

Applied Health Sciences Research Question:

What is the effect of aerobic exercise on attention in adolescents with ADHD?

Matrix			
	Pontifex, Saliba, Raine, Picchiatti, & Hillman, 2013	Source #2	Source #3
Study Design	Within-participants design that compared performance on test between 2 conditions: bout of exercise vs. seated reading. Collected data on 2 separate occasions.		
Variables Measured	<ul style="list-style-type: none"> Task performance (median reaction time & response accuracy) Event-related potentials (P3 & ERN-error related negativity) Academic performance 		
Measurement Methods	<ul style="list-style-type: none"> Task performance: modified Eriksen flanker task (press button with left thumb if fish points left; press button with right thumb if fish points right; second condition: press button opposite of direction of fish; 100 trials) ERP (Neuroscan Synamps 2 amplifier) Academic performance (Wilde Range Achievement test 3rd ed.) 		
Participant Characteristics	<ul style="list-style-type: none"> ADHD group: 20 (6 female) age 8-10 Healthy match control: 20 (6 female) same SES, age, sex, pubertal status 		
Results	<ul style="list-style-type: none"> Both groups had greater response accuracy after exercise Both groups larger P3 amplitude following exercise vs. reading ERN the same for both groups after exercise Both groups better academic performance following exercise 		

Applied Health Sciences Research Question:

What is the effect of aerobic exercise on attention in adolescents with ADHD?

Matrix			
	Pontifex, Saliba, Raine, Picchiatti, & Hillman, 2013	Source #2	Source #3
Significance	<ul style="list-style-type: none"> Single bouts moderate aerobic exercise might help treat ADHD without drugs Findings support hypoarousal model of ADHD: attentional deficits might be because of under arousal of CNS in ADHD since ADHD scored lower on all variables overall tasks requiring inhibitory control require more attentional resources, so ADHD performed lower than healthy, but exercise helped ADHD allocate resources 		
Limitations	20-min bout of exercise, so unsure of how long these changes last after exercise		
Gaps or Weaknesses	<ul style="list-style-type: none"> Small sample Restricted to children 8-10 years of age 		
Strengths	<ul style="list-style-type: none"> Within-participants design to limit individual variations 		

References

Pontifex, M. B., Saliva, B. J., Raine, L. B., Pichiatti, D. L., & Hillman, C. H. (2013). Exercise improves behavioral, neurocognitive, and scholastic performance in children with ADHD. *Journal of Pediatrics*, 162(3), 543-551. doi: 10.1016/j.jpeds.2012.08.036