

# World Trade Center firefighters 13% more likely to develop cancer than those not working at site of 9/11 attacks

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Firefighters who worked at the World Trade Center following the 9/11 attacks in 2001 are 13% more likely than colleagues who didn't work at

the site to develop cancer, particularly prostate and thyroid cancer, finds research published online in the journal *Occupational & Environmental Medicine*.

They are also around 4 years younger, on average, when diagnosed, the findings indicate.

Firefighters are routinely exposed to various cancer causing agents during the course of their work, but whether they are consequently at heightened risk of developing the disease isn't entirely clear, say the researchers.

To complicate matters, the environment at the World Trade Center site was especially toxic, exposing firefighters to noxious substances, such as polychlorinated biphenyls (PCBs), [polycyclic aromatic hydrocarbons](#) (PAHs), asbestos, [sulfuric acid](#), benzene and arsenic.

To try and quantify firefighters' [risk level](#), the researchers compared new cases of cancer among 10,786 New York City firefighters, who worked at the World Trade Center site following the 9/11 attacks, with cases arising in 8,813 firefighters who hadn't done so, and who were part of the Career Firefighter Health Study (CFHS).

The World Trade Center firefighters were categorized by their exposure level to harmful toxins: the morning of 9/11, 1741 (16%), representing the highest risk; the afternoon of 9/11, 5683 (53%); following day, 1873 (17.5%); period between 13 and 24 September, 1315 (12%); and any time after 24 September 2001, 174 (1.5%), representing the lowest risk.

The firefighters' health was monitored until death or 31 December 2016, whichever came first, and cancer incidence among them was then compared with that of US men in the [general population](#).

Some 915 cancers were diagnosed in 841 of the World Trade Center firefighters; 1002 cases were diagnosed in 909 of the other firefighters.

After accounting for potentially influential factors, including smoking and previous involvement in military combat, the World Trade Center firefighters were 13% more likely to develop cancer than colleagues who didn't work at the site.

Specifically, their risk of prostate cancer was 39% higher while that of [thyroid cancer](#) was more than twice as high.

On average, the World Trade Center firefighters were also around 4 years younger when they were diagnosed and they tended to have early stage disease that hadn't yet spread.

When cancer incidence was compared with that of US men in the general population, both groups of firefighters had higher rates of both prostate and skin (melanoma) cancers.

But these differences were weakened after factoring in 'surveillance bias', meaning that more cases of cancer might have been picked up among firefighters because their health would have been more closely monitored.

"Some proportion of the excess prostate [cancer](#) risk may be due to [World Trade Center] exposure on top of usual firefighting risks, as some chemicals, like PCBs, commonly found at building sites, including the [World Trade Center], are known endocrine disruptors, interfering with androgen metabolism," note the researchers.

"Alternatively, high rates of some cancers, including thyroid and prostate cancers, could have resulted from non-biological factors like enrolment in screening programs, especially [World Trade Center]-related health

programs," they add.

This is an observational study, and as such, can't establish cause. And the researchers conclude: "Two decades post-9/11, clearer understanding of [World Trade Center]-related risk requires extended follow-up and modeling studies (laboratory or animal based) to identify workplace exposures in all firefighters."

**More information:** Mayris P Webber et al, Cancer incidence in World Trade Center-exposed and non-exposed male firefighters, as compared with the US adult male population: 2001–2016, *Occupational and Environmental Medicine* (2021). [DOI: 10.1136/oemed-2021-107570](https://doi.org/10.1136/oemed-2021-107570)

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