

FIREWORKS!

Fireworks displays are a beautiful way to highlight a holiday weekend. Many communities hold these events, and, often, fire departments are the organizations that sponsor them.

Unfortunately, fireworks can also be the cause of serious injuries and property damage. The National Fire Protection Association (NFPA) reports that in 1997 an estimated 8,300 people suffered fireworks-related injuries severe enough to require emergency room treatment. While children were the largest group affected, at least a third of those injured were adults aged 25-44. Property damage each year runs into the millions: In 1996 an estimated 24,800 fires involving fireworks caused \$26.8 million in direct damage.

Public fireworks displays account for a very small share of the problem. But when things go wrong, they can go very wrong. Imagine having an aerial shell fall and explode into a crowd of people – not only would there be many injuries, but the potential for liability suits is extremely high.

So, what should you do? Consider some of the following procedures to prevent accidents and limit your liability.

First and foremost, contract with a professional fireworks company to fire the shells. Ask for their certificate of insurance and that your organization be named as an additional insured on their policy. The limits of their liability policy should be at least \$1 million for bodily injury and property damage.

If you use members of your organization to handle the display instead, make sure they have been trained and certified to shoot fireworks. A number of states require licensing or

Hot Tips for a Cool (and safe) Display

Call VFIS Risk Control at
1-800-233-1957 for a special
Fireworks Display Checklist.

For more on how to conduct a safe
fireworks display, contact:

National Fire Protection Association
1 Batterymarch Park
Quincy, MA 02269-9101
(617) 770-3000

Ed Vanasek,
c/o Pyrotechnics Guild International
18021 Baseline
Jordon, MN 55352
(612) 492-2061

**Fireworks are
a great way to celebrate.
A few key precautions
will ensure your event stays
the festive occasion it was
meant to be.**

certification in this regard. A Pyrotechnics Display Operator Training Program can also be obtained from Pyrotechnics Guild International, Inc.

Work with the fireworks company to determine adequate distances from which spectators are separated from the display, discharge and fall-out areas.

The NFPA Standard 1123 gives specific requirements for the display area: Allow at least a 70' radius for every inch of internal mortar diameter of the largest aerial shell fired. There should be no spectators, dwellings or parking areas in this radius.

The shell trajectory in the discharge area should have a 25' clearance to any overhead objects. Ground display pieces should be at least 75' from any spectator viewing and parking areas.

The fall-out area, where debris from spent shells and any malfunctioning aerial shells fall, should be free of all spectators, vehicles or combustible materials.

Provide adequate fire protection, fire apparatus and emergency medical service during the display.

Monitors should be assigned to control spectators and prevent them from accessing the discharge site. They should also be alert for any changes in the fall-out area due to a wind shift and be prepared to alert the fire apparatus operators, or, if need be, stop the display.

Clean-up is critical. Many injuries, especially to children, are caused by handling unexploded fireworks. Find out who is responsible for clean-up – the operator or promoter – and don't give the

public access to the display area until after a daylight clean-up takes place. You should also have procedures in place to deal with unexploded shells found at this time. 🌟

How NOT to Overheat

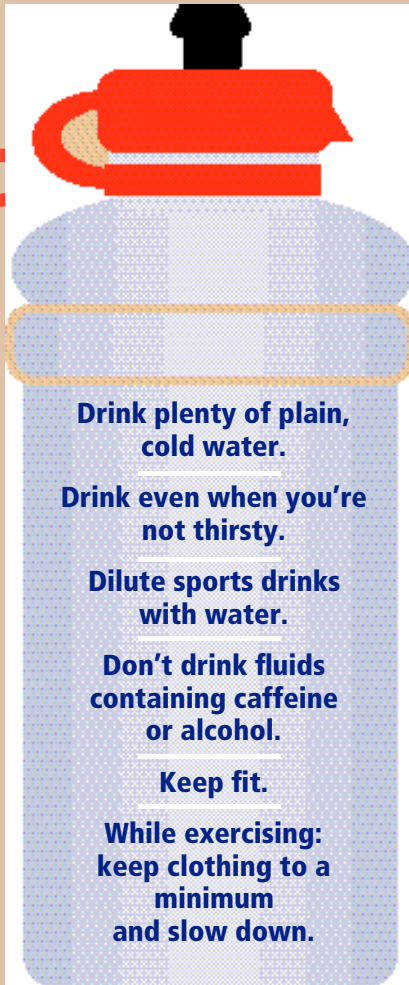
by John Hayford, M.S.

It's bad enough you have to get close to flames, exert yourselves for long periods on hot, humid days ... or wear heavy protective gear. Any one of these can challenge the internal system that's trying to keep your body temperature stable. Put them together, and it's a wonder more firefighters don't become dangerously overheated!

It's easier to prevent overheating if you understand how your thermoregulatory system works. The guiding principle is that your body must keep its internal temperature within a narrow range. To do so, it must continuously get rid of heat as it builds up. Heat is moved away from the core of your body by pumping warm blood out to the edges (your skin). From there, heat radiates out of the blood, leaving cooler blood to return to the center ... where it picks up more heat and heads back out again!

More importantly, as your skin warms, sweat glands are stimulated and when sweat evaporates, the body is cooled. Believe it or not, the evaporation of sweat is the primary way your body dissipates heat. For any liquid to evaporate, the surrounding air must have a low moisture content in order to accept it. That's why on more humid days, sweat beads up on the skin and drips off – it can't evaporate. And sweat that doesn't evaporate won't cool your body.

So how do people get into trouble and overheat? Whenever we sweat, fluid is lost from the body. Ultimately, this fluid is removed from your circulating blood. Without replenishing that fluid, blood volume falls, which means there's less fluid available to move heat away from the central areas of your body. In fact, if blood volume drops too far, your body tries to prevent further loss by automatically *shutting down* the sweating mechanism. This can lead to a life-threatening emergency known as heat stroke.



The key is to make sure there's plenty of fluid to move heat throughout your body. The solution is simple: **Drink plenty of plain, cold water** – before, during and after any kind of physical exertion.

Water is absorbed from the intestine into your bloodstream, replenishing the fluid you've lost through sweating. Because you sweat continuously, you need to drink water every day – *even when you're not thirsty!* If your environment is hot or humid, you need water even more frequently.

Water should be *cold* because this stimulates your stomach to empty more quickly into the intestines. And when fluid volume is low, rapid replenishment can be important.

What about fluids other than water? Sodas and sports drinks contain

substances (sugars, salts, electrolytes) that make them more concentrated than your body fluids. When a concentrated drink enters the intestine, your body tries to dilute it by releasing water from the bloodstream *into* the intestine. *This is exactly the opposite of what you want to happen!* So, if you really like sports drinks, dilute them with water *before* drinking. Drinks containing caffeine or alcohol aren't great choices either. Both stimulate the kidneys to produce more urine – so they can actually promote fluid *loss*.

What other precautions should you take? Because the evaporation of sweat requires skin exposure to the air, try to keep clothing to a minimum – especially around your arms, hands, legs and head.



Firefighters and rescue workers are prime candidates for heat exhaustion.

Keep fit. Exercise elevates your body temperature, and repeated exercise challenges your heat-reducing system on a regular basis. Over time, your body learns to start cooling itself *before* your internal temperature rises very much.

Finally, slow down. The harder you exercise, the more internal heat you'll generate. But keep in mind also that your heart rate automatically increases in response to the heat. This means that *exercising at a reduced pace on a hot day produces the same cardiovascular effect as your normal pace on a cooler day!* 🌪️

John Hayford, M.S., specializes in occupational and sports medicine. He has worked with numerous public safety agencies to develop and implement programs that promote employee health and physical fitness. He can be reached via e-mail at jchjh@aol.com.