

# ASSOCIATION OF EXERCISE FREQUENCY AND TYPE WITH NECK PAIN INTENSITY: A QUANTITATIVE ANALYSIS IN OFFICE WORKERS

Aegerter AM<sup>1</sup>, Störi S<sup>1</sup>, Elfering A<sup>2</sup>, Melloh M<sup>1,3-5</sup>, Luomajoki H<sup>1</sup>, Johnston V<sup>6</sup>, Sjøgaard G<sup>7</sup>

1 ZHAW Zurich University of Applied Sciences, School of Health Sciences, Winterthur, CH  
2 University of Bern, Institute of Psychology, Bern, CH  
3 Victoria University of Wellington – Te Herenga Waka, Faculty of Health, Wellington, NZ  
4 Curtin University, Curtin Medical School, Bentley, WA, AUS

5 The University of Western Australia, School of Medicine, Perth, WA, AUS  
6 University of Southern Queensland, School of Health and Medical Sciences, AUS  
7 University of Southern Denmark, Department of Sports Science and Clinical Biomechanics, Odense, DK

## Background | Aim

The treatment guideline for neck pain recommends active therapy, including exercise. The aim of this study was to investigate how the frequency and type of exercise are associated with the intensity of neck pain.

## Methods | Design and Participants

This quantitative analysis is among a subset of our stepped-wedge cluster-randomized controlled trial “Neck exercise for productivity” (NEXpro).

Office workers from two Swiss organisations without severe neck problems were included (N=40). All office workers were asked to perform a 12-week exercise program (Fig. 1) in spring 2020 to reduce their neck pain.

## Methods | Variables and Statistics

Exercise frequency was quantified by the number of exercises performed, while exercise type corresponded to the number of both strengthening and non-strengthening exercises performed. Both numbers were measured by an application on participants’ digital devices.

Neck pain intensity was assessed before and after the intervention using the Numeric Rating Scale NRS 0-10. The difference was calculated, indicating a reduction in neck pain intensity.

A linear regression model was fitted to the data to estimate the association of exercise frequency and type with the reduction in neck pain intensity.

## Results

Forty office workers, ranging from 27.3 to 63.7 years (mean 44.9 years), participated in the study. 75% were women.

The mean neck pain intensity was NRS 2.8/10 before and NRS 1.8/10 after the intervention. The mean reduction in neck pain intensity was 1.3.

Over 12 weeks, participants completed an average of 225.0 exercises, comprising an average of 145.1 strengthening and 80.6 non-strengthening exercises.

No significant association was found with neck pain intensity for either exercise frequency (b=0.002, 95% CI from -0.003 to 0.007, p=0.38) or exercise type (strengthening: b=0.001, 95% CI from -0.007 to 0.009, p=0.75; non-strengthening: b=0.012, 95% CI from -0.001 to 0.026, p=0.07).

## Conclusion

After the intervention, the participants’ neck pain intensity was reduced.

However, participants who exercised more frequently and included strengthening exercises did not experience a greater reduction in neck pain intensity.

## Contact

✉ andrea.aegerter@zhaw.ch

☎ +41 58 934 67 91

www.zhaw.ch/gesundheit/nackenschmerzen

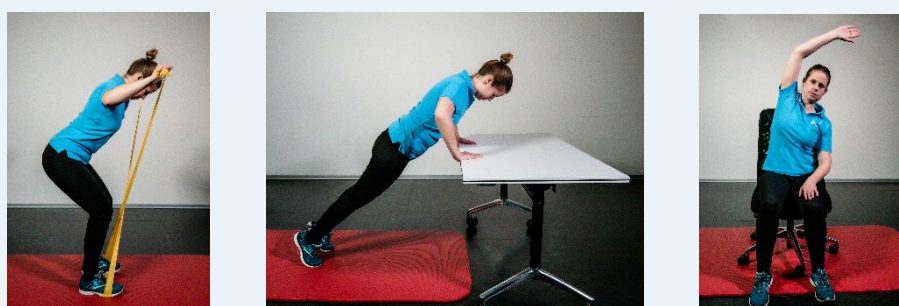


Fig 1: Examples of neck exercises

## References

Aegerter et al. 2020, doi: 10.1186/s12891-020-03388-x  
Racle Fotodesign, geschäftsfrau hat verspannungen im nackenbereich. Accessed 07.02.2022, stock.adobe.com (lic)