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News in Science - Obesity, smoking speed up ageing - 14/06/2005

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Obesity, smoking speed up ageing

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Reuters

Tuesday, 14 June 2005

Obesity and smoking speed up ageing, suggest researchers who have studied biological markers at the tips of chromosomes.

The UK and US team shows that people who smoke cigarettes or are obese have shorter telomeres, the caps on chromosomes that prevent them from fraying.

This makes them biologically older than their non-smoking, leaner counterparts, the researchers say.

"Our findings suggest that obesity and cigarette smoking accelerate human ageing," says Dr Tim Spector, of [St Thomas' Hospital](#) in London, whose research is published online ahead of print in [The Lancet](#) journal.

Telomeres shorten each time a cell divides. The loss is associated with ageing, which is why telomeres are thought to hold the secrets of youth and the ageing process.

As telomeres get smaller, chromosomes can become unstable and increase the risk of mutation.

"Obesity and cigarettes cause oxidative stress to increase and this cumulative damage over time causes the loss of these telomeres, which we believe is a marker of accelerative ageing and accounts for why these people get heart disease, diabetes, osteoarthritis and other age-related disease," says Spector.

Oxidative stress is damage to cells and DNA caused by free radicals, charged particles found in the environment and produced by processes in the body.

Tips of chromosomes



Does this woman look her age? It depends on her lifestyle, suggests genetics research (*Image: iStockphoto*)

Spector and scientists at the [University of Medicine and Dentistry](#) in New Jersey compared telomere length from blood samples of 1122 women from the UK between the ages of 18 and 76.

Nearly 120 of them were obese, 531 had never smoked, 203 were smokers and 369 had quit.

The scientists found a decrease in telomere length that corresponded to the more obese the women were and the amount of cigarettes they had smoked.

There was a difference between being obese and lean, which corresponded to 8.8 years of ageing. Being a current or ex-smoker equated to about 4.6 years and smoking a pack a day for 40 years corresponded to 7.4 years of ageing.

"Our results emphasise the potential wide-ranging effects of the two most important preventable exposures in developed countries, cigarettes and obesity," the researchers say in the journal.

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