

## Supplement 2 „Experimental Procedure“

### 1. Measures and calibration trials

Stimuli with rising intensity were applied through the electrode beginning with 0.12 milliamperes (mA). According to Bromm and Meier [27], the stimuli were given in an up-down procedure with stimulus intensity increments of 0.2 mA (in the range from 0.12 to 8.00 mA). Each stimulus had to be rated on a 14-point numeric rating scale (NRS) on pain intensity (-3= not noticeable, -2= just about perceivable, -1= clearly perceivable, 0= strongly perceivable, but not painful, 1= tendency to slightly painful, 2= softly painful, 3= slightly painful, 4= painful, 5= clearly painful, 6= pronounced pain, 7= strongly painful, 8= very strongly painful, 9= extremely painful, 10= worst pain imaginable). When the participants first scored an “8” or had reached the maximum current of 8 mA, the stimuli were given in reverse order. The stimuli (mA) were again administered individually (in total 22 times) and the patients had to rate the pain intensity again by using the NRS -3 to 10. This procedure was repeated three times, which resulted in six sequences of pain stimuli. To assess intensity of the individual pain stimulus for each of the participant, the mean value of the mA readings scoring 5 on the subjective rating scale was determined.

### 2. Experimental Instructions

All participants were informed prior to the experiment that individually tailored pain stimuli would be applied. They were assigned to one of the 4 groups: Plac, Exp, Noc, NH. These groups differed in terms of the following instructions and learning experiences:

#### *2.1. Independent variable “Expectancy”:*

All participants of the 3 infusion groups (Plac, Exp, Noc) were given the information that they belonged to the group that received the powerful pain-reducing and mobility-increasing infusion. They were told that only in some cases the infusion might result in contrary effects with a slight probability that in some cases pain could increase and mobility decrease. Participants of the control group (NH) were given the information that they would receive painful stimuli with the purpose to determine the influence of these stimuli on their **clinical** back pain and functional capacity.

#### *2. Independent variable “Classical Conditioning”:*

Two of the infusion groups received an additional conditioning procedure. Placebo conditioning (Plac) was performed by reducing the painful stimulus by 20% of the original

pain intensity after the infusion on day 1. The participants did not know about this reduction of the painful stimulation and were thus led to believe that the infusion had a pain-reducing effect. The placebo conditioning (Noc) was performed by increasing the painful stimulus by 20 % up to a painful level at 70% pain intensity after the infusion on day 1. The participants were thus led to believe that the infusion had a pain-increasing effect.