

# Cancer Prevention and Treatment Fund

Making a Difference  
in 2015-2016

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Is it safe for children and athletes of any age  
to play on rubber instead of grass?

Developed during the 1960s primarily for athletic fields, these artificial surfaces also became part of a strategy to provide children of all ages with more opportunities for outdoor physical activity, particularly in cities where outdoor playgrounds were scarce.

The first artificial turf (marketed as “Chemgrass”) was made of plastic, yet looked like natural grass. Athletes began to complain that the surface was much harder than natural grass, and studies began to show that the use of artificial turf could increase the risk for football and other sports-related injuries. This prompted a ban on the use of artificial turf by the English Football Association in 1988, while many ballparks and professional sports stadiums in the United States began converting back to using natural grass during the 1990s.

Over time, material such as rubber was added to keep the blades of “grass” in place and provide more cushioning. Some of the benefits of artificial turf are that it’s a long-lasting “all-weather” material that does not require a lot of maintenance or potentially dangerous pesticides. Artificial turf containing rubber and other cushioning materials is also believed to reduce sports-related injuries, but study results have been mixed. Artificial turf is currently used on approximately 4,500 playgrounds, tracks and fields in the U.S.

## From tire swings to play surfaces made from tires

Recycled rubber tires have become one of the top choice materials for surfacing children’s playgrounds. The tire material used on playgrounds can include the following:

- Loose tire shred (rubber mulch) or “crumb” on a surface that can be raked.
- Tire shreds that are combined with a binder and then poured onto a permanent surface
- Tiles made from tire shreds and binder that have been factory-molded, then glued to a playground surface.



*Many sports fields are made of artificial turf, but are those rubber pieces safe to play on?*

For more information or to reach our Cancer Helpline, contact [info@stopcancerfund.org](mailto:info@stopcancerfund.org)

1001 Connecticut Avenue NW, Suite 1100, Washington, DC 20036 ♦ (202) 223-4000 ♦ [www.stopcancerfund.org](http://www.stopcancerfund.org)

## Are playground surfaces made with recycled tires safe?

Logically, tire scraps seemed like a surface that would be less likely to harm children if they fell. However, while tire rubber includes natural rubber from rubber trees, it also contains phthalates (chemicals that affect hormones), polycyclic aromatic hydrocarbons (PAHs), volatile organic compounds (VOCs) and other chemicals known or suspected to cause adverse health effects. For example, the EPA reports that breathing air contaminated with PAHs may increase a person's chance of developing cancer, and the Agency for Toxic Substances and Disease Registry states that PAHs may increase the risk for cancer and birth defects.



## What the scientific studies say

The California Office of Environmental Health Hazard Assessment (OEHHA) conducted three laboratory studies in 2007 to investigate the potential health risks to children from playground surfaces made from recycled tires. Five chemicals, including four PAHs, were found. One of the PAHs, "chrysene," was higher than the risk level established by the OEHHA, and therefore, could possibly increase the chances of a child developing cancer. Out of the 32 playgrounds surfaced in recycled tires that the researchers in California looked at, only 10 met that state's 2007 standard for "head impact safety" to reduce brain injury and other serious harm in children who fall. In contrast, all five surfaces made of wood chips met the safety standard.

A 2015 report analyzed the chemicals found in tire crumbs from 5 different companies that install school athletic fields, and from 9 different unopened bags of playground tire mulch. The researchers found 96 chemicals in the samples. Almost half have never been studied for their health effects. Based on the studies that were done, 20% of the chemicals that had been tested probably can cause cancer, and many were irritants that can cause asthma symptoms; skin irritation, or eye irritation.

## How to protect children

Children are much more likely to be harmed by exposure to chemicals in their environment than adults because they are smaller and their bodies are still developing.

The Centers for Disease Control and Prevention (CDC), Consumer Product Safety Commission (CPSC) and EPA all recommend that children be taught the importance of frequent hand washing, especially after playing outside and before eating.

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## CANCER PREVENTION AND TREATMENT FUND

The Cancer Prevention and Treatment Fund is urging better research and policies to understand and prevent how toxic exposures cause cancer. Our free Cancer Helpline ([info@stopcancerfund.org](mailto:info@stopcancerfund.org)) answers your questions about cancer treatment options and how you can reduce your chances of getting cancer.

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