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The prospective contribution of sport and active leisure to student academic and psychosocial success from kindergarten to high school

Background: The purpose of this research is to establish a better understanding of childhood extracurricular sport as a protective factor, defined as purposeful leisure physical activity with a coach or instructor in middle childhood, on youth development. In line with the positive youth development model, recent community health approaches promote the idea of purposeful and organized exercise as medicine for several childhood ailments characterized by emotional distress, attention deficit/hyperactive, and academic disengagement symptoms. If viewed as a treatment, sporting activities with coaches and instructors demand and reward the same comportment that is sought from behavior therapy. Both sport and behavior therapy are based on the premise that all behaviors are learned, and that less adaptive or less effective behaviors can be modified with mindful effort and practice. Both interventions also focus on current goals and how to modify problem behavior to engage in more optimal behavior or performance.

Objective: We use a stratified provincial birth cohort to examine prospective associations between extracurricular sport participation, between the kindergarten and fourth grade, and subsequent bio-psycho-social adjustment. Most analyses are stratified by sex. We compare consistent versus inconsistent/rare participation.

Main exposure: Mothers reported on whether the child participated in sports or organized physical activities with a coach/instructor from ages 6 to 10 on an annual basis.

Main outcomes: Teacher-, parent-, and self-reported indicators of bio-psycho-social health at age 12.

Findings: We have generated eight papers so far, *which are either first-authored or co-authored by a total of eight graduate students*: Consistent participation in organized participation in organized physical activity predicts (1) more psychological adjustment (Fred Brière et al., 2018), (2) reductions in emotional distress (Fred Brière et al., 2019), and (3) better behavioral adjustment in children (Ariane Imbault et al., revised and resubmitted). (4) Prospective associations between participation in leisure-time physical activity at age 6 and academic performance at the beginning of adolescence (Daniela Gonzales et al., 2019). (5) Subsequent beneficial effects of middle childhood sport participation on ADHD symptoms for girls at the beginning of adolescence (Linda Pagani et al., 2020); (6) Sporting activity as both predictor and outcome of emotional distress trajectories in middle childhood for boys (Marie-

Josée Harbec et al., 2021); (7) Subsequent beneficial effects of middle childhood sport participation on classroom engagement for boys at the beginning of adolescence (Marie-Josée Harbec et al., in press); and finally, (8) subsequent beneficial effects of middle childhood sport participation on healthy weight indicators and explosive strength for boys (Laurie-Anne Kosak et al.). *Two doctoral dissertations have emanated from this work (Gonzales and Harbec).*

Conclusions: Although our results cannot imply causality, the observed prospective associations were adjusted for potential baseline and pre-existing confounds. As such, the prospective statistical modelling helped isolate the predictive power of middle childhood physical activity, through extracurricular sport. Overall, our findings suggest that *(1) children with specific vulnerabilities during early childhood are less likely to participate in subsequent extracurricular sport and (2) early and sustained involvement in extracurricular sport throughout middle childhood is beneficial for the subsequent behavioral development of youth, with sex specific associations, depending on the assessed outcome.* Current guidelines for physical activity recommend that young children should be exploring and developing fundamental movement skills. Sporting activities offer such opportunities. Thus, middle childhood participation in structured sport opportunities with a coach or instructor from the beginning of primary school may thus represent a valuable policy strategy to promote youth development in communities.