



NEW RESEARCH CONFIRMS WHAT **HOOPS 4 HEALTH** HAS BUILT OVER **30 YEARS**





A major international research paper released in 2025 is adding strong scientific weight to something community practitioners in Northern Australia have known for decades: **When sport is structured, relational, and culturally grounded, it can reduce aggressive behaviour in young people living with trauma and disadvantage.**

18

Controlled
Intervention Trials

2,479

Children &
Adolescents

13

Different Countries
Represented

The study led by public health researchers Hongpeng Zhao and Yi Wang from the School of Exercise and Health at Shenyang Sport University, and published as a large systematic review and meta-analysis, brought together evidence from **18 controlled intervention trials** involving **2,479 children and adolescents**. The 18 intervention studies were conducted across **13 different countries**, including Australia, China, the United States, and several European and Asian nations, capturing a wide range of cultural, educational, and social contexts. The findings were published in **BMC Public Health**, a leading international, peer-reviewed public health journal published by Springer Nature. Rather than asking whether exercise is “good” in a general sense, the researchers focused on a more practical question: which types of programs lead to measurable behavioural change, and for whom.

To answer that, the authors screened thousands of papers and included only studies that **tested structured physical activity as an intervention, comparing participants against non-exercise or usual-activity groups**. Aggressive behaviour was measured using validated psychological tools commonly used in youth mental health and behavioural research. Because the studies differed in sport type, delivery style, and participant background, the researchers used a **random-effects meta-analytic model**, a method designed to identify repeatable patterns across real-world variability rather than relying on a single setting or program.

WHAT EMERGED WAS A CLEAR AND CONSISTENT SIGNAL.

When results from all 18 studies were combined, individual findings were first standardised by expressing each program's effect as the difference between intervention and control groups, scaled by the pooled variability within that study, allowing outcomes measured on different scales to be validly compared. Using this approach, structured exercise programs were associated with a statistically significant reduction in overall aggressive behaviour, with a pooled effect size of **SMD (Standardized Mean Difference) -0.55** (95% confidence interval -0.89 to -0.21), indicating a **moderate and reliable behavioural shift** rather than a marginal change. When examined more closely, similarly meaningful reductions were found in **physical aggression (SMD -0.56)**, **anger (SMD -0.45)**, and **hostility (SMD -0.46)**, with all confidence intervals excluding zero, meaning that the exercise programs produced a real reduction in these behaviours, not just random variation. Verbal aggression did not show a significant reduction in the studies, which is important to interpret carefully. This does **not** mean young people remained emotionally unregulated or unchanged. Swearing, loud language, or verbal bravado may persist as cultural or social expressions, particularly in adolescents and justice-involved youth, even as underlying emotional regulation improves. The strongest effects of the exercise programs were seen in **physically expressed aggression, anger, and hostility**, behaviours more closely linked to stress reactivity, impulsive action, and trauma-related dysregulation. In practical terms, young people may still "sound rough" while being less reactive, less physically aggressive, and better able to pause, recover, and make safer decisions.

What gives these findings particular weight is their **scale**. The results represent **patterns repeated across thousands of young people**, in different countries, sports, and delivery models. By pooling outcomes from many independent trials, the meta-analysis reduces the influence of chance results or local factors and highlights effects that occur again and again. This is why **large meta-analyses** are often treated as one of the strongest forms of evidence in applied behavioural and health science.

The study also looked beyond averages to understand why some programs worked better than others. Larger reductions in aggression were consistently linked to **group-based delivery, team sports, programs run over 8–16 weeks, and sessions lasting 30–60 minutes.** Crucially, the biggest improvements were seen in **young people who entered programs with higher levels of aggression.** In other words, those facing the greatest challenges showed the greatest change.





THESE FINDINGS CLOSELY MIRROR THE LONG-STANDING MODEL USED BY HOOPS 4 HEALTH.

Hoops 4 Health has been operating across Northern Australia for more than **30 years**, working with young people affected by trauma, family disruption, justice involvement, and social exclusion. As a **First Nations–led organisation**, H4H blends the lived experience of its mentors with leading-edge trauma-informed neuroscience. Since 2010 alone, the organisation has recorded more than **10,000 participant touchpoints**, each representing a moment of connection, regulation, and learning.

While basketball is often the visible entry point, Hoops 4 Health has never been about sport for sport's sake. The program draws on **First Nations leadership principles** and the **Neurosequential Model of Therapeutics**, developed by Dr Bruce Perry, which recognises that behaviour is shaped by experience and that healing occurs through **relationships, rhythm, and regulated physical challenges**.

As Founder Timmy Duggan OAM explains, the work is intentional:



"Using a trauma and culturally informed approach in our engagement with young people is significant to us making an impact. The ability to reflect and regulate to make decisions, and using stress to build resilience, is a key component of our session delivery. It just so happens we also use a basketball to interact and give some life lessons."

Based on **Larrakia Country** in the Northern Territory, Hoops 4 Health delivers programs weekly in the **Don Dale Youth Detention Centre**, across rehabilitation facilities, and within adult prisons in **Darwin and Alice Springs**, as well as in schools and remote communities across Northern and Central Australia.

The reality is that Aboriginal and Torres Strait Islander young people are overrepresented in the youth justice system, and that rates of adverse childhood experiences and trauma exposure are disproportionately high.

This is the context highlighted by the 2025 research. The study shows that group-based, structured programs are most effective for young people with higher levels of aggression, a pattern consistent with developmentally informed and trauma-aware approaches. This offers great promise for reducing aggression and supporting safer communities. Punitive responses alone do not address the underlying drivers of behaviour. Healing-centred, relational approaches do.



Sport, when delivered intentionally, is uniquely suited to this task. It naturally combines **movement, structure, relationships, and competence-building**. Within Hoops 4 Health sessions, young people are supported to move their bodies, regulate stress, practise decision-making, and rebuild trust often without needing words. The body leads, the brain follows.



The new research does not point Hoops 4 Health in a new direction. It independently confirms the value of a model that has been refined over decades. As the evidence base continues to grow, the message is becoming clearer: when sport is grounded in culture, delivered with consistency, and guided by an understanding of trauma and development, it can be a powerful force for change.

FOR HOOPS 4 HEALTH, THE SCIENCE IS SIMPLY CATCHING UP WITH PRACTICE.

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REFERENCE

Zhao, H., & Wang, Y. (2025). Effects of physical exercise on aggressive behavior in children and adolescents: A systematic review and meta-analysis. *BMC Public Health*, 25, Article 25267.
<https://doi.org/10.1186/s12889-025-25267-7>

