

## KEY FINDINGS

### The Heart Risk

- Heart disease causes 45% of all on-duty firefighter deaths — more than fire, smoke, or trauma combined
- Over 11 years, coronary heart disease caused 39% of all on-duty deaths
- Specific duties trigger cardiac events at dramatically higher rates — risk is not spread evenly across your shift

### How the Study Was Done

- Reviewed all reported U.S. firefighter on-duty deaths, 1994–2004
- 1,144 total deaths — 449 classified as coronary heart disease
- Time-use data from three sources: municipal, metropolitan, and national
- Compared expected vs. observed deaths by specific duty type

### What's At Stake

- Your cardiac risk varies by duty — not by shift time alone
- More than 70% of departments have no formal fitness or health program
- Many firefighters have undiagnosed cardiovascular risk factors going unchecked
- Physical deconditioning plus dangerous duties is a proven cardiac trigger



## Emergency Duties and Deaths from Heart Disease: Among Firefighters in the United States

### SUMMARY:

#### Why This Matters to You

Heart disease is the #1 killer of on-duty firefighters — more than fire, smoke, or trauma. Harvard researchers analyzed every reported U.S. firefighter on-duty death over 11 years. Their finding: your cardiac risk is not constant across your shift. Specific duties spike it dramatically — and understanding when you're most at risk is the foundation of everything else.

## Understanding Your Cardiac Risk: What The Science Shows

### FINDINGS:

#### The Most Important Things to Know

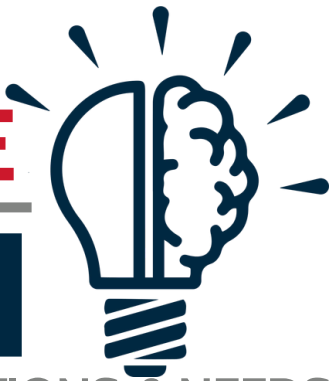
- Fire suppression is the most dangerous thing you do: Just 1–5% of annual duty time, yet it caused 32% of all on-duty cardiac deaths — and your risk of a fatal cardiac event during suppression is 12 to 136 times higher than during non-emergency duties.
- Alarm response and return carry real risk too: Response was 2.8 to 14.1 times deadlier than non-emergency duties, and alarm return was still 2.2 to 10.5 times higher — the physiological stress on your heart doesn't stop when the fire does.
- Physical training is dangerous for the deconditioned: On-duty exercise carried 2.9 to 6.6 times the cardiac death risk of non-emergency duties — irregular, intense exercise among unfit firefighters is a documented cardiac trigger.
- Age and underlying conditions amplify everything: Risk rose with every decade of age, and 26% of those who died already had a prior cardiovascular diagnosis — with smoking, hypertension, and diabetes significantly more prevalent than in healthy peers.

## BROUGHT TO YOUR STATION BY:



# SCIENCE CAN

CONDITIONS, ACTIONS, & NEEDS



## Big Picture: What Actually Works

### FIRE STATION TALKS

- Heart disease accounts for 45% of on-duty firefighter deaths — more than double the rate for police and far above the 15% average for all U.S. workers. This job creates unique cardiovascular strain.
- The danger is concentrated in specific activities. Fire suppression is less than 5% of annual duty time but causes nearly a third of all on-duty cardiac deaths. Knowing which duties spike your risk is essential.
- Being fit is your primary protection. Physical deconditioning was a key factor in cardiac deaths. Consistently fit firefighters have a physiological buffer that deconditioned ones simply don't when they go interior.
- Most departments leave their people exposed. At the time of this study, more than 70% lacked formal fitness programs and didn't require regular medical exams or return-to-duty clearance after major illness.
- Risk grows throughout your career. Cardiac death risk increased with each decade of age for every duty type. The cardiovascular fitness you build — or neglect — directly shapes your risk at every alarm for the rest of your career.

## Key Actions: To Protect Your Heart

### TAKEAWAYS

- Going interior is a cardiac event for the unprepared. Fire suppression is up to 136 times more likely to kill you from heart disease than non-emergency duties. Fitness is your pre-treatment.
- Cardiac risk stays elevated during alarm return. The physiological stress from the call doesn't reset the moment you get back on the rig.
- Hypertension, diabetes, and smoking were all significantly more common in firefighters who died on duty. An annual occupational medical eval finds the risks you can't feel.
- Push for a structured fitness program. Consistent, supervised fitness is the intervention this science calls for. If your department doesn't require it, this study is the argument for building it.

### Data Sources:

KALES, S.N., SOTERIADES, E.S., CHRISTOPHI, C.A., & CHRISTIANI, D.C. (2007). EMERGENCY DUTIES & DEATHS FROM HEART DISEASE AMONG FIREFIGHTERS IN THE US. NEW ENGLAND JOURNAL OF MEDICINE, 356(12), 1207-1215.

## What Chiefs Can Do: About Cardiac Risk

### TAKING THE LEAD

- Build and enforce a mandatory fitness program. More than 70% of departments lacked health promotion programs at the time of this study. Structured, supervised on-duty fitness is the evidence-based answer.
- Require periodic occupational medical evaluations. Many firefighters who died on duty had undiagnosed cardiovascular risk factors. Annual physicals identify the risks before they become fatalities.
- Establish return-to-duty protocols after serious illness. Without formal clearance processes, firefighters return to the highest-risk activities after cardiac events or major illness without any medical evaluation.
- Educate your crew that suppression is uniquely dangerous. Every member should know their cardiac death risk during fire suppression is 12 to 136 times higher than during non-emergency station duties.
- Plan for age-related risk increases. Cardiac death risk climbs with each decade of service. Experienced members may carry the greatest risk if fitness has declined and risk factors have accumulated.
- Track fitness trends over time, not just annual pass/fail. A firefighter trending downward year-over-year is a different risk profile than one improving. Longitudinal tracking gives early warning the snapshot misses.

## Conclusion

HEART DISEASE CAUSES 45% OF ON-DUTY FIREFIGHTER DEATHS. FIRE SUPPRESSION ALONE IS 12 TO 136 TIMES MORE DEADLY FROM A CARDIAC STANDPOINT THAN NON-EMERGENCY DUTIES — AND ALARM RESPONSE AND RETURN CARRY ELEVATED RISK TOO. PHYSICAL DECONDITIONING AND UNMANAGED RISK FACTORS CREATE THE CONDITIONS FOR THESE DEATHS. FITNESS IS YOUR BEST PROTECTION. GET SCREENED, STAY TRAINED, AND PUSH YOUR DEPARTMENT TO MAKE CARDIAC HEALTH NON-NEGOTIABLE.

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