Dear Governor Patrick,

We are writing to strongly urge the Commonwealth of Massachusetts to stop using shredded tire mulch on public playgrounds and to remove the tire mulch from three playgrounds on the Southwest Corridor in Jamaica Plain and replace it with something with something safer, such as wood chips.

Studies have identified 49 different compounds in shredded tire mulch, including heavy metals, VOCs, phthalates, PAHs, carcinogens, developmental toxicants, endocrine disruptors, reproductive toxicants, respiratory toxicants, allergens, skin and eye irritants, and corrosives.

We understand that some studies have shown that the individual compounds are "below levels of concern," however, there is no way to prove that repeated exposure by young children to the combination of these chemicals is safe.
We see babies crawling in the tire shreds, putting them in their mouths, children rolling in them and burying each other, kids eating after playing with it. Chemicals are potentially being absorbed through the skin, inhaled, and ingested.

According to Dr. Philip J. Landrigan, a nationally recognized expert on children's health, and Joy E. Carlson in their paper Environmental Policy and Children's Health, "Children are undergoing rapid growth and development, and their delicate developmental processes are easily disrupted…The nervous system is not well able to repair any structural damage that is caused by environmental toxins. Thus, if cells in the developing brain are destroyed by chemicals such as lead, mercury, or solvents, or if vital connections between nerve cells fail to form, there is high risk that the resulting neurobehavioral dysfunction will be permanent and irreversible."

We are also concerned about the particulate matter generated by the breakdown of the tire shreds. Despite the tire mulch supplier's claim that it doesn't break down, parents have noticed black dust on their children's hands and clothing after playing in it. Tire dust is undoubtedly being kicked up and dispersed. The particulates alone are cause for concern, considering the growing number of children with asthma.
Latex is another concern. One Jamaica Plain parent who has a severe latex allergy says her throat tightens if she goes near these playgrounds. And since exposure to latex increases sensitivity, are we setting our children up to develop latex allergies in the future?

We also worry about the many pregnant women at the playgrounds. They're inhaling the VOCs, PAHs, phthalates, and particulates too—what effect could that have on a fetus?

We need to reduce our children's exposure to harmful chemicals at every opportunity. Why are we subjecting them to this unnecessary exposure when there is a healthy and safe alternative like wood chips? We understand the need to dispose of used tires, and we're all for recycling, but not if it puts children's health at risk. Please put children's health first and remove the tire mulch as soon as possible.

Sincerely,
(Signed by hundreds of Boston parents)

WALNUT GROVE HOMES ASSOCIATION

GREENWAYS COMMITTEE MEETING

October 23, 2018, 7 PM
22 Harwood Circle North, Pam Conrad

Chair: David Phillips
Members in Attendance: Kathy McComb, Marc Schmitt, Pam Conrad, Hayden McCann, Dawn Craine, Tim Craine

AGENDA DISCUSSION ITEMS

A. Tim Craine agreed to request bids for a new mowing contract. Specs are as follows:

- SPECIFICATIONS FOR WALNUT GROVE LAWN CARE
  Each spec will be bid separately

- Mowing lawn areas once per week or less as needed in dry weather conditions.
- Mulch all vegetation in place.
- Trim around all lamp posts and trees so as not to damage trees and lamp posts.
- Remove grass clippings from pathways after mowing.
- Mow pathway edges two times during growing period to clear growth within two feet of both sides of pavement.
- Remove leaf litter as needed up to three times per year.

B. Dates were set for volunteers to prepare the paths for winter.

Hayden McCann coordinated 13 volunteers on Saturday, November 3, to remove leaves from walkways, remove some invasives and prune encroaching vegetation. The volunteer day was very successful. One more time for blowing Greenway D as oak leaves are covering some of the walkway.

C. The Committee discussed a resident on Winterset Circle who was planning to install an irrigation system that was encroaching on the adjacent greenway. I met with the resident on October 29 and we agreed on a satisfactory resolution. See attached email.

Respectfully submitted,

David Phillips

Children and Athletes at Play on Toxic Turf and Playgrounds

Nyedra W. Booker PharmD MPH and Stephanie Fox-Rawlings PhD, National Center for Health Research.

Is your child playing on rubber instead of grass at the playground? The use of human-made surfaces on playgrounds has increased dramatically over the years. First developed during the 1960s primarily for athletic fields, these artificial surfaces were also part of a strategy to provide children with more opportunities for outdoor physical activity, particularly in the inner city where outdoor playgrounds were scarce.[1] The first artificial turf (marketed as "Chemgrass") was made of plastic, yet looked a lot like natural grass. Since then, these artificial surfaces have expanded and many look like colorful rubber surfaces. But regardless of what they look like, all are made with materials that can be dangerous to children and adults.

As its use for various sports activities increased significantly over the years, so did the concerns. Athletes began to complain that the surface was much harder than natural grass, as some studies also 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.[1] Artificial turf containing rubber and other cushioning materials was also assumed to reduce sports-related injuries, but study results have not always supported that assumption.[2] Even with modern fields, many professional athletes dislike playing on artificial turf. It increases the severity of abrasions due to sliding, puts additional stress on joints, and heats up much more than grass does in the sun – and can become dangerously hot.[3][4] Following their failure to force soccer's international governing body (FIFA) to use sod instead of artificial turf for the 2015 Women's World Cup, an international group of women players are suing the FIFA.[5]

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 tire waste. One study evaluated the level of chemicals released that could cause harm to children after they have had contact with loose tire shreds, either by eating them or by touching them and then touching their mouth. The other two studies looked at the risk of injury from falls on playground surfaces made from tire waste compared to wood chips, and whether tire shreds could contaminate air or water.[7]

It would not be ethical to ask children to eat tire shreds, so the researchers created chemical solution that mimicked the conditions of a child's stomach and placed 10 grams of tire shreds in it for 21 hours at a temperature of 37°C. Researchers then measured the level of released chemicals in the solution and compared them to levels EPA considered risky. The study also mimicked a child touching the tire shreds and then touching her mouth by wiping recycled tire playground surfaces and measuring chemical levels on the wipes. To evaluate skin contact alone, the researchers tested guinea pigs to see if rubber tire playground samples caused any health problems. This study assumed that children would be using the playground from the ages of 1 through 12. Results of the OEHHA studies showed that a single incident of eating or touching tire shreds would probably not harm a child's health, but repeated or long-term exposure might. Five chemicals, including four PAHs, were found on wipe samples. 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.[7]

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 while playing. In contrast, all five surfaces made of wood chips met the safety standard.[7]

A 2012 study analyzing rubber mulch taken from children's playgrounds in Spain found harmful chemicals in all, often at high levels.[10] Twenty-one samples were collected from 9 playgrounds in urban locations. The results showed that all samples contained at least one hazardous chemical, and most contained high concentrations of several PAHs. Several of the identified PAHs can be released into the air by heat, and when that happens children are likely to inhale them. While the heat needed to do this was very high in some cases (140 degrees Fahrenheit/ 60 °C), many of the chemicals also became airborne at a much lower temperature of 77 °F (25 °C). The authors concluded that the use of rubber tire waste on playgrounds "should be restricted or even prohibited in some cases."[10]

A 2015 report by Yale scientists analyzed the chemicals found in 5 samples of tire crumbs from 5 different companies that install school athletic fields, and 9 different samples taken from 9 different unopened bags of playground rubber mulch. The researchers detected 96 chemicals in the samples. A little under a half have never been studied for their health effects, so their risks are unknown, and the other chemicals have been tested for health effects, but those tests were not thorough. Based on the studies that were done, 20% of the chemicals that had been tested are considered to probably can cause cancer, and 40% are irritants that can cause breathing problems such as asthma, and/or can irritate skin or eyes. [13]

What The EPA has Done

The EPA created a working group that collected and analyzed data from playgrounds and artificial turf fields that used tire material. Samples were collected at six turf fields and two playgrounds in four study sites (Maryland, North Carolina, Georgia and Ohio). In a report released in 2009, the agency concluded that the level of chemicals monitored in the study and detected in the samples were "below levels of concern." There were limitations to this study, however. The study did not measure the concentration of organic chemicals that are known to vaporize during summer heat (called SVOCs). SVOCs include PAH.

A meeting was then convened by the EPA in 2010, bringing together various state and federal agencies to discuss safe levels of chemical exposure on playgrounds made from tire rubber, and opportunities for additional research. [14] When announcing the results of the study, EPA joined other organizations in recommending that as a precaution, young children wash their hands frequently after playing outside.[14]

In the case of PAHs, the EPA has concluded that while there are currently no human studies available to determine their effects at various levels, based on laboratory findings, "breathing PAHs and skin contact seem to be associated with cancer in humans." [11]

In February 2016, the U.S. government announced a new action plan to better understand the likely health risks of tire crumb and similar artificial surfaces. This initiative involves 4 U.S. government agencies: the EPA, Centers for Disease Control and Prevention (CDC), Agency for Toxic Substances and Disease Registry (ATSDR) and Consumer Product and Safety Commission (CPSC). In December 2016, they released a status report. [15]

What is the Impact on Our Environment?

Although this article focuses on the impact of artificial turf on health, it is worth noting that artificial turf also has a negative impact on the environment. Sarah-Jeanne Royer, PhD, a postdoctoral fellow at the University of Hawaii who has published research on the impact of degrading plastic on greenhouse gasses, explained to National Center for Health Research staff that artificial turf fields are made of polyethylene and sometimes nylon so they produce greenhouse gasses.[16] The "outgassing" from the plastic is higher during the day but continues at lower levels at night. Because the artificial turf fields have millions of fragments, they have a very high surface area that produces much more greenhouse gas than a flat carpet would.

How to Protect your Children

So how can you protect your child at the playground? Remember that children are much more likely to be harmed by exposure to chemicals in their environment than adults because they are smaller (so the exposure is greater) and because their bodies are still developing. This is why it's important to significantly reduce (or try to eliminate) any contact your child may have with substances that are known or suspected to be harmful. If you have more than one playground in your area, choose the one that doesn't have a recycled rubber play surface or other types of rubber or synthetic surface.

Parents can actively persuade local officials that playgrounds should use wood chips rather than rubber or other substances that are less safe when children fall, and more dangerous in terms of chemicals that they breathe or get on their hands.

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