

Physical activity and sedentary behavior predicting cognitive and academic performance

Results from the ALOUD study

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Earlier findings and mechanisms

PHYSICAL ACTIVITY → GROWTH FACTORS → NEURO-GENESIS → PLASTICITY → LEARNING PERFORMANCE
 GROWTH FACTORS → ANGIO-GENESIS → PLASTICITY → COGNITIVE PERFORMANCE

Barenberg, Berse, & Dutka, 2011

Background | Design | Research | Conclusion

Earlier findings and mechanisms

SEDENTARY BEHAVIOR → ? → LEARNING PERFORMANCE
 SEDENTARY BEHAVIOR → ? → COGNITIVE PERFORMANCE

Busch et al., 2014
Lubans et al., 2016

Background | Design | Research | Conclusion

Overview of the ALOUD study

START SUBSCRIPTION → PHYSICAL ACTIVITY / SEDENTARY BEHAVIOR → COGNITIVE PERFORMANCE

14 MONTHS

LEARNING PERFORMANCE

END SUBSCRIPTION

Background | Design | Research | Conclusion

Participants

4945

Background | Design | Research | Conclusion

Participants

2842

Background | Design | Research | Conclusion

Participants

THE ALOUD STUDY

2040

Background | Design | Research | Conclusion

Participants

THE ALOUD STUDY

933

Background | Design | Research | Conclusion

Prediction of cognitive performance

Outcome variable	β PA	β SB
Updating (NBT)	.004	.009
Shifting (TMT)	.019	-.028
Processing speed (ST)	-.027	.064**

Controlled for significant confounders: age, computer behavior, nationality, and mother tongue.

Background | Design | Research | Conclusion

Prediction of learning performance

Predictor variable	β
Physical activity	>.065
Sedentary behavior	-.170**

Controlled for significant confounders: age, educational level, and mother tongue.

Background | Design | Research | Conclusion

Conclusion

- Students who report more sedentary time perform better on:
 - processing speed
 - academic performance
- Explanations?

Background | Design | Research | Conclusion

References (DOI's)

Data paper on the ALOUD study: 10.1111/bjjet.12288

Research papers on this study: 10.1016/j.lindf.2016.06.021, 10.3389/fpsyg.2016.00642

Full references are in the notes (see hand-outs)

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