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'Toxins/Contaminants in the Fire Service Workplace' & Firefighter Mental Health - 2025 Update

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Recap on Research

'Firefighters are significantly more likely to suffer and die from cancer than the average working person. This has been linked to toxic contaminants released during fires'

(Ref: Minimising firefighters' exposure to toxic fire effluents - Professor Anna Stec – University Of Central Lancashire)

'Occupational exposure as a firefighter is carcinogenic to humans (Group 1)'

Group 1: 'Carcinogenic to humans' There is enough evidence to conclude that it can cause cancer in humans.

(Ref: International Agency for Research on Cancer within WHO determination, June 2023)

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Firefighters' mortality rate
from cancers is



2.4X
Oesophageal

3.2X
Leukaemia

3.8X
Prostate

higher than the
general public

The full list of cancers/diseases and their mortality rates is much longer.

It is also worth noting that Firefighters are developing some of these cancers 5 – 10 years earlier than the general population, and by the time some of them are diagnosed (due to lack of symptoms), they are already in advanced stages, with much lower treatment options available, if any.

Firefighter deaths from heart attacks are 2 x higher than the general population, and the same for strokes.

Firefighter mental health has also been examined, with much higher instances of depression recorded.

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Grenfell Tower 2017



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Grenfell Tower
fire contaminants
research

KEY FIGURES

136



firefighters
exposed to toxic
smoke at Grenfell
now suffer long term
health disorders

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1 in 4

Grenfell firefighters have reported life changing health effects



66

cases of digestive diseases

22

cases of neurological diseases

64

cases of respiratory diseases

11

cancers

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Smoke and Heat Exposure of Grenfell Tower Firefighters

Analysis of data from public inquiry, Firefighter Cancer and Disease Registry, incident logs and sickness reports shows 65% firefighters reported exposure to smoke, 23% to smoke and heat.



- 89% firefighters worked without respiratory protection equipment (RPE)
- 15% ran out of air inside the Tower;
- 18% used their RPE to assist casualties;
- 17% ascended the stairs without activating their RPE to conserve air.



Many firefighters suffered from smoke and heat exposure, potentially resulting in debilitating health effects.

Grenfell Tower Fire: Firefighters' Activities and Their Exposure to Fire Smoke and Heat,

Anna A. Stec, David A. Purser and T. Richard Hull



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Grenfell Tower Firefighters' Health Impacts

Firefighters who attended the Grenfell Tower fire reported smoke exposure, immediate health symptoms and longer-term adverse health outcomes.

Public Inquiry data, UK Firefighter Cancer and Disease Registry, incident logs and sickness reports were analysed up to 3 years post-fire.

- A statistically significant higher proportion of firefighters working inside of the Tower reported smoke inhalation, breathing difficulties, physical exhaustion and cognitive impairment compared to firefighters working outside the Tower.
- Over three times as many firefighters who reported exposure to smoke during the fire, also reported digestive and respiratory diseases following the fire, compared to those not reporting exposure to smoke.
- Other, more complex relationships are reported between smoke exposure, immediate health symptoms and longer-term health outcomes.



Despite the enormity of the Grenfell tower tragedy, and the resulting physical and emotional trauma suffered by firefighters, there remains a strong correlation between smoke exposure and longer-term adverse health outcomes.

Grenfell Tower Fire: Toxic Effluents and Assessment of Firefighters' Health Impacts

Anna A. Stec, David A. Purser and T. Richard Hull



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Grenfell firefighters are just the tip of the iceberg from their attendance and exposure to harmful contaminants throughout the incident.

Apart from firefighters, who else was at risk?

- How many police officers were in the risk area through the incident?
- How many ambulance crews attended the scene and were exposed to contaminants?
- How many civilian staff attended without any PPE? (Gas board, water board, structural engineers)
- How many members of the public were exposed, both from the tower and from surrounding neighbourhoods?

EVERYONE that attended the scene, or that was in close proximity, should be presenting themselves to their local health board and demanding robust, thorough testing for any underlying conditions.

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Mental Health

In 2025, in partnership with the University of Central Lancashire, the FBU is embarking on the biggest study of Firefighters mental health, ever conducted in the UK, attempting to capture engagement from at least 10,000 firefighters.

This work will strive to understand the condition of firefighter's mental health, the causes for deterioration, and most importantly, if the UK Fire & Rescue Services are doing enough to protect their firefighters.

Firefighters attend the most harrowing scenes imaginable through the course of their duty and often suffer in silence. We have lost and continue to lose far too many firefighters to suicide and poor mental health.

At FBU Annual Conference 2024, Scotland moved a resolution to implement mandatory, annual, mental health screening for all UK firefighters, to try and prevent more firefighters falling through the cracks.

We must do more!