Global study sheds light on role of exercise, cars and televisions on the risk of heart attacks

January 11 2012

A worldwide study has shown that physical activity during work and leisure time significantly lowers the risk of heart attacks in both developed and developing countries. Ownership of a car and a television was linked to an increased risk of heart attacks, particularly in low- and middle-income countries.

The findings come from the INTERHEART study, a case-control study of over 29,000 people from 262 centres in 52 countries in Asia, Europe, the Middle East, Africa, Australia, North and South America. It is published online today (Wednesday) in the European Heart Journal [1].

"Until now, few studies have looked at the different aspects of physical activity both at work and during leisure time in relation to the risk of heart attacks," said Professor Claes Held, the first author of the study. "Much is already known about the association between physical activity and cardiovascular risk, but what this study adds, among many other things, is a global perspective. The study shows that mild to moderate physical activity at work, and any level of physical activity during leisure time reduces the risk of heart attack, independent of other traditional risk factors in men and women of all ages, in most regions of the world and in countries with low, middle or high income levels. Interestingly, heavy physical labour at work did not protect against heart attacks.

"These data extend the importance of physical activity and confirm a

consistent protective effect of physical activity across all country income levels in addition to the known benefits of modifying traditional risk factors such as smoking. Furthermore, ownership of a car and TV, which promotes sedentary behaviour, was found to be independently associated with the risk of heart attacks."

Prof Held (MD, PhD), who is associate professor at Uppsala Clinical Research Center and the Department of Cardiology, at Uppsala University Hospital, Sweden [2], and colleagues from Canada and the USA, compared the work and leisure exercise habits of 10,043 people who had suffered their first heart attack with 14,217 healthy people (the control group). They asked the participants whether their work was mainly sedentary, or predominantly walking at one level, or mainly walking including walking uphill or lifting heavy objects, or heavy physical labour. For physical activity during their leisure time, participants could select from four possible responses: mainly sedentary (sitting activities, such as sitting reading, watching TV), mild exercise (minimal effort activities, such as yoga, fishing, easy walking), moderate exercise (moderate effort, such as walking, cycling or light gardening at least four hours a week), and strenuous exercise (when the heart beats rapidly, such as running, football or vigorous swimming).

They also asked about the ownership of goods such as a car, motorcycle, radio/stereo, TV, computer, land and livestock.

After adjusting for various confounding factors such as age, sex, country, income, smoking, alcohol, education, health, diet etc, they found that people whose work involved either light or moderate physical activity had a fifth (22%) or a tenth (11%) lower risk of having a heart attack when compared to people whose occupation was mainly sedentary. However, heavy physical labour did not reduce the risk at all. During leisure time, the risk of a heart attack was lower for any level of exercise when compared with being mainly sedentary, reducing by 13%

for mild activity and 24% for moderate or strenuous activity.

People who owned both a car and a TV, both indicators of a sedentary lifestyle, had a 27% increased risk of a heart attack, compared to those who owned neither a car nor a TV.

A greater proportion of people in low-income countries had sedentary jobs and undertook less physical activity in their leisure time, than in middle- and high-income countries. "These differences in PA [physical activity] were most pronounced regarding leisure-time activity," write the authors. "This may partly be explained by differences in education and other socio-economic factors. In addition, this may also reflect differences in culture and in climate. The likelihood of a subject performing leisure-time PA in tropical or hot climate zones is lesser than in more temperate areas of the world."

The authors conclude that daily moderate physical exercise should be encouraged in everyone to prevent heart disease. Prof Held added: "The data have some real-life implications. One suggestion may be for the lower income countries to be more involved in promoting physical activity as their societies starts to use more labour-saving devices, so as to counter-act the inactivity that this can lead to; however, it also important to promote physical activity in all parts of the world."

In an accompanying editorial [3], Drs Emeline Van Craenenbroeck and Viviane Conraads from Antwerp University Hospital, Belgium, write: "Two main questions were tackled [by the INTERHEART study]: do the different constituents of daily physical activity (work or leisure) diverge in their ability to reduce the risk of AMI [acute myocardial infarction] and, secondly, are potential markers of a sedentary lifestyle, such as owning a car or a TV, associated with increased cardiovascular risk? The answer to both questions seems to be a heartfelt 'yes'."

One of the findings they highlight is that the risk of a heart attack was reduced even in those who exercised well below currently accepted guidelines for activity, and they point out this may be "particularly useful when it comes to motivational strategies".

They conclude: "Although timely and highly relevant, the paper of Held et al. leaves clinicians with the Herculean task of translating this evidence into effective preventive care. If we want to support healthy longevity, we should put a stop to the pandemic of sedentarism.

"Staying physically fit throughout life may well be one of the easiest, cheapest, and most effective ways to avoid the coronary care unit."

More information: [1] "Physical activity levels, ownership of goods promoting sedentary behaviour and risk of myocardial infarction: results of the INTERHEART study". *European Heart Journal*. doi:10.1093/eurheartj/ehr432

[2] Prof Held carried out the research while working in a post-doctoral position at the Population Health Research Institute in Hamilton, Ontario, Canada. The Institute led the performance of the study, which was chaired by Professor Salim Yusuf.

[3] "On cars, TVs, and other alibis to globalize sedentarism". *European Heart Journal*. doi:10.1093/eurheartj/ehr363

[4] The countries taking part in this study were: Western Europe: Germany, Italy, The Netherlands, Portugal, Spain, Sweden, UK; Central Europe: Croatia, Czech Republic, Greece, Hungary, Poland, Russia; North America: Canada, USA; South America: Argentina, Brazil, Chile, Colombia, Guatemala, Mexico; Middle East: Bahrain, Egypt, Kuwait, Iran, Israel, Qatar, Oman, United Arab Emirates; Africa: Benin, Botswana, Cameroon, Kenya, Mozambique, Nigeria, Seychelles, South

Africa, Zimbabwe; South Asia: Bangladesh, India, Nepal, Pakistan, Sri Lanka; China: China, Hong Kong; Other Asia: Japan, Malaysia, Philippines, Singapore, Thailand.