

# Changing tactile amplitude and frequency perception via autosuggestion

# Introduction

- Autosuggestion is the instantiation and reiteration of ideas or concepts by oneself aiming to actively influence one's own perceptual, brain or interoceptive states [3].
- Despite its potential beneficial clinical effects, for example in reducing chronic pain, autosuggestion has gained little scientific attention so far.
- Aim: to test the effects of autosuggestion on tactile perception using an implicit measurement

# Study background

We made use of a known interaction effect between tactile amplitude and frequency perception, i.e., the frequency of a touch is perceived as lower when the amplitude of that touch increases (the "Békésy effect" [1, 2], left panel).





Reversed Békésy effect Source: Rowe & Morley, 1990

This effect has also been shown reversed in some individuals [1,4] ("Reversed Békésy", right panel).

### Discussion

- finger compared to baseline measurements.
- 4. More research is needed to explain the effects in participants with reversed trend of response.

References and funding partner



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1. Our results indicate that the autosuggestion condition was effective in altering participants frequency perception, most likely via their internal change in amplitude perception. 2. In participants with the reversed Békésy pattern the effects of autosuggestion') or higher (in 'weak autosuggestion') at the test

3. Unexpectedly, in the 'strong autosuggestion' condition participants with Békésy pattern, perceived the frequency at the test finger lower as compared to baseline.





- **Task:** to indicate if the touch on the test finger (in yellow) had higher or lower frequency than the reference touch on the left finger (in red).
- Autosuggestion condition: participants are asked to perceive touches on the reference finger as STRONG (Exp 1) or as WEAK (Exp 2) as possible.

[1] Morley, J. W., & Rowe, M. J. (1990). Perceived pitch of vibrotactile stimuli: effects of vibration amplitude, and implications for vibration frequency coding. The Journal of physiology, 431(1), 403-416. [2] Von Békésy, G. (1959). Synchronism of neural discharges and their demultiplication in pitch perception on the skin and in hearing. The Journal of the Acoustical Society of America, 31(3), 338-349.





Results Exp 2 – 'Feel the touch weaker' (Békésy effect) PSE auto > PSE baseline Frequency perception was lower at the test finger in autosuggestion compared to baseline, contradictory to expectations. auto base higher 0.25 Stimulus intensity (standard stimulus = 5) Frequency ALWAYS 30 Hz