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Jaw Opening Accuracy after Experimentally Induced Neck Pain - A pilot Study

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Introduction:

The jaw and neck have a close sensorimotor interaction. Measurements with electromyography (EMG) and movement analysis have shown coordinated muscle recruitment and movements of the jaw and neck during natural jaw function. There is a gap of knowledge regarding the effects of pain induction in upper cervical muscles on sensorimotor function during natural jaw function.

Aim:

This pilot study examines the experimental design, test procedure and equipment for an upcoming randomized clinical trial.

Methods:

Five healthy men performed continuous jaw opening-closing movements corresponding to 75% of maximum jaw opening during different test conditions: baseline, after injection of hypertonic saline in splenius capitis (SC), after injection of isotonic saline (IS) in SC and post injection. Recordings of jaw and head 3D positions were performed with an optoelectronic recording system with simultaneous surface EMG recordings of masseter and sternocleidomastoid muscles.

Results:

The study design and the overall performance of the procedures were appropriate. The randomization of type of saline injections failed for two subjects, the EMG recordings of sternocleidomastoid muscle had technical problems and high pain ratings following IS injection were observed.

Conclusions:

The pilot study showed that the study design and experimental test procedure can be implemented in the main study, after some necessary adjustments.