



Fighting Firefighter Cancer with Firefighter Controls

As you may know, firefighter cancer is a trending concern within Georgia and nationally. Like any other health-related exposure, there are two main questions:

1. What are the exposures that may be contributing to cases of cancer among firefighters?
2. What can be done to control these exposures?

Although firefighters are exposed to many hazardous environments, there are two main exposures that contribute to cancer. These main exposures are diesel exhaust from fire engines and soot particles from fighting fires.

Short-term exposure to diesel exhaust can result in irritations to one's eyes, nose, and throat. It can also cause headaches and dizziness. Long-term exposure to diesel exhaust can increase the risk of both cardiovascular/respiratory disease and lung cancer. **How do you control exposure to diesel exhaust?**

1. Educate firefighters on the hazards of diesel engine exhaust.
2. Install an exhaust removal system in fire station bay to remove diesel exhaust from fire engines.
3. Store all firefighter protective gear in an area sealed from fire station bay.

Firefighters are exposed to the hazards of soot particles from both inhalation and skin absorption. Dr. Stuart Baxter, Professor of Environmental Health at University of Cincinnati, states, "A major cause of cancer in firefighters is Polycyclic Aromatic Hydrocarbons (PAH) absorbed through the skin as a result of contact with soot, persistently and under hot conditions."

The CDC and NIOSH completed a study in 2016 on firefighter cancer. The firefighters studied showed higher rates of certain types of cancer than the general U.S. population.

- Based on U.S. cancer rates, firefighters in the study had a greater number of cancer diagnoses and cancer-related deaths. These were mostly digestive, oral, respiratory, and urinary cancers.
- There were about twice as many firefighters with malignant mesothelioma, a rare type of cancer caused by exposure to asbestos. Exposure to asbestos while firefighting is the most likely explanation for this.
- There were more cases of certain cancers among younger firefighters. For example, firefighters in the study who were under 65 years of age had more bladder and prostate cancers than expected.
- When comparing firefighters in their study to each other: The chance of lung cancer diagnosis or death increased with amount of time spent at fires. The chance of leukemia death increased with the number of fire runs.
- The especially high permeability of the groin, neck, and abdominal area results in increased absorption of soot and toxic chemicals found in modern building materials released from the fire.

So how do you control exposure to the hazards of soot particles?

1. Educate firefighters on the hazards of soot particles.
2. While fighting fires, firefighters should always wear proper protective equipment, turnout gear, and respiratory protection (SCBAs).
3. Immediately after every fire exposure, firefighters should go through a decontamination process with soap, water, and brush. This process will reduce contamination by 85%.
4. Immediately after decontamination, the firefighter should clean all exposed areas of their skin (head, face, neck, hands, etc.) with soap and water or wet wipes.
5. After returning to the station, the firefighter should shower to remove any contaminants that remained after the initial cleaning.
6. Firefighter equipment and turnout gear should NOT be stored in the living or working spaces of homes or fire stations. Even equipment that has been decontaminated after the fire, has the potential for hazards exposure to you, your co-workers, or family members.
7. Clean and inspect all equipment after decontamination.
8. Wash all turnout gear using a washer extractor.

We highly recommend using a washer extractor to clean all turnout gear after being exposed to firefighting environments. There are many systems on the market. The cost range is from \$4,000 to \$15,000. Here is a link to an article, [“How to buy bunker gear washing machines – FireRescue1,”](#) that may assist you with your research and shopping.

Both GMA (Georgia Municipal Association) and ACCG (Association County Commissioners of Georgia), provide safety grants that assist with the purchase of these washer extractor systems. Over the last few years, we have provided reimbursement funds for several departments to purchase new washer extractor systems as well as personal protective gear. For more information on GMA's and ACCG's grant process, please [click here](#) or call Dan Beck, Director of LGRMS at (678) 686-6280.