

Provider's Guide to **FIREFIGHTER MEDICAL EVALUATIONS**

Sudden cardiac events account for ~50% of acute duty-related death among firefighters primarily by myocardial infarction or cardiac arrest¹

Consider thoroughly screening and aggressively treating CVD risk factors. An ASCVD risk score can help identify firefighters who may need to initiate treatment for hypertension or dyslipidemia

Expert Panel Recommendation: Based on risk factors, evaluate firefighters for coronary heart disease (CHD) and structural heart changes, specifically consider:²

Coronary Artery Calcium (CAC) Scan or stress test at age 40 yrs., or earlier based on clinical judgment and risk profile

Screening for structural heart disease including left ventricular hypertrophy, cardiac chamber enlargement, valvular abnormalities, or diastolic/systolic dysfunction using screening echocardiography at age 40 yrs., or earlier in the presence of hypertension, obesity, Metabolic Syndrome or sleep apnea

A large-scale autopsy review found approximately 80% of firefighters who suffered a sudden cardiac event had evidence of both coronary heart disease (>50% occlusion) and a structurally enlarged heart. Only about 20% of autopsies had evidence of an intracoronary thrombus, suggesting ischemia induced arrhythmias may be responsible for a large percentage of cardiac line of duty deaths.³

FIREFIGHTERS AS TACTICAL ATHLETES

Extreme physical work,
>70 lb of gear, strain on
cardiovascular system

Dehydration (decreased
plasma volume),
hemoconcentration

Elevated core temperature,
dehydration, heat stress

Increased breathing rate
and oxygen consumption

Oxygen cost (extreme
physical work), increased
lactate, fatigue

Increased leukocytes and
hormones

Sympathetic surge,
increased adrenaline

Increased oxygen use and
heat production

Repeated exposures to trauma,
sleep disruption, increased
mental and behavioral health
concerns



Firefighters have been found to be diagnosed with cancer at earlier ages than the general population⁴⁻⁸

While firefighters do wear PPE, their gear does not protect them from all carcinogenic exposures on the fire ground and modern fires burn hotter and dirtier than ever before⁹

While studies are evolving to empirically validate screenings beyond those of the USPSTF for firefighters, experts working with this population strongly suggest considering:

- Tracking PSA annually starting at age 40
- Colorectal cancer screening beginning at age 40
- Cervical cancer screening every 1-3 years based on risk factors
- Annual mammograms beginning at age 40
- Annual testicular exam and instruction for self-examination
- Annual head-to-toe skin examination and appropriate dermatology follow-up
- Urinalysis annually for microscopic hematuria

Firefighters have high rates of depression, post-traumatic stress, acute stress reactions, anxiety, high rates of suicidal ideation and report frequent binge drinking¹¹⁻¹⁷

Consider screening for behavioral health issues, suicidal thoughts, and substance use/abuse such as binge drinking.

Firefighters are at high risk for sleep disorders (e.g. sleep apnea, insomnia, shift-work disorder, and restless leg syndrome)^{12,18}

Based on the substantially high rate of sleep disorders, experts in firefighter health recommend aggressive screening and treatment for sleep disorders.

Firefighters are often exposed to products of combustion that may lead to acute respiratory issues (i.e.: hypoxemia, bronchoconstriction).¹⁹ Repeated exposure may cause chronic pulmonary disease and abnormal lung function.^{20,21}

Based on risk factors, experts in firefighter health recommend considering:

- Baseline Chest X-Ray and repeat imaging as clinically indicated
- Low dose CT for screening of lung cancer in high-risk individuals
- Regular spirometry to include FEV1, FVC, and the absolute FEV1/FVC ratio if clinically indicated

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CANCERS found to be increased among Firefighters

Brain ^{4,6,7}	Colon ⁸	Bladder ^{5,8}
Non-Hodgkin's Lymphoma ^{4,8}	Cervical ⁹	Mesothelioma ^{4,8}
Leukemia ⁷	Prostate ^{4,6-8}	Rectum ^{4,5,8}
Breast ¹⁰	Testicular ^{4,6,8}	Intestines ⁵
Melanoma ⁶⁻⁸	Stomach ⁴	Lung ⁵
Kidney ^{5,7}	Thyroid ^{6,8}	Esophagus ^{5,7}
Multiple Myeloma ^{4,7}		

CARCINOGENS found in smoke

Carbon Monoxide	Hydrogen Cyanide
Hydrogen Chloride	Asbestos
Sulfur Dioxide	Formaldehyde
PCB	Benzene
Chloroform	PAH
	Styrene