

Doctor of Physical Therapy

Exercise: Prophylactic or Trigger for Pediatric Migraine Symptoms?

Sarah Luksik BS¹; Miranda Sutton BS¹; Anne Jack BS¹; Chris King PhD²; Corey Simon DPT, PhD¹

¹ Doctor of Physical Therapy Division, Duke University, Durham, NC; ²Department of Anesthesia, Cincinnati Children's Hospital, Cincinnati, OH

Background

- Children and adolescents with migraines are limited in school, hobbies, and physical activities and have reduced quality of life
- While clinical recommendations call for exercise and physical activity, few are based on scientific evidence

Purpose

- To critically appraise the literature relevant to effects of exercise on pediatric migraines
- To determine whether exercise is detrimental, helpful, or if there is a dose-response relationship in respect to exercise's effect on pediatric migraine symptoms

Conclusions

- Future research is needed to clarify the role exercise plays in either preventing, alleviating, or triggering migraines in children
- It is unclear whether migraine symptoms prevent children from participating in physical activity or if low levels of physical activity trigger migraines
- It is unknown if physical activity has a direct effect on pediatric migraines and/or an indirect effect based on reduced BMI and improved health
- More research is needed to clarify the doseresponse relationship of exercise's effects on pediatric migraine symptoms
- Problem includes cross-sectional study designs

Methods

- MedLine, EMBASE, Web of Science, ProQuest Dissertations & Theses, ClinicalTrials.gov
- Included studies from the years 1997-2017
- 19 years of age or younger
- Migraine diagnosis not due to trauma/ concussion
- Exercise as intervention for/in association with pediatric migraine
- · 827 articles
- Six of which met inclusion criteria

SEARCH YIELDED

DATABASES

REVIEWED

INCLUSION

CRITERIA



Clinical Relevance

- Future research is needed to guide clinicians in exercise prescription for children experiencing migraine
- To effectively guide clinicians, future research must employ prospective research designs to elucidate the influence of exercise on pediatric migraine

Results

Trigger

Exercise is associated with increased migraine frequency³

Prophylactic

Participating in exercise decreased migraine symptoms⁴ ⁵

Prophylactic

Those with low exercise levels experience greater migraine frequency than their more active peers⁶ ⁷ ⁸

Quality

All studies displayed moderate to high levels of bias according to QUIPS analysis

References

³ Robberstad, L., et al. (2010). "An unfavorable lifestyle and recurrent headaches among adolescents: the HUNT study." Neurology.

⁴ Hainsworth, K. R., et al. (2014). "A pilot study of yoga for chronic headaches in youth: promise amidst challenges." Pain Manag Nurs

⁵ Verrotti, A., et al. (2012). "Obese children suffer more often from migraine." Acta Paediatrica ⁶ Bektas, O., et al. (2015). "Relationship of childhood headaches with preferences in leisure time activities, depression, anxiety and eating habits: A population-based, cross-sectional study." Cephalalgia

⁷Dooley, J. M., et al. (2006). "Activity levels among adolescents with migraine." Pediatric Neurology

⁸ Walter, S. (2014). "Lifestyle Behaviors and Illness-Related Factors as Predictors of Recurrent Headache in US Adolescents." J Neurosci Nursing

Acknowledgements

We would like to thank Emily Mazure and Leila Ledbetter for assisting us with our literary search

