



Amputation, 3rd degree burns, loss of sight, loss of hearing ... sound like battlefield injuries, or maybe a car crash?

How about the aftermath of an off-duty get-together of a few friends or family members — guess again!

These are real life, recreational fireworks injuries seen by our military and civilian physicians during their professional careers. Seemingly innocuous sparklers, firecrackers, and bottle rockets exact a toll of pain and suffering on thousands of Americans each year. Unwitting children often make up a large segment of those victimized, and the physical and emotional scars often last a lifetime.

An Air Force doctor interviewed in the preparation of this article stated he had personally witnessed the following injuries:

- Superficial burns to the fingers and hand from simply handling the lighting devices or from faulty fuses
- A blinding injury from an off-course bottle rocket
- A 3rd degree burn on the lower extremity from a Roman candle that ignited a patient's clothing

- A complete amputation of a finger from a "homemade" super firecracker

Fireworks account for an average of 8,000 reported injuries annually. In the past, firecracker injuries had topped the list as the leading cause of fireworks injuries, but they were surpassed by sparklers in 2002. During a Consumer Product Safety Commission (CPSC) special study conducted from 21 June to 21 July 2002, of fireworks sold commercially: sparklers caused 26 percent of injuries, firecrackers caused 18 percent, rockets caused 14 percent of injuries, and fountains, novelties and Roman candles accounted for 18 percent of injuries.

As previously stated, children are especially susceptible to injury when using fireworks. Results of the CPSC special study show that children under 15 accounted for nearly 50 percent of reported injuries as compared with the rest of the studied population (16 to 64 year olds). The statistics illustrate that under no circumstances should children, especially small children, be allowed to use fireworks unsupervised.

Additionally, fireworks are not authorized in all states and municipalities. Local ordinances in many cases severely restrict and, in some cases, prohibit the use of fireworks. It is important to check with your local fire and police departments prior to using any fireworks. Just because you can purchase them, does not mean it is legal to use them!

Does this mean all fireworks use should be avoided? Absolutely not! Responsible use of legal fireworks under the close supervision of mature individuals can be a lot of fun for all. Don't let your Fourth of July celebration end on a sour note. Follow the manufacturer's guidelines and treat all fireworks with respect!

The Most Dangerous Explosives

Often, the question is asked, "out of all the different explosives — homemade or manufactured — which are the most dangerous?" It may surprise you to learn that according to the U.S. CPSC latest report (2002 Fireworks Annual Report released in the summer of 2003) reports four fireworks related deaths in 2002 (equaling 2001 and down from 10 deaths in 2000). Additionally,

Rockets Red Glare

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Fireworks Safety Tips

The American Pyrotechnics Association offers the following safety recommendations for using fireworks:

- Always read and follow label directions
- Always have an adult present
- Only buy from reliable fireworks sellers
- Only ignite fireworks outdoors
- Be sure to have water handy
- Never experiment or attempt to make your own fireworks
- Light only one at a time
- Never re-ignite malfunctioning fireworks
- Never give fireworks to small children
- Store fireworks in a cool, dry place
- Dispose of fireworks properly
- Never throw fireworks at another person
- Never carry fireworks in your pocket
- Never shoot fireworks in metal or glass containers

approximately 8,800 people were treated for fireworks-related injuries in 2002. This is down from an estimated 9,500 injuries in 2001. In a 1-month study from 21 June to 21 July 2002, the CPSC recorded 4,400 injuries from firecrackers, bottle rockets, and various other fireworks (sparklers, fountains, Roman candles, etc.), and only 100 injuries from homemade or improvised explosives like M100s, cherry bombs and M80s. In general, this makes fireworks such as bottle rockets and sparklers the most dangerous manufactured explosives and more likely to inflict injury due to them being widely available and thought of as "safe" versus homemade explosives.

Bottle rockets are dangerous for two very simple reasons. First, the rate of travel of a standard bottle rocket can reach speeds up to 200 miles per hour, and they are very susceptible to ricochet — often traveling in any direction but the one intended. Second, the bottle rocket presents a significant fire hazard. When a bottle rocket detonates, the casing can burn from a few seconds to a few minutes. The sparkler is the silent danger. One misconception is that sparklers do not blow up; however, one reported injury in 2002 involved a 15-year-old boy who twisted several sparklers together and then lit them. The sparklers exploded causing deep lacerations to the victim's hand and a perforated eardrum. Injuries from explosive sparklers are rare, with nearly all sparkler

injuries being burns from the intense heat generated. A typical sparkler can burn at temperatures up to 1,800 degrees. At this temperature even gold melts so consider the close range effects on your skin and eyes.

M80 and M100 cherry bombs are illegal in many states. This is because of the amount of energetic material contained in these small packages. Typically, 16 M80s or eight M100s detonated together can equal a stick of commercial grade dynamite. The destructive power of these fireworks is very impressive. The same general principles

that apply to commercial and military explosives apply to fireworks. The explosive power of these fireworks can be doubled when they are compressed or contained. Illegal fireworks continue to be a serious problem. According to the CPSC, over the past 12 years, illegal explosives or homemade fireworks have typically caused 33 percent of the injuries associated with fireworks. The CPSC Office of Compliance enforces regulations on the importation, manufacture and sale of fireworks in the United States. Another enforcement activity that remains a priority for the Office of Compliance is the investi-

gation into firms and individuals that sell kits and components to make illegal and dangerous firecracker type explosives, such as M80s, cherry bombs and quartersticks.

According to Air Force requirements, on- or off-duty Air Force personnel must not take part in the transportation, storage, setup or functioning of commercial fireworks for on-base fireworks displays. As the Fourth of July approaches, do not become another statistic. Fireworks can be the most dangerous explosives and are best handled by trained professionals. ▶



Courtesy Photo