

From: [Kari Percival](#)
To: [Christopher J. Webb](#); [Carol Ann Desiderio](#); [Emily Granoff](#)
Cc: [Friends of Roosevelt Park](#)
Subject: Health Concerns on Artificial Turf
Date: Tuesday, May 16, 2023 8:25:48 AM

Dear Malden Board of Health,

I am a Malden parent of two children. Please include this letter and source references in the public comments for the Board of Health meeting, and read it into the record. Thank you.

Is artificial turf right for our athletes? Artificial turf is touted as the practical solution to preventing cancellations of games and practices due to rain and muddy field conditions. Interruptions in the schedule have a ripple effect across everyone's life. But there are costs and downsides to artificial turf that raise health concerns more important than convenience.

I am concerned about safety: Playing on artificial turf is associated with higher injury rates(1)*, higher risk of heat illness(2)*, skin burns (3)*, more skin infections from turf burn (4)*, and toxic PFAS chemical exposure leading to endocrine disruption. (5)*

Artificial turf is said to be cheaper and easier to maintain than real grass, but as artificial turf ages, systemic neglect of turf field maintenance leads to failing GMAX scores and worn out, unsafe playing surfaces. (6)* Many parents have raised concerns about greater chance of concussion and brain injury on the harder surfaces. (7)* When budgets do not plan for frequent replacement of infill, and regular disposal and replacement of the shock pad and carpet, this neglect effectively condemns turf fields for play, as currently at Maplewood Park.

Professional athletes have recently made headlines urging a return to real grass fields. (8)* Benefits of living grass for our young athletes include safer playing surfaces, causing fewer injuries, less risk of heat illness, better air quality, and better athletic performance. (9)* Cooler real grass allows longer playing times on sunny days, emits more oxygen and gives less exposure to unregulated toxic chemicals.* Public living green space, the smells, sights and sounds of nature, have been found to lower stress and accelerate recovery from stress. (10)* And as far as hours go: case studies from regional communities show that natural grass fields can support up to 2,000 hours of playing time per year with proper maintenance. (11)*

Is it right to blame poor maintenance for the reason to remove living green spaces from under our children's feet? Neglect of our fields results in lack of safe playing opportunities, whether on artificial turf or living grass. And as climate change causes more days of extreme heat, how many more games and practices on artificial turf will be cancelled because its too hot to play? Heat index charts show us when playing outdoors may risk heat illness under natural conditions (12)* but local weather reports underestimate the extreme heat conditions in microclimates created in urban heat islands and plastic turf surfaces. (13)*

Play time on the field is important to our growing children's health. And when you look at the facts, on balance, artificial turf is not the solution to providing more healthy playing time. It's an unregulated, dangerous product that introduces five new problems for every one problem it claims to solve. Our children's health is in your hands. I urge you to advocate real grass for our parks and sports fields, and good safety maintenance for all fields in our community going forward. If you don't advocate for the science facts supporting our children's health, who will?

Yours,

Kari Percival
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1* "Athletes were 58 percent more likely to sustain an injury during athletic activity on artificial turf." <https://www.uhhospitals.org/for-clinicians/articles-and-news/articles/2019/08/artificial-turf-versus-natural-grass>

2* How Extreme Heat Affects Young Athletes
<https://www.pbs.org/newshour/science/how-extreme-heat-affects-young-athletes>

3* Heat risks associated with synthetic athletic fields
<https://www.tandfonline.com/doi/full/10.1080/02656736.2019.1605096>

4* Turf burn can increase chance of a [staph infection](#).
<https://www.healthline.com/health/turf-burn>

5* Heath Impacts of Artificial Turf: Toxicity studies, challenges and future directions
<https://pubmed.ncbi.nlm.nih.gov/35948114/#:~:text=Numerous%20studies%20have%20shown%20that,%2C%20mutagens%2C%20and%20endocrine%20disruptors>

6* Hardness Test Results Reveal Wider Scope of Artificial Turf Failures
<https://dcist.com/story/17/10/12/even-more-artificial-turf-fields-fa/>

7* Aging artificial turf fields may carry risk of head injuries
<https://www.bostonglobe.com/2022/09/24/metro/aging-artificial-turf-fields-may-carry-risk-head-injuries/>

8* Only Natural Grass Can Level the NFLs Playing Field
<https://nflpa.com/posts/only-natural-grass-can-level-the-nfls-playing-field#:~:text=The%20NFLPA%20is%20advocating%20for,testing%20methods%20for%20artificial%20turf>

9 * "Fields with good quality turfgrass cover have higher traction, cushioning, resiliency, and lower surface hardness, reducing the probability of injury in contact

sports." "

<https://www.sportsfieldmanagement.org/natural-grass-athletic-fields/#:~:text=Fields%20with%20good%20quality%20turfgrass,of%20injury%20in%20contact%20sports>.

10* Reduction of physiological stress by urban green space <https://www.nature.com/articles/s41598-019-46099-7>

11* Case Studies: Organic Grass Playing Fields

https://www.turi.org/TURI_Publications/Case_Studies/Organic_Grass_Playing_Fields

12* <https://www.noaa.gov/jetstream/global/heat-index>

13* Findings demonstrate that the use of regional WBGT estimates from weather stations significantly underestimate WBGT measurements at the outdoor sports fields, with August 2019 presenting much more oppressive conditions that result in considerable limited or cancelled activity versus June 2019. These findings support the positions of NATA and ACSM to use on-site observations of WBGT at athletic venues by athletic trainers, referees, umpires, team physicians, and/or coaches before/during any game or practice regardless of surface type. Our work demonstrates the increasing importance of urban heat mitigation and climate change mitigation efforts (Georgescu *et al* 2014) as well as a critical need for enhancing behavioral and physiological adaptations within sporting organizations across youth, college, and professional sports facing increasing levels of heat (Hosokawa *et al* 2019).* <https://iopscience.iop.org/article/10.1088/1748-9326/ac32fb>

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