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Research in College and NFL Athletes Links Early Sports Specialization to Higher Injury Rates
Repetitive stress from single sport increases risk of hip problems and surgery in young adulthood

NEW ORLEANS (March 2, 2026)—New research presented at the 2026 Annual Meeting of the [American Academy of Orthopaedic Surgeons](#) (AAOS) studied college and National Football League (NFL) players to determine the long-term impact of early, single-sport specialization on injury risk. The studies showed that repetitive stress from focusing on one sport from a young age can have negative, lasting effects on the musculoskeletal system, potentially making them more prone to hip dysfunction, reduced function, and surgical intervention in young adulthood.

Early Specialization and Hip Health in College-Age Athletes

Michael C. Willey, MD, FAAOS, served as lead investigator for the study, "[Early Specialization in Youth Sports is Associated with Hip Pain and Surgical Treatment in College-Age Athletes.](#)"

"We noticed many young patients with hip dysplasia or femoroacetabular impingement (FAI) had participated in year-round impact sports like gymnastics, dance, soccer and basketball," said Dr. Willey, orthopaedic surgeon at University of Iowa Health Care. "During critical growth years, the developing hip is highly sensitive to repetitive loading, especially in sports with deflection or instability events. Over time, this can cause the hip socket to remodel to accommodate the abnormal impingement. While this may be asymptomatic early on, it can lead to impingement, labral tears, cartilage damage and even early arthritis later in life."

To evaluate the long-term musculoskeletal impact of youth sports specialization, specifically injuries and mental health status in college-age young adults, researchers surveyed college students aged 18 to 22 years from five universities. Participants reported sports participation and specialization between ages eight to 14, musculoskeletal injuries and treatments, physical and mental health and current sport participation and level. Hip and pain function were assessed using the International Hip Outcomes Tool (IHOT).

Of the 1,018 respondents, 375 (37%) reported discontinuing other sports to specialize in one primary sport. Baseball/softball, basketball, soccer, track/cross-country and volleyball were the most common primary sports.

Key findings included:

- Youth athletes who specialized early were more likely to have hip/groin pain (62.7% vs. 53.3% $p = 0.0035$) and more likely to quit their primary sport entirely due to injury (68.0% vs. 55.4%, $p < 0.0001$).
- Female athletes had a higher rate of hip/groin pain than males (58.6% vs. 49.8%), as well as higher rates of non-surgical treatment (57.5% vs. 44.7%) and surgical treatment (6.1% vs. 2.0%) for hip conditions.
- Among participants with hip or groin pain, early specialization was associated with higher rates of surgical treatment (21.3% vs. 12.4%, $p = 0.0328$), most commonly hip arthroscopy, which was reported in 39 participants.
- Early specialization was associated with lower iHOT scores, indicating worse hip pain and function ($p = 0.0005$). It was not associated with non-hip orthopaedic surgeries and did not result in lower mental health ratings.

Injury Risk in the NFL: The Value of Multi-Sport Participation

Since early sports specialization is often adopted by youth athletes in pursuit of collegiate scholarships and professional careers, researchers studied injuries among NFL athletes to determine whether early sports specialization during high school was associated with increased likelihood of orthopaedic injuries among NFL athletes.

Gnaneswar Chundi, third-year medical student at Rutgers New Jersey School of Medicine, led a retrospective study, "[Early Sports Specialization Is Associated with Increased Orthopaedic Injury Incidence in NFL Athletes](#)," which analyzed a cohort of 2,556 NFL players drafted between 2011 and 2023. Athletes were categorized as either multi-sport (participation in at least one additional varsity sport besides football) or single sport (football only). Orthopaedic injury data, including total injuries and major injuries (defined as ≥ 4 missed games or Injured Reserve placement), were obtained from ESPN and ProSportsTransactions.com.

To account for differential career exposures, injury incidence was calculated per 1,000 career snaps. Poisson regression, with an offset for snap count, was used to compare injury incidence rate ratios (IRRs) between groups. Sensitivity analyses were performed across draft rounds and positions.

Key findings included:

- Multi-sport athletes demonstrated significantly lower rates of total injuries (1.113 ± 1.655 vs. 1.565 ± 2.201 per 1,000 snaps, $p < 0.001$) and major injuries (0.849 ± 1.498 vs. 1.238 ± 1.885 , $p < 0.001$) compared to their single-sport counterparts.
- Poisson regression was associated with a 20% reduction in total injury incidence [IRR 0.801, 95% control incidence (CI) 0.757–0.849, $p < 0.001$] and a 23.5% reduction in major injury incidence (IRR 0.765, 95% CI 0.714–0.818, $p < 0.001$) in multi-sport athletes. These differences were consistent across most position groups, except for quarterbacks and offensive linemen.
- No significant difference was found between draft round and injury rate.

"These findings suggest that encouraging young athletes to diversify their sports participation may help reduce injury risk and improve long-term musculoskeletal health," said Chundi. "This has important implications, especially as year-round training is often required of athletes for a specific sport. Athletes, parents, coaches and athletic trainers all need to be aware of these risks."

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2026 AAOS Annual Meeting Disclosure Statement

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