaths in 2008. Based on these estimates, physical inactivity is responsible for more premature deaths than smoking.

"Even though the Olympics have given us the opportunity to raise the level of consciousness about physical activity, I think it's important to differentiate between physical activity and sport," said Lee. "People think that they need to run, play tennis, or participate in high-level sport to get the benefits of activity, but that's not the case. We know that even modest levels of physical activity--commuting to work, taking the dog for a walk, or playing with your grandchildren--can have substantial health benefits."

The studies of the working group are published July 17, 2012 in the *Lancet*.

One in 10 Deaths Due to Physical Inactivity

In an attempt to quantify the effect of physical inactivity on coronary heart disease, type 2 diabetes, breast cancer, and colon cancer, Lee and colleagues calculated the population attributable fraction (PAF) to estimate risks by country and globally. Physical inactivity was defined as an activity level deemed insufficient by the **World Health Organization** (WHO) guidelines on physical activity for health. The group examined coronary heart disease, diabetes, and breast and colon cancer, as these chronic diseases have been identified by the United Nations as threats to global health.

The researchers found that 9.4% of deaths from any cause are attributable to physical inactivity. Physical inactivity is responsible for 5.8% of the burden of coronary heart disease worldwide, ranging from 3.2% in Southeast Asia to 7.8% in the Eastern Mediterranean. In addition, physical inactivity accounts for 11.9% of the burden of coronary heart disease in the Cook Islands and Malta, 11.4% in Swaziland and Saudi Arabia, 11.3% in Argentina, 10.5% in the UK, 6.7% in the US, and 5.6% in Canada. Similarly, the burden of diabetes attributable to physical inactivity is 7.2% worldwide, ranging from 3.9% in Southeast Asia to 9.6% in the Eastern Mediterranean. Worldwide, 10.1% of breast cancers and 10.4% of colon cancers are attributable to a lack of physical exercise.

To **heart*wire*** , Lee said that if all of the inactive people in the world were to suddenly get off the couch and become engaged in just a modest level of physical activity, the estimated gain in life expectancy is 0.68 years. Life expectancy would increase by more than one year in countries such as South Africa, Swaziland, Argentina, Brazil, Jamaica, Iraq, Kuwait, Saudi Arabia, United Arab Emirates, Malta, Turkey, and the Cook Islands, among others.

During the press conference, Lee summed up the benefits by quoting one of her professors: "Everything that gets worse when you grow older gets better when you exercise."

More Than 80% of Kids Not Getting Enough Exercise

Despite the negative impact of physical inactivity, studies suggest that getting active is simply not happening. **Dr Pedro Hallal** (Universidade Federal de Pelotas, Brazil) and colleagues conducted a global survey of physical activity levels of adults from 122 countries and adolescents from 105 countries [3]. Worldwide, 31.1% of adults failed to meet public health guidelines for physical activity, defined as 150 minutes of moderate physical activity per week, but the frequency of inactivity varied across regions. For example, 27.5% are inactive in Africa, 43.3% in North, South, and Central America, 43.3% in the Eastern Mediterranean, 34.8% in Europe, 17.0% in Southeast Asia, and 33.7% in the Western Pacific.

Adolescents are much worse. More than 80% of kids aged 13 to 15 years do not get the recommended 60 minutes of moderate-to-vigorous physical activity per day, with girls getting even less exercise than boys. Higher-income countries had higher rates of physical inactivity than lower-income countries, with Hallal pointing out that 63% of the UK population--the host country for the Olympic Games--are inactive.

The group noted some major differences in the percentage of adults who walked or cycled to work. For example, 46.1% of Chinese adults walk or cycle to work compared with just 4.7% of Australians. France, the Netherlands, Sweden, and Germany all had higher rates of walking/cycling commuters, but just 15% of UK adults walk or cycle to work. For US adults, the walk/cycle commute is even less popular (4.0% to 16.7%, depending on the state).

"The prevalence of physical inactivity is really high, but that shouldn't necessarily be interpreted as individuals failing to do what they should," said Hallal during the press conference. Physical activity, he added, is not a burden individuals should cope with alone, as government, researchers, and policy makers need to help build a society where being physically active is affordable, safe, convenient, and valued.

In another paper, **Dr Harold Kohl III** (University of Texas Health Science Center, Austin) called the current crisis a "pandemic of physical inactivity" [4], a description *Lancet* editorialists as well as others agreed with during the press conference. Worldwide there has been a shift from concerns about infectious diseases undermining public health to risks posed by chronic diseases, such as coronary heart disease. Even in countries such as China, India, Latin America, and Africa, the burden of chronic disease has outpaced the risk of infectious diseases, and physical inactivity is a contributing factor.

Why Do Some People Exercise and Others Don't?

As part of the series, **Dr Adrian Bauman** (Sydney University, Australia) and colleagues highlighted some of the determinants of physical activity, and these included economic conditions, societal norms, urbanization, and industrialization. In addition, individual-level factors such as age, sex, health status, self-efficacy, and previous physical activity also correlated with physical activity levels [5]. Despite presenting the results of the *Lancet* series to coincide with the Olympic Games, Bauman said that the evidence is far from clear that Olympic fever can get more people physically activity.

In a separate paper, **Dr Gregory Heath** (University of Tennessee, Chattanooga) and colleagues report that the promotion of physical activity requires partnerships from schools, businesses, policymakers, advocacy groups, recreation and planning departments, transport agencies, and healthcare groups [6]. Such efforts can lead to the inclusion of physical activity within the school curriculum, after-school sports, and active transport to increase activity in young people. **Dr Michael Pratt** (Centers for Disease Control, Atlanta, GA) and colleagues published a paper in the series looking at communication technology and transportation for changes in physical activity. They concluded that the greatest potential for change at the population level might reside in the transportation, urban planning, and communication sectors [7].

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