

Turf Wars: Pros and Cons of Artificial Turf

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- [Artificial turf safety](#)
- [Health & Safety](#)
- [Playing Field Safety](#)



Artificial turf, usually constructed of

polyethylene plastic grass and an in-fill base of "crumb rubber" from ground-up recycled tires (as many as 10,000 in a single field) have become increasingly popular in communities all across the country.

As more grass fields are converted to synthetic turf (according to a spokesperson for the Synthetic Turf Council in Atlanta about 900 new synthetic turf fields were installed at schools nationwide in 2008), however, a [debate has been heating up](#) about possible health risks and the advantages and disadvantages of artificial turf fields.

The following is a summary of the pros and cons of artificial turf:

Pros

- **Lower maintenance costs.** While the initial cost (around \$600K) is high, proponents claim that upkeep is much less expensive, dropping by some estimates from \$35K to \$5K per year. Some question whether artificial turf is as financially friendly as touted, citing the need for repairs, vacuuming, refilling and even watering, suggesting that the fields may not last as long as advertised, and raising the thorny problem of disposal.
- **Pesticide-free.** Unlike natural grass, artificial turf doesn't require treatment with pesticides and fertilizers (note, however, the success some towns are having with [organic grass fields](#)).
- **Increased playability.** Artificial turf fields are much more durable than grass; because playability is much higher, they allow broader access; can be played on all the time; in time of scarce fields, they give youth sports organizations practice space they might otherwise not have; the problem of spring and fall rains which result in cancellation of numerous games and practices slated for grass fields is eliminated; one match on a muddy field can ruin the field for the rest of the season.

- **Fewer injuries:** Durability and an even playing surface mean fewer injuries and unlike grass that gets torn up by rough play and eventually turns into vast patches of slippery mud (twisted ankles from potholes, uneven playing surface, slips in the mud).
- **Saves water.** An average grass playing field uses about 50,000 gallons of water per week during the growing season."

Cons

- **Heat hazard.** The heat-absorbing properties of an artificial field make it too hot to play on in extremely warm weather. On a 98-degree day, the temperature on the turf could rise to more than 120 degrees. A Brigham Young University study found that the surface temperature of synthetic turf at its football practice field was 37 degrees higher than the air temperature. Proponents point out that use of the fields can be managed to ensure that athletes aren't playing at the hottest times of the day and are adequately hydrated; as a result, they argue, the higher temperature is more of a comfort issue than safety issue.
- **Lead.** Excessive exposure to lead has been linked to severe mental retardation, stunted growth and death. As Don Mays, senior director of product safety at the Consumer's Union, publisher of Consumer Reports, says, "There is no safe level of lead; let's be clear on that." The American Academy of Pediatrics agrees, saying that there is no safe level of lead exposure and suggesting that levels in soil be no higher than trace amounts (40 parts per million).
 - Older turf fields made from nylon or nylon/polyethylene blend fibers may contain levels of lead that pose a potential public health concern. Tests of artificial turf fields made with only polyethylene fibers showed that these fields contained very low levels of lead.
 - Field Turf, the largest artificial turf manufacturer in North America, sells a lead-free artificial turf, but only if the community asks for the custom-made field. The fields that most communities purchase use lead to brighten the field's colors and for a sport team logo.
 - Says Jackie Lombardo, a member of the Sierra Club National Toxics Committee, "We know older turf products contain toxic chemicals associated with asthma, learning disabilities, and cancer. Saying they are safe because they don't contain lead is like saying cigarettes are safe because they don't contain lead. There are so many chemicals in this synthetic grass and we don't know what the effects are going to be not only on children's health, but also what the effects are on the ground water as well."
 - The U.S. Centers for Disease Control and Prevention (CDC) has consistently recommended "the elimination of all non-essential uses of lead" because of the potential health hazards they pose and has long considered lead dust one of the biggest known health hazards to children; it notes that the combination of age, weathering, exposure to sunlight and wear and tear can cause dust containing lead to be released from older or well-used fields.
- **Zinc hazard:** A Connecticut-based environmental advocacy group, Environment and Human Health Inc. (EHHI), has been sounding warnings about artificial turf fields for a number of years and found support for its contentions in a preliminary study in 2007 by researchers at the Connecticut agricultural experiment station which examined the contents of "crumb rubber" and concluded that several potentially dangerous chemical compounds could escape into the air or leach into water under certain conditions. Levels of zinc found leaching into water were inordinately high. A study by University of North Carolina found a possible link between continued exposure to zinc and cardiovascular damage.
- **Other harmful chemicals:** according to EHHI, shredded rubber could contain other toxic metals like arsenic, cadmium, chromium, and selenium.

- **Toxic run-off.** When an artificial field drains after a heavy rain, the run-off (which may contain lead and infill material) could leach into and contaminate a community's ground and drinking water.
- **Increased MRSA risk.** Open skin lesions (so-called "turf burns") put athletes at [increased risk of MRSA](#). Studies have shown that athletes who use synthetic turf are seven times more likely to receive turf burns than those who play on natural grass. These open lesions are often the source of contracting and vehicle for spreading dangerous infections. In fact, a 2003 study of MRSA infections among St. Louis Rams football players found that all eight MRSA infections began at turf burn sites.
- **Bacterial breeding ground.** Medical experts have found that staphylococci and other bacteria can survive on polyethylene plastic, the compound used to make synthetic turf blades, for more than 90 days. Blood, sweat, skin cells and other materials can remain on the synthetic turf because the fields are not washed or cleaned.
- **Adverse affect on asthmatics.** Breathing in dust of ground-up tires could exacerbate breathing problems for asthmatics.
- **Once artificial, always artificial.** Once a community goes with artificial turf, it has no choice but to install another artificial turf field when the first one needs to be replaced because once plastic replaces natural grass, it kills any living organism in the subsoil making it impossible without years of soil remediation to grow anything on that surface.

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