

Official Title: The Effect of Exercises on the Shear Wave Velocity of the Median Nerve and the 3rd FDS in Patients with Carpal Tunnel Syndrome

Brief Title: Effect of exercise on Ultrasound SWV in CTS Patients

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The Effect of Exercises on Shear Wave Velocity of the Median Nerve and 3rd FDS in Patients With Carpal Tunnel Syndrome

Before deciding whether to participate, it is important that you are informed about the study. Please take a few minutes to read this information carefully.

If you have any questions, contact

Assistant Jošt Peterca, MSc (jost.peterca@kclj.si, phone: 01 522 15 02).

The study aims to determine the effect of different exercise programs on the elasticity or stiffness of the median nerve and the tendon of the 3rd flexor digitorum superficialis muscle within the carpal tunnel. Carpal tunnel syndrome, or compression of the median nerve, is the most common peripheral nerve disorder. Mild cases are treated with wrist immobilization using a splint, moderate cases with corticosteroid or glucose injections, and severe cases surgically by cutting the transverse carpal ligament to release pressure and decompress the nerve.

Participants with mild to moderate carpal tunnel syndrome will be randomly assigned to 3 groups:

- nerve-gliding exercises group,
- wrist and hand strengthening exercises group,
- control group

All participants will undergo ultrasound evaluation before and after the intervention at the Clinical Institute of Clinical Neurophysiology, University Medical Centre Ljubljana.

The examination takes about 15 minutes. After the first session, participants will receive instructions for exercises to be performed at home for 3 weeks, 3–4 times per week, 10–20 minutes per session. The study intervention will last 3 weeks and all equipment will be provided.

Ultrasound elastography is a safe and non-invasive method without side effects.

Exercises may cause mild transient muscle or tendon inflammation with short-term pain.

The study is organized by the University of Ljubljana, Faculty of Sport, and the University Medical Centre Ljubljana, Clinical Institute of Clinical Neurophysiology. It is part of the doctoral research of Assistant Jošt Peterca, MSc, under the supervision of Assoc. Prof. Dr. Gregor Omejec and Assoc. Prof. Dr. Žiga Snoj, MD. The National Medical Ethics Committee of the Ministry of Health of the Republic of Slovenia approved the study.

Participation is voluntary and without financial compensation.

All personal data will be anonymized and stored according to regulations.

Results will be published in scientific journals and presented at conferences.

Participation can be withdrawn at any time without affecting your treatment.

STATEMENT OF INFORMED AND VOLUNTARY CONSENT

I, the undersigned _____ have been informed about the purpose and procedures of the study titled:

"The Effect of Hand Strength and Nerve-Gliding Exercises on Shear Wave Elastography of the Median Nerve and the 3rd FDS Tendon at the Wrist."

I understand that the procedures involved in this study do not pose any risk to my health.

- I have been informed that the results will be protected and used solely to advance medical science.
- I am aware that the study protocol has been reviewed and approved by the **National Medical Ethics Committee** at the **Ministry of Health of the Republic of Slovenia**.
- I voluntarily agree to participate in this study.
- I have read the information sheet for participants and have had the opportunity to ask questions.
- I have received satisfactory answers and had enough time to decide about participation.
- I understand that participation is voluntary and that I may withdraw at any time without giving a reason and without any negative consequences.
- I am aware that primary researcher will have access to my clinical data, as specified in the participant information sheet.
- I consent to my data being stored for **15 years after the study concludes**.
- I understand that during the study I should not use any other treatment for carpal tunnel symptoms.

I agree / I do not agree to be contacted after the study for future research.

Participant name and surname: _____

Signature: _____

Date: _____

INVESTIGATOR'S DECLARATION

I confirm that I have fully informed the participant about the study and will notify them of any new relevant information.

Investigator: Assistant Jošt Peterca, MSc

Position: Junior Researcher

Signature: _____

Date: _____