Towards a Soft Hand Tremor Suppression Device for Primary Care

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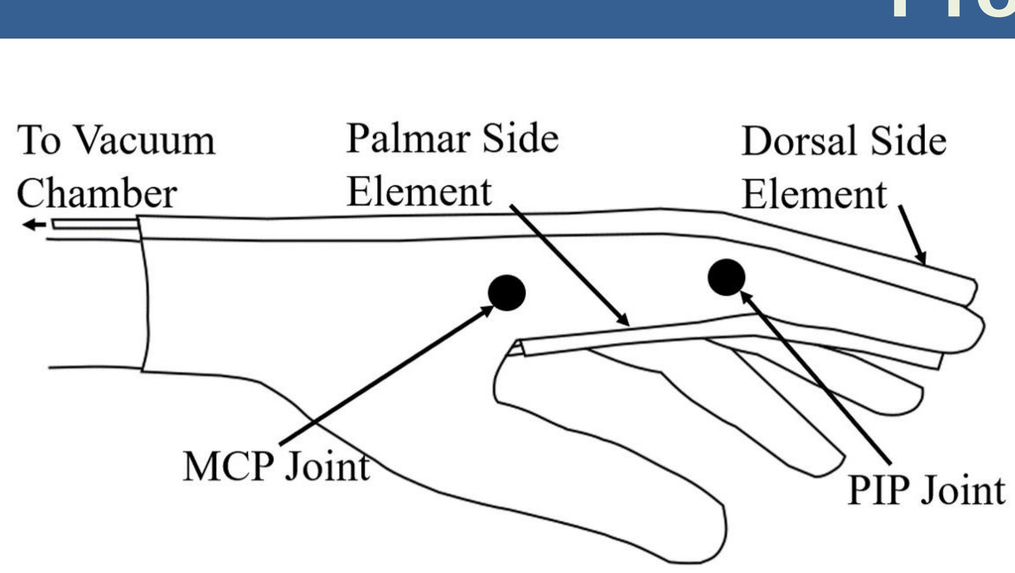
Abstract

Patients with hand tremors face huge difficulties in conducting their daily activities due to tremors. Here we present the conceptual design, initial test findings and a discussion of a soft orthosis for the suppression of hand tremors. The proposed device uses layer jamming elements (sandpaper: 320 grade + tracing paper; 10 layers), to reduce hand tremors. It has shown 78.32% reduction on a test rig, with higher tremor reduction observed in palmar placement, under laboratory conditions.

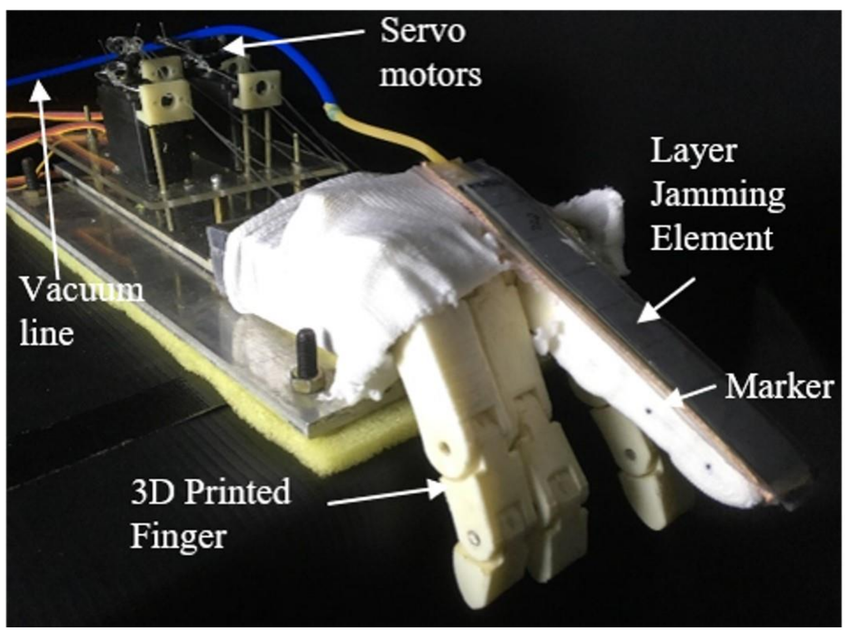
Proposed design



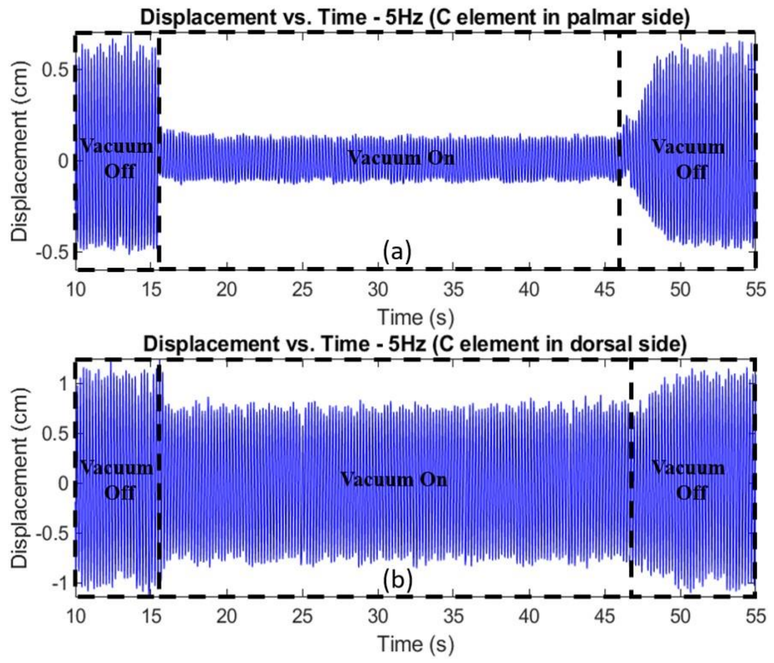
Representation of tremor suppression device

- Stiffness controlled via layer jamming
- Force applied across MCP and PIP.

Discussion



Test rig used for verification



Observed tremor amplitude reduction at 5Hz (a) Palmar (b) Dorsal

- Max. tremor amplitude reduction of 78.32% Palmar placement delivered higher reduction than dorsal placement
- Future work: Clinical trials, Dynamic modelling

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