**Experiment 1.** File contains data from 34 participants performing a tactile discrimination task of low or high perceptual load. Vibrations were presented to the palms of participants’ hands. Half of participants performed a feature discrimination task (low load) and the other half performed a discrimination task based on the conjunction of two features (high load). They were instructed at the start of each block which hand to attend to. On half of the trials a vibration was presented at the same time to the unattended hand. Participants reported the target identity followed by the presence or absence of the additional stimulus to the unattended hand.

**Experiment 2.** File contains data from 19 participants. This experiment was different from the first such that participants now attended to both hands and the target appeared from either the left or right hand on each trial. The additional stimulus now appeared from the midline of the body, namely the forehead. This experiment is Experiment 1 in our tactile perceptual load paper.

**Experiment 3.** File contains data from 25 participants. This experiment is a replication from Experiment 3 with the addition of a confidence measure in response to the presence or absence of the additional stimulus. This experiment is Experiment 2 in our tactile perceptual load paper.

**Experiment 4.** File contains data from 18 participants. This experiment tested tactile perceptual load using a more traditional congruency measure. Load was manipulated by varying the number of stimuli presented to the hands. Nontargets varied in their onsets and offsets, although they were all of the same duration. The task was to determine the location of the target (left or right hand). Concurrently, a distractor vibration was presented to the shoulder, either on the same side (congruent) or the opposite side (incongruent). 25% of trials were designated as catch trials, in which no target was presented.

**Experiment 5.** File contains data from 82 participants. This experiment manipulated task difficulty in a task consisting of sequences of vibrations (either constant or pulsed). The sequences were either presented to the left or the right hand. On the final trial, a vibration was unexpectedly presented to the unattended hand concurrently to the sequence.

**Experiment 6.** File contains data from 76 participants. This experiment replicated experiment 1 but only used the hard counting condition. In addition, half of the participants kept their hands crossed to investigate if that would further increase task difficulty and possibly affect noticing rates.

**Experiment 7.** File contains data from 19 participants. This experiment forms the JEP:HPP paper. We manipulated visual perceptual load and presented a concurrent vibration to participants left or right hand on 50% of trials.

**Experiment 8.** File contains data from 20 participants. This experiment measured detection sensitivity for a visual or visuotactile critical stimulus presented on 50% of trials concurrently to a visual task of low or high perceptual load.

**Experiment 9.** File contains data from 18 participants.This experiment was identical to Experiment 8, with the one change that we now either presented a tactile or a visuotactile stimulus.

**Experiment 10.** File contains data from 60 participants.This experiment had six tappers attached to the right forearm. Firstly, participants performed a tactile discrimination task (reporting if vibration on every trial was constant or pulsed). Secondly, participants were presented with textures to their index, middle, and ring fingers to both hands, and were asked to only focused on the left hand. After a slight delay, there were presented with a second set of textures. The question was if the second set was same or different to the first set (on the left hand). Unexpectedly, on the final (8th) trial, the tappers on the arm were activated, one by one, at the same time as the presentation of the textures. Immediately afterwards, participants were asked if they felt anything unexpected. If they responded no, the trial was repeated with the instruction of ignoring the textures.