

## Synthetic Turf Fields, Crumb Rubber, and Concerns about Cancer

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In addition to a number of prior studies in the U.S. and Europe that did not identify reasons for concern about playing on synthetic turf fields with recycled rubber crumb infill, there are more current and relevant reasons to be reassured that synthetic turf does not cause cancer.

- 1) While Chair of the world's largest pediatric cancer research organization during the 1990s, I was responsible for millions of dollars of research on what caused cancer in children, adolescents and young adults. **None of the studies that we conducted, nationally and in multistate surveys, within homes and with environmental sampling, of childhood and prenatal exposures, and a host of other variables, showed evidence that an environmental factor caused these cancers. The cancers we studied included the lymphomas implicated in the crumb rubber concern.**

For middle and later adulthood, we know that cancer can be caused by cumulative exposure over many years to carcinogens like tobacco, radiation, asbestos, ultraviolet rays (sun and tanning machines) and alcohol. For cancer in youth, however, none of our extensive research efforts could "*identify environmental exposures that might explain more than a small fraction of the observed cases*".<sup>1,2</sup> We concluded that virtually all cancer in the young is a mistake of nature—*spontaneous mutation to malignancy* is the biologic term—and not due to exogenous causes. Since then, all subsequently conducted scientifically-valid research has also failed to uncover external causes of cancer that occurs during childhood, adolescence or early adult life.

- 2) **It's human nature to blame.** When unfortunate events occur for which there is no known cause, we want to assume that there has to be a reason that hopefully can lead to prevention. Blaming autism on vaccines is a recurrent example, and one that illustrates another human behavior: refusal to believe objective, scientific, irrefutable evidence.<sup>3,4</sup> This human need and attendant denial causes unnecessary alarms, especially when cancer is the event. The notion that synthetic turf fields cause cancer in the young is another example of natural need to attribute blame.
- 3) **The cancers that have been reported to occur in soccer players are precisely those cancers that are expected to occur in the age group of concern.** Moreover, they are consistent with the race/ethnicity and socioeconomic status of those who have access to synthetic fields. When these factors are taken into consideration (click [here](#) or paste the URL<sup>5</sup> to review), the incidence of the implicated cancers is no higher than in those who do not have access to synthetic turf fields.

On the other hand, regular physical activity has been clearly demonstrated to prevent cancer, as well as cardiovascular disease, hypertension diabetes, metabolic syndrome, and other chronic illnesses. Lack of physical activity increases the risk of cancer. Lack of access to facilities that allow exercise can thereby increase the incidence of cancer.

**In conclusion, we naturally have a need to find something to blame but it's not the crumb rubber or anything else in synthetic turf that caused the cancers. On the contrary, physical activity should be encouraged and promoted by year-round, weather-resistant fields to help prevent cancer and other chronic diseases. Limiting field development could in the long run actually increase cancer incidence.**

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<sup>1</sup> Buckley JD, Buckley CM, Breslow NE, et al. *Med Pediat Oncol* 26:223,1996.

<sup>2</sup> Olsen JH, Boice JD Jr, Seersholm N, Bautz A, Fraumeni JF. *N Engl J Med*. 333(24):1594-9,1995.

<sup>3</sup> The most recent study, performed because there are still doubters, by the University of Washington's Center on Human Development and Disability, the University of Texas Southwestern; and the Texas A&M Health Science Center & Central Texas Veterans Health Care System, documents no evidence for adverse behavioral effects in infant monkeys administered the suspect vaccine (<http://hsnewsbeat.uw.edu/sites/default/files/sites/default/files/documents/PNAS-2015-Gadad-1500968112.pdf>. Accessed June 26, 2016).

<sup>4</sup> Gawande A. The mistrust of science. *The New Yorker*. June 6, 2016. <http://www.newyorker.com/news/news-desk/the-mistrust-of-science>. Accessed June 26, 2016.

<sup>5</sup> <http://comedsoc.org/index.php?m=47&s=486>

<sup>6</sup> <http://www.stcharleshealthcare.org/Our-Services/Cancer-Care/DEFEATcancer>