

# Concussion research

- [Quantification of the cerebral pressure-flow relationship directional sensitivity: Reliability of shorter repeated squat-stand durations](#)
- [A Comparison of Quantitative Pupillometry and VOMS in Division 1 Female Soccer Players](#)
- [The national football league concussion settlement race-norming incident in context](#)
- [Acceptability of a Brain-Injury-Tailored Yoga and Meditation Program Among Female Patients with Concussion](#)
- [The Diagnostic and Prognostic Role of Biomarkers in Mild Traumatic Brain Injury: An Umbrella Meta-Analysis](#)
- [Neurobiology of Chronic Pain, Posttraumatic Stress Disorder, and Mild Traumatic Brain Injury](#)
- [Application of Electroencephalography \(EEG\) in Combat Sports-Review of Findings, Perspectives, and Limitations](#)
- [Investigating Persistent Sympathovagal Dysregulation Following a Complex Dual Task in Concussed Athletes](#)

## Future Directions in Concussion Research

[Machine Learning](#) & AI: [Predictive models](#) for concussion recovery and [risk stratification](#).

[Helmet](#) & Equipment Innovations: Advances in protective gear for contact sports.

[Personalized Medicine](#): Genetic factors influencing concussion susceptibility and recovery.

Blood-Based [Biomarkers](#): Routine sideline testing for real-time concussion diagnosis.

Longitudinal Studies: Investigating long-term [cognitive](#) and psychological effects.

The aim is to develop an age-appropriate definition of [sport](#) and [exercise](#) in [children](#) and [adolescents](#) for use in [concussion management](#) and [concussion research](#).

A modified [Delphi](#) methodology, with three rounds and [consensus](#), defined a priori as  $\geq 80\%$  agreement.

Thirty-one participants (13 male, 18 female) from 13 countries, including clinical psychologists, epidemiologists, implementation scientists, neurologists, neuropsychologists, neurosurgeons, pediatric emergency physicians, pediatricians, physiotherapists, rehabilitation physicians, speech-language pathologists, and sports medicine physicians came to a consensus that sport-related pediatric concussion extends beyond the sporting arena, and includes the school yard, playground, park, street, recreational site, and home; excludes non-accidental violence, assault, and passenger vehicle road trauma; may include falls; and age-group terminology includes Toddlers and Young Children (1-4 years), Children (5-12 years), and Adolescents (13 to < 18 years). Sport and exercise categories and individual examples are provided.

This consensus [definition](#) of sport and exercise in pediatrics for concussion research and management will enable researchers and guideline development groups to expand [pediatric concussion](#) research and management guidelines to encompass the broad range of activities commonly associated with sport- and exercise-related concussion in children and adolescents and thus limit exclusion of relevant studies from systematic reviews and guideline development <sup>1)</sup>.

The [study](#) provides a much-needed standardized definition of sport and exercise in pediatric concussion research, ensuring that relevant activities are included in future guidelines—however, the lack of empirical validation and potential overgeneralization warrant further investigation. Future research should focus on testing this definition in real-world concussion management and surveillance programs. Additionally, addressing socioeconomic and cultural variations in how children engage in exercise and play could enhance the definition's applicability across diverse [populations](#)

1)

Davis GA, Anderson N, Babl FE, Ballard DW, Barlow KM, Barrett MJ, Beauchamp MH, Borland ML, Bressan S, Crowe L, Chong SL, Corwin DJ, Dalziel SR, Emery CA, Fauteux-Lamarre E, Gioia GA, Haarbauer-Krupa J, Kirkwood MW, Löllgen RMC, Master CL, McKinlay A, Olver J, Mintegi S, Pavlicich V, Purcell L, Raman R, Rino P, Suskauer SJ, Shavit I, Tavender EJ, van Ierssel J, Yeates KO, Zuckerman SL, Anderson V. International Consensus Definition of 'Sport & Exercise' in Toddlers and Young Children, Children, and Adolescents. *Acta Paediatr*. 2025 Feb 17. doi: 10.1111/apa.70013. Epub ahead of print. PMID: 39962915.

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

[https://neurosurgerywiki.com/wiki/doku.php?id=concussion\\_research](https://neurosurgerywiki.com/wiki/doku.php?id=concussion_research)

Last update: **2025/02/19 07:58**

