

Good physical fitness in middle age linked to lower chronic lung disease risk

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Good heart and lung (cardiorespiratory) fitness in middle age is associated with a lower long term risk of chronic lung disease (COPD), suggests Danish research published online in the journal *Thorax*.

Physical activity that boosts fitness should be encouraged "to delay

development, progression and [death](#) from COPD," conclude the researchers.

COPD, short for [chronic obstructive pulmonary disease](#), is an umbrella term for respiratory conditions that narrow the airways, such as bronchitis and emphysema. Smoking is the main risk factor for COPD, which the World Health Organization ranks as the fourth most frequent cause of death worldwide.

Studies have suggested that a high level of [physical activity](#) and/or leisure time exercise is associated with a reduced risk of COPD, and that physical inactivity may speed up its progression.

To explore this further, the researchers tracked the respiratory health of 4,730 healthy middle-aged men from the Copenhagen Male Study, who were recruited from 14 large workplaces in Copenhagen between 1970 and 1971. Their average age was 49.

Those with a previous diagnosis of COPD, asthma, or with symptoms of chronic bronchitis were excluded. Participants were monitored for up to 46 years to January 2016.

All participants provided information on smoking, alcohol intake, physical activity levels, [educational attainment](#), occupation, and [medical history](#).

Height, weight, and resting blood pressure were measured, and cardiorespiratory fitness (CRF) was calculated as low, normal, or high, using a VO2 max test—a measure of the body's ability to use oxygen during exercise. National registers were used to identify cases of COPD and death from COPD.

Compared with low CRF, the estimated risk of COPD diagnosis was

21% lower in men with normal CRF and 31% lower in men with high CRF.

Similarly, compared with low CRF, the estimated risk of death from COPD was 35% lower in men with normal CRF and 62% lower in men with high CRF.

High CRF in [middle age](#) was also associated with a delay to both diagnosis of, and death from, COPD by 1.5 to 2 years.

The results were largely unchanged after excluding those who were diagnosed with COPD or who died during the first 10 years of monitoring, suggesting that the findings withstand scrutiny, say the researchers.

This is an observational study, and as such, can't establish cause. And it's possible that participants with high levels of CRF were more resilient to underlying COPD, delaying time to diagnosis, say the researchers.

But their results are in line with those of previous studies and provide further insight into the association between cardiorespiratory fitness and the long-term risk of COPD over an exceptionally long monitoring period.

And while the processes that link CRF with the development and progression of COPD aren't clear, the researchers nevertheless speculate that inflammation, linked to physical inactivity, may have a key role.

More information: Gorm Mørk Hansen et al. Midlife cardiorespiratory fitness and the long-term risk of chronic obstructive pulmonary disease, *Thorax* (2019). [DOI: 10.1136/thoraxjnl-2018-212821](https://doi.org/10.1136/thoraxjnl-2018-212821)

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