

# Synthetic playing fields for sports may pose increased risk of concussion in youth

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While rules and playing equipment in sports have changed over time, one area of sports safety that remains largely unexplored is the playing surface itself. In new research presented during the 2022 AAP National Conference & Exhibition, researchers found that concussion risk may be higher for athletes playing on synthetic turf fields compared with natural grass.

While synthetic turf [football](#) fields are increasing in popularity due to lower maintenance costs, they have also been associated with more ankle and [knee injuries](#), said the paper's author, Ian Chun, a third-year medical student at the University of Hawai'i. He will present his research during a presentation called, "Impact Force Differences on Natural Grass Versus Synthetic Turf Football Fields."

"Injuries in [sports](#) have always been an accepted consequence of play and competition but in recent years the national discourse around sports safety has changed," said author Ian Chun. "Armed with injury prevention strategies and better engineered safety equipment, sports continue to be exciting for players and audiences with the added benefit of better health outcomes for our athletes. The emphasis on player safety is especially important for children as injuries sustained in developing adolescence may have longer-term impacts and unforeseen consequences."

Chun compared the hardness of natural grass or synthetic turf high school football fields by attaching sensors to a manikin that could measure the rate of deceleration as it hit the ground and compared the decelerating force between fields. He found that synthetic turf football fields had a greater impact deceleration compared to natural grass fields, presenting an increased risk of [injury](#) due to contact with the playing surface. While more research is needed to assess all the risks of different playing surfaces, this could help guide sports management decisions and create safer playing environments, he said.

Chun conducted his tests on school playing fields in Oahu, Hawaii, and acknowledged the Hawai'i Department of Education for its support on the project.

"Our findings show that when we consider safety in sports, we need to widen our view to include the spaces where we play," Chun said.

**More information:** Impact Force Differences on Natural Grass Versus Synthetic Turf Football Fields, 2022 American Academy of Pediatrics National Conference & Exhibition

Provided by American Academy of Pediatrics

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