

Old study gives new insight into life expectancy

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Almost 16,000 Norwegian men have been monitored over more than four decades to study life expectancy and its links to smoking, blood pressure and obesity.

The study stands out from most other life expectancy studies with its large sample and the long-term observation of participants.

“We’ve been able to follow a large group of people for forty years,” says researcher Petter Kristensen. “Pretty much all the way until the bitter end.”

The hype of linseed oil

Interestingly, the data on the participants is derived from a terminated clinical research project in the 1960s, which was intended for testing supposed health benefits of a linseed oil dietary supplement.

“I was a medical school student at the time,” says Kristensen. “And I remember that there was a lot of optimism about this study.”

The hypothesis was tested in 1964 by enrolling men born between 1905 and 1914 in a one-year clinical trial which included medical check-ups which looked at established and suspected risk factors for heart disease, such as high blood pressure, high body mass index (BMI) and smoking.

The linseed oil treatment did not have any beneficial health effects compared with a placebo, and the study was terminated.

But the respondents were monitored until 2005, as an observation study linked to the Cause of Death Register.

Petter Kristensen and colleague Tor Bjerkedal at the Institute of Health and Society, University of Oslo, together with Randi Selmer at the Norwegian Institute of Public Health, have looked into the original participant data.

They checked with the Cause of Death Register and found that almost all of the 15,934 participants are now dead – the few remaining survivors were 91-100 years old – and the researchers looked into the cause and time of death.

Old data predicts life expectancy

They found that the routine medical check-ups from 1964 and their blood pressure, BMI and cigarette smoking behavior at the time predicted their life expectancy as well as mortality due to cancer, cardiovascular disease and respiratory system diseases.

“What’s interesting here is not the well-known links between these risk factors and mortality, but rather how

the original data based on routine check-ups predicts life expectancy so well and during such a long period,” says Kristensen.

The study bolsters the argument that routine check-ups are valuable, considering that there is an on-going debate, especially in Norway, on whether medical check-ups on apparently healthy people are necessary, or rather if these resources should be allocated on children, the elderly, and those suffering from chronic illnesses.

High blood pressure is a killer

High blood pressure in the study was associated with a five-year reduction in life expectancy. The participants with the highest blood pressure had an average lifespan 7.2 years shorter than the participants at the other end of the spectrum.

Kristensen says that high blood pressure was a much more serious issue for these men as they didn't have access to modern health care's more sophisticated blood pressure treatments.

“Treatment of high blood pressure is much more accessible today,” says the researcher. “In our time, high blood pressure is treated as soon as it's discovered.”

Smoking shortens lives

The participants who had a self-reported habit of smoking 15 or more cigarettes per day were more than twice as likely to die from lung cancer, compared to the average participant. A non-smoker lived for 77.9 years whereas men who smoked at least 15 cigarettes per day died after 74.1 years. Those who reported a daily cigarette consumption of 1-4 lived for 76.9 years, while men who smoked 5-14 per day lived for 75.3 years.

Although the association between regular smoking and a shortened life is strong, it's weaker than in most other studies.

“This is probably because the participants were born before the First World War, and they probably picked up smoking later than newer generations,” he says.

According to a research report from the Norwegian government, smoking and tobacco consumption was, in general, significantly less common before the Second World War, compared to the decades after it. This means that the respondents in Kristensen's study were, in other words, less likely to have smoked regularly in the years before they were surveyed in 1964.

Marriage is healthy

The study bolsters previous research findings on the link between health and marriage. Average age of death of the married participants was 76.6 years, whereas divorced or separated men died, on average, at age 74.3. Unmarried men were slightly better off than the latter group, and lived until they were 75.3 years old. Marriage is, apparently, good for your life's longevity.

“Pretty much every study that has looked at this finding that unmarried men have a higher mortality than married men,” says Kristensen. “This probably has to do with lifestyle differences.”

Body Mass Index

Kristensen and colleagues found that the association between BMI and causes of death is strong in cases of obesity, where an average of 1.4 years of life is lost.

Underweight participants had an ever higher mortality rate, and lost on average 1.7 years. The difference between those categorised as 'normal' and overweight is modest – the former group lives two months longer than the latter.

“There aren't any big risks tied to carrying a few extra kilos,” says Kristensen. “It's when one is overweight that the BMI score becomes a real issue.”

 [Researcher Petter Kristensen. \(Photo: STAMI\)](#) [7]

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[Terje Bjerkedal, Petter Kristensen and Randi Selmer, Life expectancy and cause of death in men examined at medical check-ups in 1964. Tidsskrift for den norske legeforening, 1, 2012](#) [9]

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