

## FOR IMMEDIATE RELEASE

June 28, 2024

CONTACT: Kay Williams, [kay.williams@ttuhsc.edu](mailto:kay.williams@ttuhsc.edu)  
(806) 781-8408

### **Keeping Fourth of July Celebrations Safe**

*TTUHSC/Texas Tech Physicians Experts Offer Tips to Protect Against Injuries and Health Concerns*

In advance of Fourth of July celebrations, Texas Tech University Health Sciences Center (TTUHSC) and Texas Tech Physicians health care experts said there are steps people should take to protect their ears, eyes and skin as they enjoy the nation's birthday.

#### **Fireworks and Hearing Safety**

As much as some might enjoy fireworks, the loud popping sounds they produce can contribute to noise-induced hearing loss, the second most common type of inner ear hearing loss after age-related hearing loss. In most cases, noise-induced hearing loss develops gradually and can begin at any age. Though some people can be affected with only a momentary exposure to such sounds, noise-induced hearing loss is generally caused by moderate to prolonged exposure to noise levels above 85 decibels. According to **Leigh Ann Reel, Au.D., Ph.D.**, director of the TTUHSC Center for Speech, Language, and Hearing Research, it's important to keep that threshold in mind because the explosive sounds produced by many fireworks can reach 140 to 160 decibels, exceeding levels produced by a jet engine.

To reduce the chances of noise-induced hearing loss from fireworks, Reel suggested:

- View fireworks from no closer than 500 feet to protect the hearing, as recommended by the American Speech-Language-Hearing Association (ASHA). If viewed from less than 500 feet, hearing protection should be worn.
- Avoid the exposure of infants to fireworks in any circumstance, which ASHA also recommends. Sound is amplified when produced in a smaller space, which means loud noises like those produced by fireworks may be more dangerous to an infant's smaller ear canals, putting them at higher risk than adolescents or adults.
- Use appropriate and effective hearing protection for both children and adults. Foam earplugs, generally the least expensive option, are effective when used properly. They are disposable, meant to be used one time and are available in age-appropriate sizes.
- Wear protective earmuffs. While they are more expensive than disposable foam earplugs, earmuffs are a solid hearing protection option and are difficult to use incorrectly. Though not recommended for infants, earmuffs come in different sizes. In fact, if exposing an infant to loud noises like fireworks is unavoidable, appropriately sized protective earmuffs are available.
- Purchase custom earplugs such as those used by people who are exposed to loud noise more frequently than the annual July 4 fireworks show. They require an audiologist to make an impression of the ear and then design a unique plug for that ear.

- People closer to the fireworks, especially those igniting them, should wear earplugs and earmuffs for extra protection.

### **Fireworks and Eye Safety**

Here is a link to the related on-camera interview for media use:

<https://www.ttuhs.edu/communications-marketing/media/video-stories/video/2024/june/celebrate-july-fourth-safely.aspx>

According to the U.S. Consumer Product Safety Commission, fireworks are responsible for an estimated 9,100 emergency room trips annually. Of those injuries, approximately 15% are related to the eyes, and the vast majority of those occur in the weeks immediately before and after July 4. **Kelly Mitchell, M.D.**, an ophthalmologist in the TTUHSC Department of Ophthalmology and Visual Sciences, said approximately 30% of those eye injuries were to children. However, he noted that all of those affected experienced either a significant weakening or complete loss of their vision or the loss of an eye, regardless of age.

To protect the eyes and promote overall safety during the use of fireworks, Mitchell recommended:

- Decide before the festivities who will be — and who will not be — allowed to light fireworks. If a child is allowed, they should be of driving age and considered to be mature, organized and safe.
- Select a safe and appropriate location for lighting the fireworks which includes a readily available water supply. Fireworks should not be discharged next to other fireworks or near woodpiles, flammable liquids, houses or vehicles. The lighting area should not be accessible to young children.
- Require all participants, whether igniting or watching, to use eye protection such as goggles or safety glasses. Quality goggles can be purchased for as little as \$10 from most home improvement stores and are appropriately sized for adults or children. Goggles also protect the eyes from soot that can be carried by the smoke fireworks produce.
- Supervise children at all times, even when they are using sparklers. This includes providing children with appropriate and approved eye protection and gloves. Although they often are considered the safest fireworks for children, sparklers typically reach temperatures between 1,800° and 3,000° F and can quickly cause burns to the skin or eyes.
- If someone does suffer an eye injury, calmly help get them to an emergency room where they can be evaluated and treated by a physician or eye surgeon. Resist the temptation to try and remove material from the eyelid or the eye surface or to treat the eye injury otherwise yourself.

### **Sunburn and skin cancer**

Here is a link to the related on-camera interview for media use:

<https://www.ttuhs.edu/communications-marketing/media/video-stories/video/2024/june/celebrate-july-fourth-safely.aspx>

Most Fourth of July gatherings begin long before the fireworks show when family and friends congregate outside around the grill, picnic table or swimming pool. **Michelle Tarbox, M.D.**, a dermatologist with Texas Tech Physicians and the TTUHSC School of Medicine, said that's the time to be mindful of the sun and its effects on the skin. Tarbox said much of the sun's harmful effects on the skin come from UVB radiation, which penetrates and can damage the skin's outermost layers. However,

UVA rays, also known as aging rays, go deeper into the skin and can cause deeper levels of tissue damage, potentially increasing the risk of skin cancer.

To protect the skin from the Independence Day sun and from the evening fireworks show, Tarbox recommended:

- Use appropriate sunscreens. Tanning, the body's response to DNA damage from UV radiation, can accelerate the aging process and increase the risk of skin cancer. When selecting a sunscreen, opt for one that works well with your skin and has an SPF of 30 or higher. For those who are sensitive to chemical sunscreens, a physical sunscreen like a titanium- or zinc dioxide-based sunscreen can be beneficial. For people concerned about chemical absorption sunscreens, Tarbox said the best products to use are those made for children and babies. For those concerned about sunscreens that contain benzene, the vast majority of those sunscreen types are sprays and gels, so if you wish to avoid that ingredient, select a different type of sunscreen.
- Wear protective clothing. Tarbox said the best strategy for avoiding sun damage to the skin is to develop a full-team approach. Start by considering factors such as the time of day you'll be outside, whether or not there will be shaded areas and what types of sunscreen and other protection to bring along. That can include a face cover or shade such as a bandana or floppy brimmed hat, gloves to cover the hands and lightweight, long-sleeved shirts. At the beach, where more people typically have more skin exposed to the sun, consider exposure from reflective sources such as the sand and the water that can reflect the UV radiation back to your body. Water also can remove some of the sunscreen, so it will need to be reapplied more frequently.
- Follow a nutritious diet. Studies have shown that people tend to tolerate sun exposure better if they have a diet rich in plant-based nutrients. The colors of many summer vegetables and fruits are produced by pigments that can absorb and detoxify some of the damage that occurs from exposure to damaging molecules called free radicals that are generated from UV radiation. A plant called polypodium leucotomos, a species of fern that grows along the equator where it has to protect itself from very intense radiation, also provides protection. Today, polypodium leucotomos is available in capsule form and is sold over-the-counter in products such as Heliocare. It also is available as gummies in products such as Sundots and Sundailies.

Additionally, summer health concerns surrounding water recreation and extreme heat continue. The following experts can discuss related health topics, including:

**Water safety**

Tammy Camp, M.D., a pediatrician with Texas Tech Physicians and the TTUHSC School of Medicine

**Dehydration/heat stroke dangers, hot cars**

Ron Cook, D.O., TTUHSC Chief Health Officer and a family medicine physician at Texas Tech Physicians

**Medications and heat**

Rebecca Sleeper, Pharm. D., TTUHSC Jerry H. Hodge School of Pharmacy associate dean

**Impact of heat and air conditioning on older and younger adults**

Scott Shurmur, M.D., a cardiologist with Texas Tech Physicians and TTUHSC Department of Internal Medicine chair.