BREATHING DETECTION TASK

*GENERAL INSTRUCTIONS:*

In this task we will measure your sensitivity to very small changes in resistance to your breathing. To do this you will breathe (inhale and exhale) through this breathing system (show tube). You will receive a mouthpiece (unpack and put it on the breathing system). To make sure that you do not breathe through your nose, you will receive a nose clip (show selection of nose clips). You can test which of these nose clips is most comfortable for you. As the nose clips are generally rather uncomfortable, you can always take a short break between the trials.

***Version "Constant Staircase" FDT***: The task consists of several trials (if the participant asks for the duration/number of the trials of the task: "The length of the task is determined by an algorithm, so we can't tell you exactly. But it will take about one hour).

***Version "Roving Staircase" FDT:*** The task consists of 60 trials.

One trial consists of six breaths. First you take three breaths. After the third inhalation you raise your hand. The experimenter (me) will then place something on the end of the breathing system. This is either a resistance or a dummy that does not provide any resistance. Afterwards you take three more breaths and then take the mouthpiece out of your mouth. Please try to raise your hand after the third inhalation, so I have time to attach the resistance or dummy during your exhalation and you can continue breathing on the system for all 6 breaths.

After you have taken the mouthpiece out of your mouth, you tell me if you think I have attached a resistance or a dummy. Additionally, we will ask you to rate (on a scale of 1-10) your confidence **in your answer**, with 1 being ‘**Not at all confident in your decision**’ and 10 being ‘**Extremely confident in your decision**’. Please note that in each trial the first set of three breaths are ALWAYS without resistance (= baseline). During the second set of three breaths the breathing can become more difficult (=resistance) or it stays the same (=dummy), so you are comparing the first last three breaths to the first three breaths in each trial. Furthermore, a resistance, when applied, is only felt when inhaling and not when exhaling (the breathing system is designed that way).

Please consider that the resistance is very light and therefore difficult to detect. It may be easier or more difficult for you to detect the resistors during the experiment. During the experiment you should sit comfortably (both feet on the floor) and try to breathe evenly (not very deep, fast or slow - just as usual). We can now start with a first practice trial where we sit opposite each other - during the main experiment you will sit with your back to me so that you do not see what I am placing on the breathing system.

*PRACTICE TRIAL:*

You can now put on the nose clip, put the mouthpiece in your mouth and start the practice trial. Please enclose the mouthpiece well with your lips. Now you take the first set of three breaths (count if necessary). After the third inhalation you can raise your hand (do it together with the participant). Now I will attach a resistance or a dummy at the end of the breathing system (simulate attaching) and you take the next set of three breaths. Take the mouthpiece out of your mouth and tell me if you think that a resistance has been attached or not (i.e. if the inhalation was harder during the second set of three breaths or not). As already mentioned, the resistance is only small and can be difficult to perceive. In addition, on a scale of 1 to 10, tell me how sure you are of your decision (remember: 1 = not at all confident in your decision – 10 = extremely confident in your decision).

During the experiment I will not give you any feedback on whether your answer was correct or not. After the first set of three breaths of each trial I always place something at the end of the system (either a resistance or a dummy), which may make some kind of noise. Whether it is noisy or not does not give a hint whether it is a resistance or not but only whether I connected it “nicely”. Therefore, do not pay attention to any noises throughout the trials.

You can always take a short break between the trials, drink something, get up, take off the nose clip, etc. I will turn on a background noise (pink noise) for the experiment, which should help you to concentrate more on your breathing and what is happening inside your body.

Is everything clear so far or do you have any questions?

*MAIN EXPERIMENT:*

If everything is clear you can now turn around (adjust the position of the chair that it is good for the breathing system). Please remember to sit comfortably, as the experiment will take a while. First, we will do another practice trial, where I tell you that I will attach a dummy. Although you already know the solution, tell me after the six breaths whether you think a dummy (inhalation remained the same) or a resistance (inhalation became harder) has been applied and how confident you are in your decision. Since you cannot see me because you are sitting with your back to me, I will tell you after each trial "I am ready" and then you can start with the next trial. So you don't have to turn around to give me an answer.

Now I will get the computer program ready (start program with PPID, Trials = 60, Practice = 1, Calibration = 1) and set the background noise (Play on VLC Media Player). Okay, I am ready. You can start with the practice trial. As already mentioned, after you have raised your hand (after the 3rd inhalation) I will put a dummy on top of it.

*HINTS FOR THE EXPERIMENTER*

* If the participant does not understand the first trial (Dummy Trial), explain it again very precisely and point out that the solution is already known. The point is to give them a feeling of how it feels, when the dummy is applied.
* During the experiment you should always wiggle the tube a little bit, so that there is no difference between the dummy and the resistance in this aspect.
* If the participant breathes too deeply (audible, strong raising and lowering of the shoulders, noticeable improvement in performance or performance above 90% on only one filter), please remind the participant to breathe as normally as possible.
* If the performance of the participant suddenly changes considerably, e.g. because of tiredness, a break can be suggested (e.g. drink something or get up for a short time).
* ***Version "Constant Staircase" FDT:*** Shortly before the end (e.g. if there are 10 trials left), the participant can be told that there are only 10 trials left (to motivate him).
* ***Version "Roving Staircase" FDT:*** The participant can be told at any time how many trials are left (because there are always 60 trials).