

# Centre de collaboration nationale en santé environnementale

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# Artificial turf: Contributions and limits of health research in decision making

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Upcoming publication in *Environmental Health Review*, January 2020.

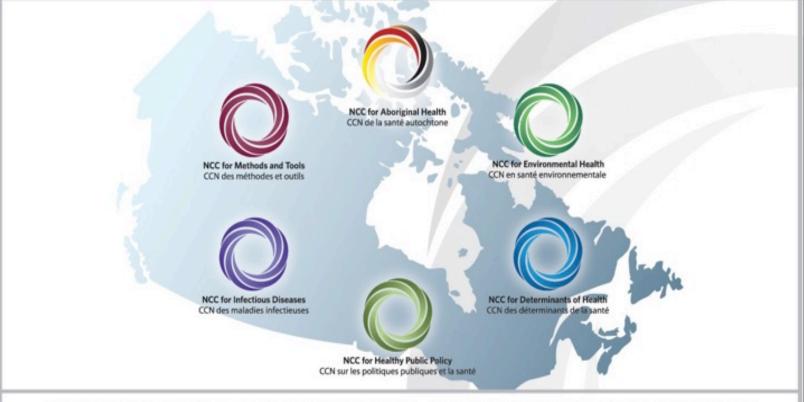
**PHABC Conference and AGM** 

November 14th, 2019



#### National Collaborating Centres for Public Health

Centres de collaboration nationale en santé publique



STRENGTHENING PUBLIC HEALTH ACROSS CANADA | APPUYER LA SANTÉ PUBLIQUE AU CANADA

#### What do we do?

Knowledge translation for evidence-informed policy and

practice:

- Evidence reviews
- Topic pages
- Blogs
- Tools and courses
- Seminar Series
- Monthly e-News

FOOD DESERTS AND FOOD SWAMPS: A PRIMER

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CYANOBACTERIA AND DRINKING WATER: OCCURRENCE, RISKS, MANAGEMENT AND KNOWLEDGE GAPS FOR PUBLIC HEALTH

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**FEBRUARY 2019** 

INDIGENOUS FOOD SAFETY AND SECURITY:

COMMUNITY ADAPTATIONS IN THE

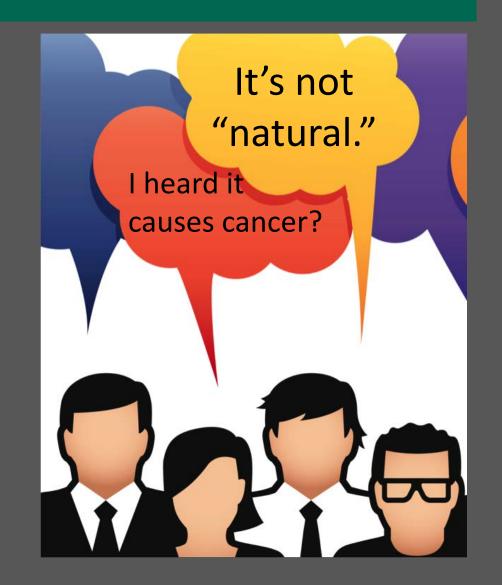
WAKE OF CLIMATE PRESSURES





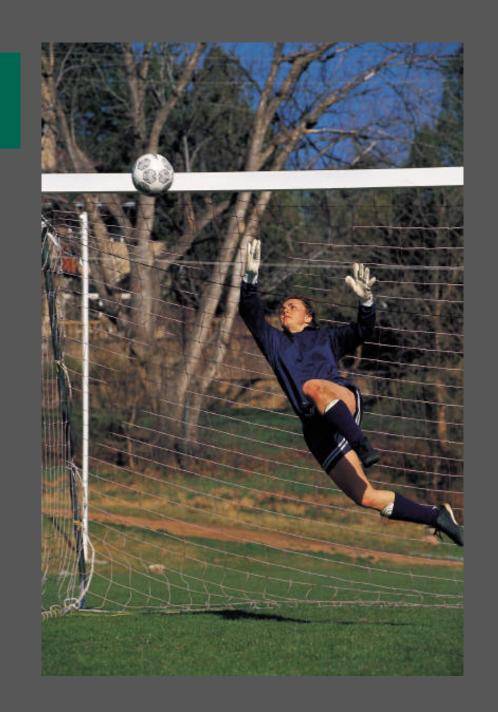
### Why does artificial turf elicit such alarm?

- Risk-amplifying factors (Ropeik 2002):
  - Not natural, a recycled waste product
  - Externally imposed
  - Affects personal sphere, esp. children
- Post-trust era, cognitive bias
- Strongly established narrative
  - List of WSU soccer players (esp. goalies)
    with cancer (news and social media)
- Hazard vs. Risk



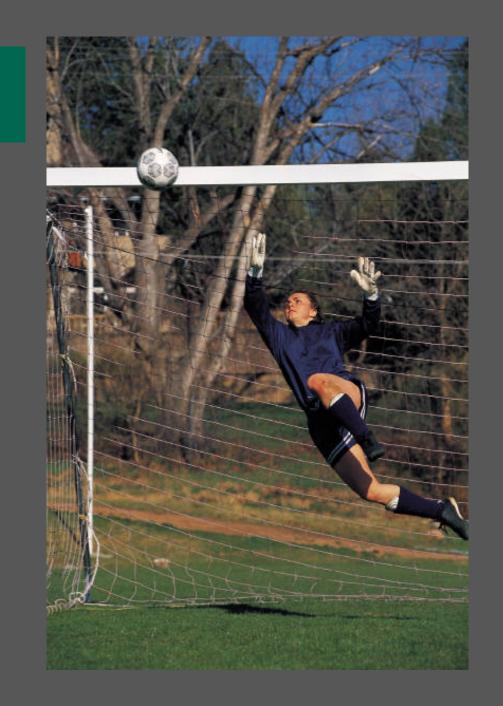
### What does the research say?

- Human Health Risk Assessments (HHRAs)
  - Multiple pathways, multiple receptors
  - Designed to be highly conservative
- Downsides:
  - Theoretical
  - Require **trust** in expert judgement
- HHRA Summary on Artificial Turf page
  - Bit.ly\artiturf



# What do the HHRAs say?

- No indication of public health concern for single/multiple chemicals, in children or adults.
- Excess lifetime cancer risk:
  - No estimate approaches maximum acceptable risk
- Non-cancer hazard:
  - In some, child spectators approach an HI of 1
- Critically... turf fields same or better than natural turf fields impacted by urban pollution (Peterson et al. 2018; Ruffino et al. 2013).



### What about epi studies?

- Washington State Department of Health:
  - Investigated the WSU list of soccer players
  - Cancers among the people on the list were actually less frequent than what is expected for the state.
- Ecologic study (Bleyer & Keegan 2018):
  - ATs have increased over time, lymphoma incidence has not in 58 Californian counties
  - No relationship between local density of ATs and malignant lymphoma.



#### What NEW research is coming out?



- Federal Research Action Plan (FRAP)
  - EPA, CDC, ATSDR, CPSC
  - Literature review 🗸
  - Part I: Characterization 🗸
  - Part II: Exposure Assessment (with biomonitoring?)
- California OEHHA:
  - Same idea

These large-scale studies will refine HHRA assumptions, but will not generate new risk estimates!

#### Will these new data solve our decision problem?

- The FRAP and OEHHA studies will greatly reduce uncertainty in future HHRAs.
  - No more uncertainty factors -> estimates decrease.
  - Need to add other uncertainty factors  $\rightarrow$  may increase.
  - Overall, may NOT be markedly different.
- Is another HHRA really going to answer what role artificial turfs should play in our communities?

#### Information bias is the mind-killer



- Holding off on a decision in the hopes that more information will make it easier.
- The real gap: community-level impacts of sports fields on physical activity and health
- How does the choice of playing field affect:
  - # people exercising (duration, frequency)?
  - Types/rates of injuries?
  - How much play can certain field types handle?
  - Model the effect of total permitted playing fields on obesity, diabetes, CVD.

### Risk Communication and Management



- 1. Bring it to the people
- 2. Engage the community in meaningful abatement activities
- 3. Promote hand hygiene, all the time and everywhere



Health: toxicology, injuries, heat, abrasions, microbes vs. physical activity benefits against obesity & cancer

What type of playing surface is going to meet our communities needs?



Meeting the demand for play space



Operations: cost, water, fertilizer, climate



Climate Goals: carbon credits & emissions



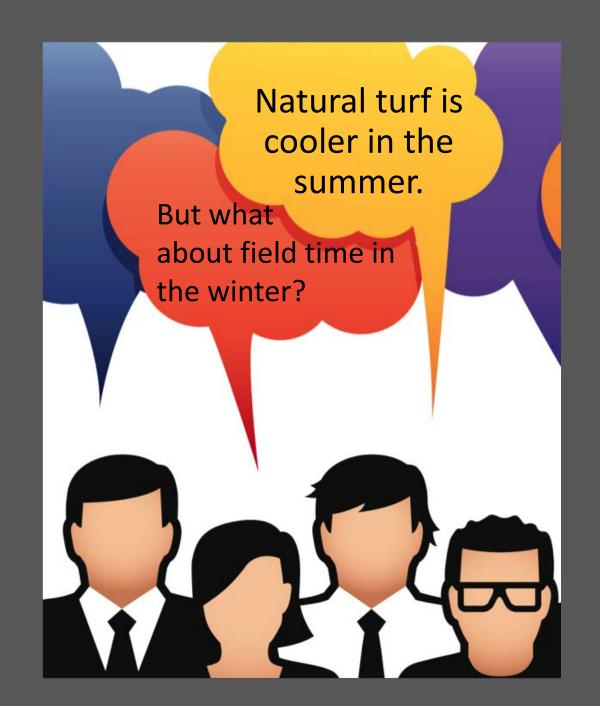
Resilience: floods, fires, & urban heat islands

#### Bring it to the people

 Methods: health impact assessment or integrated impact assessment (www.ncchpp.ca)

#### Benefits:

- Solicits public input
- Addresses misinformation
- Work through the tradeoffs together



#### Engage in Meaningful Abatement Activities



Reducing chemical exposures is hard work!

- Re-direct public interest toward abatement activities that are relevant to that community:
  - Arsenic in well water
  - Radon in indoor air
  - Smoking
  - UV protection while playing soccer!

# Hand hygiene, all the time & everywhere!



- CPSC: artificial turf is not a health risk, but wash your hands anyway.
- Needed some expanded context:
  - Urban soils contain metals and PAHs
  - Biohazards: geese, other animals
  - Player-to-player transmission

 Readily accessible hand-washing stations on all soccer pitches.



# National Collaborating Centre for Environmental Health



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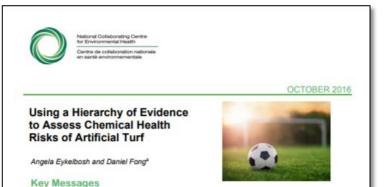
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New paper in Environmental Health Review in January 2020.

# More Artificial Turf Resources at: bit.ly\artiturf

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Production of this presentation has been made possible through a financial contribution from the **Public Health Agency of Canada**.

