

Does increased exercise decrease migraine?



Colourbox

Disclosure

I have no actual or potential conflict of interest in relation to this presentation

Exercise and health benefits for all, WHO Key facts¹

- Health benefits for hearts, bodies and minds
- Prevent and manage noncommunicable diseases such as **cardiovascular diseases, cancer** and **diabetes**
- Reduces symptoms of **depression** and **anxiety**
- Enhances **thinking, learning,** and **judgment skills**
- Improves overall **well-being**
- People who are insufficiently active have a 20% to 30% increased risk of death compared to people who are sufficiently active.

¹WHO Key facts, oktober 2022

<https://www.who.int/news-room/fact-sheets/detail/physical-activity> (search date 2023-10-13)

WHO recommendations for physical activity¹

Aerobic exercise



Colourbox

At least **150 – 300 minutes** aerobic exercise at a **moderat intensity** per week
Or at least **75 – 150 minutes** aerobic exercise at a **vigorous intensity**

Strength training



Colourbox

For **additional health benefits**
Strength training at a **moderate or greater intensity** at least two days per week

¹WHO guidelines on physical activity and sedentary behaviour. Geneva 2020

Physical activity

“Physical activity/exercise performed during leisure time with the primary purpose of improving or maintaining physical fitness, physical performance, or health”

¹WHO guidelines on physical activity and sedentary behaviour. Geneva 2020

The relationship between physical activity and migraine

Cross-sectional studies

| Krøll et al. (2017) ¹ | Hagen et al. (2016) ² | Varkey et al. (2008) ³ |
|---|---|---|
| ► Low level of physical activity and increased prevalence of migraine and co-existing tension-type headache | ► Low VO ₂ peak and increased prevalence of migraine | Low level of physical activity and increased prevalence of migraine |
| OR 4.4 (1.6–11.7) | OR 3.7 (2.1–6.6) | OR 1.35 (1.2–1.5) |

¹Krøll et al. *J Headache Pain* (2017). ²Hagen K et al. *Cephalalgia* (2016). ³Varkey E et al. *Cephalalgia* (2008).

The effect of exercise on migraine

Umbrella review (Varangot-Reille et al.)¹

- Systematic review of systematic reviews with or without meta-analysis
- Applied standardised quality assessment tools
- Aerobic exercise, moderate strength of evidence for migraine frequency, limited strength of evidence for duration and pain, and unclear evidence for quality of life

¹Varangot-Reille et al. *Physical Therapy* (2022)

The effect of exercise on migraine

Clinical guideline with systematic review and meta-analysis (Beier et al.)¹

- Reviewed RCT-studies only and used standardised quality assessment tools
- Formed a weak recommendation for supervised physical activity as a non-pharmacological treatment for migraine
- Physical activity might have a positive impact on quality of life, very low certainty of evidence
- The recommendation was based on evidence, identified benefits and patient preferences

¹Beier et al. *Cephalalgia* (2021)

The effect of exercise on migraine

Clinical Practise Guideline (La Touche et al.)¹

- Reviewed different study designs using standardised quality assessment tools for different study designs
- Grade B recommendation for moderate-intensity aerobic exercise 3 times per week, likely to improve migraine frequency, might improve pain intensity, and remotely improve duration and quality of life
- Grade B recommendation for yoga, 3 times per week, likely to improve migraine frequency and disability, remotely improves pain and duration

¹La Touche et al. *J Headache Pain* (2023).

How can exercise affect migraine?

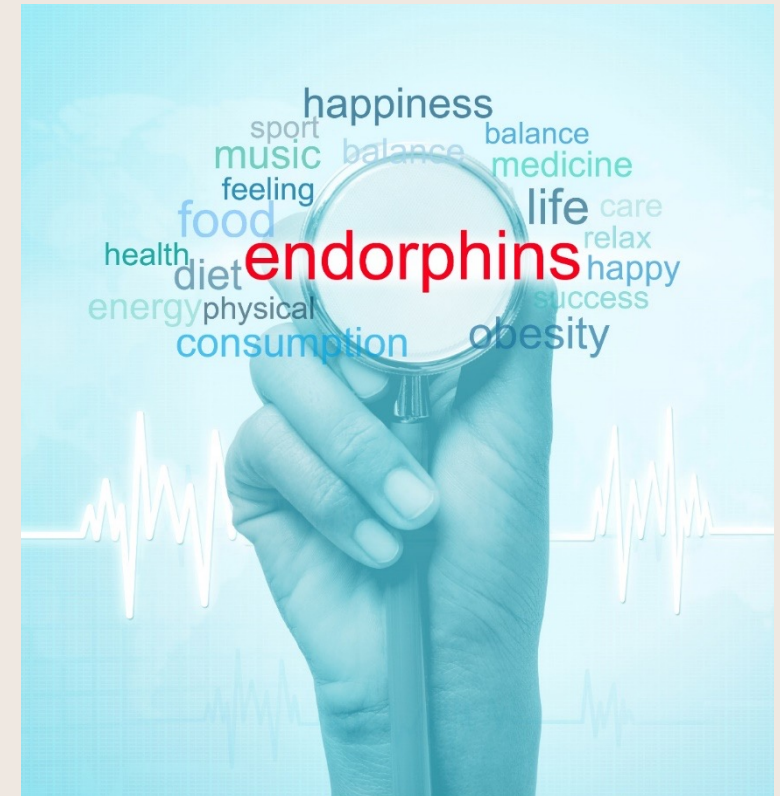
Aerobic exercise → widespread exercise induced pain reduction¹

Biological mechanisms not fully understood¹

Release of endorphins²

Exercise habitation → ↓ trigger threshold²

Aerobic exercise → ↓ has shown to reduce the negative impact of migraine on daily activities³



Colourbox

¹Rice et al. *Pain* (2019). ²Amin et al. *J Headache Pain* (2018). ³Krøll et al. *Eur J Pain* (2018).

Exercise – a migraine trigger?

Exercise improves well-being^{1 2}

Fear of pain may play a role in persons with migraine³ → avoidance of physical activity⁴

Exercise was reported as migraine trigger by 20%⁵

Experimental studies showed a higher proportion after max exercise-test, but most participants did not develop migraine^{6 7}



Colourbox

¹WHO. ²Krøll et al. *Eur J Pain* (2018). ³Black et al. *Headache* (2015). ⁴Adam & Turk *Curr Rheumatol Rev* (2016).

⁵Pellegrino et al. *Cephalalgia* (2018). ⁶Hougaard et al. *Neurology* (2013). ⁷Varkey et al. *Eur Neurol* (2017).

How to exercise when suffering from migraine?

- Physical activity should be promoted as sedentary behaviour may not prevent headache¹
- A sudden start at a high-intensity may trigger migraine²
- Graduated exposure to exercise^{1 3}
- Supervised physical activity⁴
- Flare up/pain aggravation at the beginning is normal but unpleasant but not dangerous^{3 5}



Colourbox

¹Ambrose & Golightly *Best Pract Res Clin Rheumatol* (2015). ²Varkey et al. *Eur Neurol* (2017).

³Woldeamanuel & Oliveira *J Headache Pain* (2022). ⁴Beier et al. *Cephalalgia* (2021). ⁵Rice et al. *Pain* (2019).

“*Start low and go slow*”¹

Start with an activity you are motivated for

Find a basic level

Use the degree of breathing for intensity level²

Progress slowly with ca 20% after some weeks

Plan B for bad periods (↓ 50%) - not stopping

Regularity is the key³

¹Ambrose & Golightly *Best Pract Res Clin Rheumatol* (2015).

²Krøll et al. *Cephalalgia* (2018).

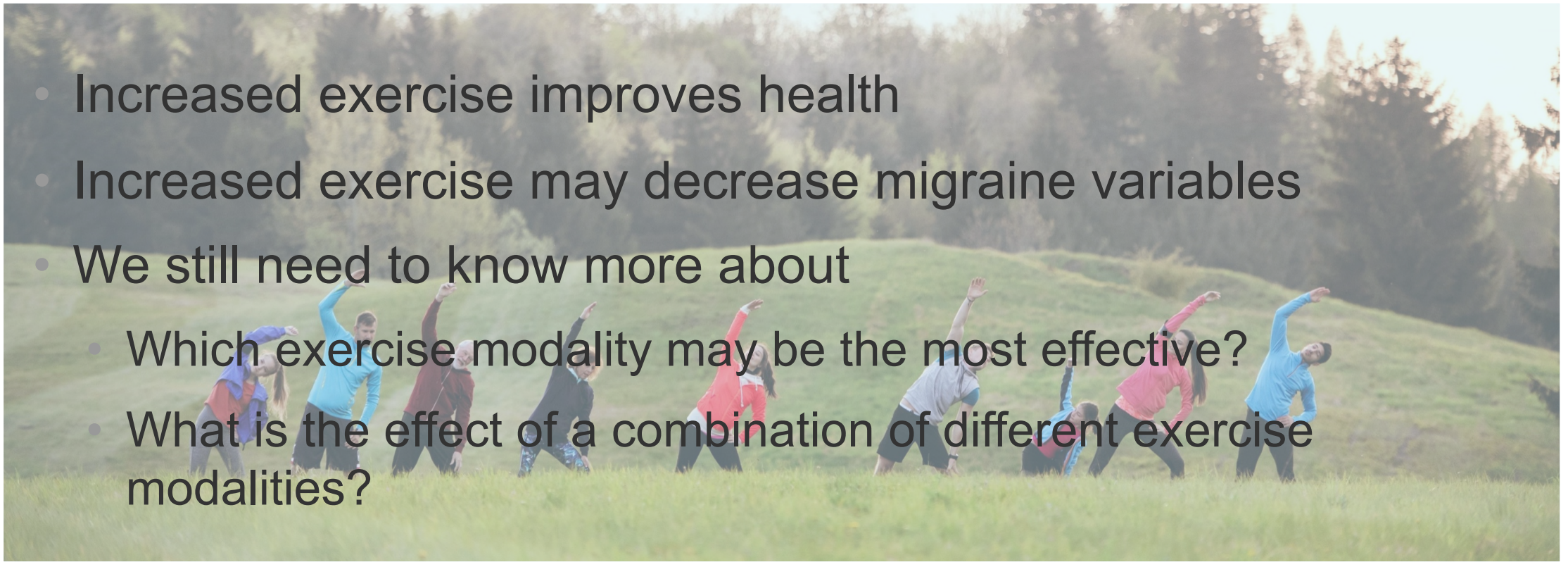
³Woldeamanuel & Oliveira *J Headache Pain* (2022)



Colourbox

Does increased exercise decrease migraine?

- Increased exercise improves health
- Increased exercise may decrease migraine variables
- We still need to know more about
 - Which exercise modality may be the most effective?
 - What is the effect of a combination of different exercise modalities?





Thank you