

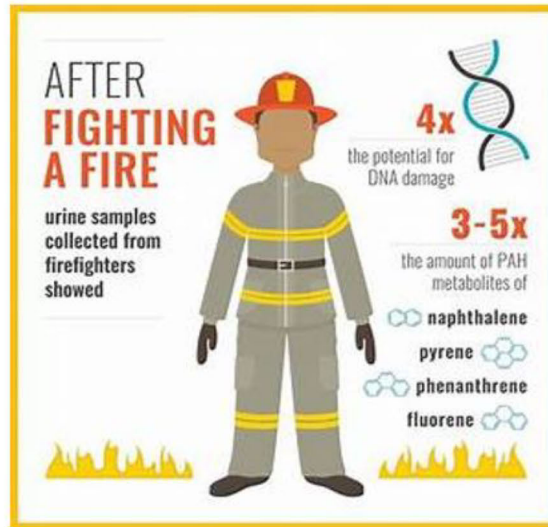


Tips from Training



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Cancer in the Fire Service: Polycyclic Aromatic Hydrocarbons (PAH)



Polycyclic aromatic hydrocarbons (PAHs) are a group of over 100 organic compounds that contain two or more fused aromatic rings. They are formed during the incomplete combustion of fossil fuels, including coal and petroleum products such as gasoline, diesel fuel and natural gas, wood and biomass, municipal waste, and other organic substances including tobacco and food products (e.g., charbroiled meats). Several recent studies have demonstrated an increase in firefighter's absorption of PAH post fire. [Summary of study on PAH Absorption in FF's.](#)

PAH's facts:

- PAHs are common products of incomplete combustion. There are over 100 PAHs; some of them are classified as known, probable or possible carcinogens.
- Carcinogens are substances that are known or suspected to cause an increased risk of developing cancer. Some PAHs have been classified as known, probable or possible.
- Many combustion by-products, including **several PAHs, are known mutagens.** Mutagens are agents that can introduce genetic mutations in exposed cells; genetic mutations have been associated with initiation of cancer.
- Studies prove that Firefighters have from 3 to 5 times the amount of metabolites, or by-products of PAH's in their urine after a fire compared to before the fire.
- Importantly to firefighters, PAHs are often found in complex combustion-derived materials such as **soot from a fire and vehicle exhaust.**

Steps to minimize exposure (absorption) based on recent studies:

- Shower upon return to quarters following a working fire.
- Use your SCBA through completion of overhaul.
- Send fireground contaminated PPE to the Hazardous Materials Decontamination Support Unit for laundering.

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