

## Muscle Training 4CH

**Category:** NMES/FES – auto repeat

Strengthening of antagonistic muscles with optional warming up and cooling down stages.

**Indication:** Paralysis or muscle weakness, e.g., after SCI, MS or stroke

**Stimulation pattern:** sequential activation

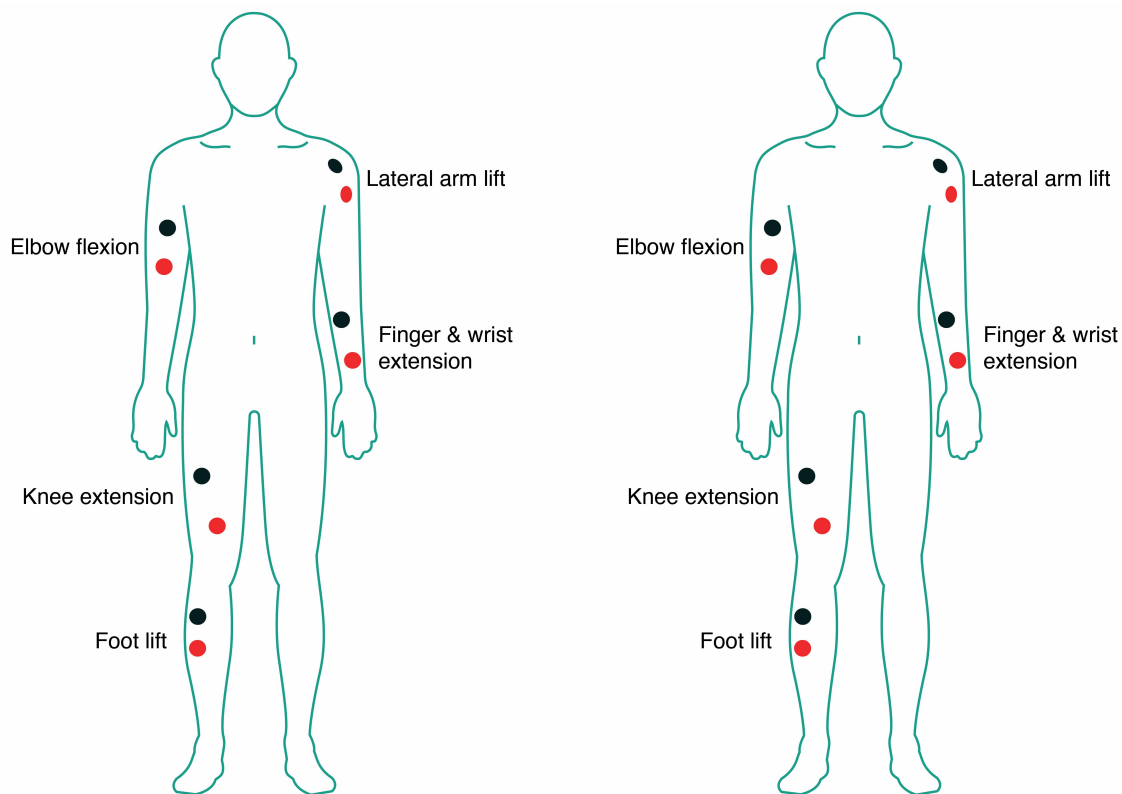
**Stimulation cable:** 5-channel

**Active channels:** Channel 1, Channel 2, Channel 3, Channel 4

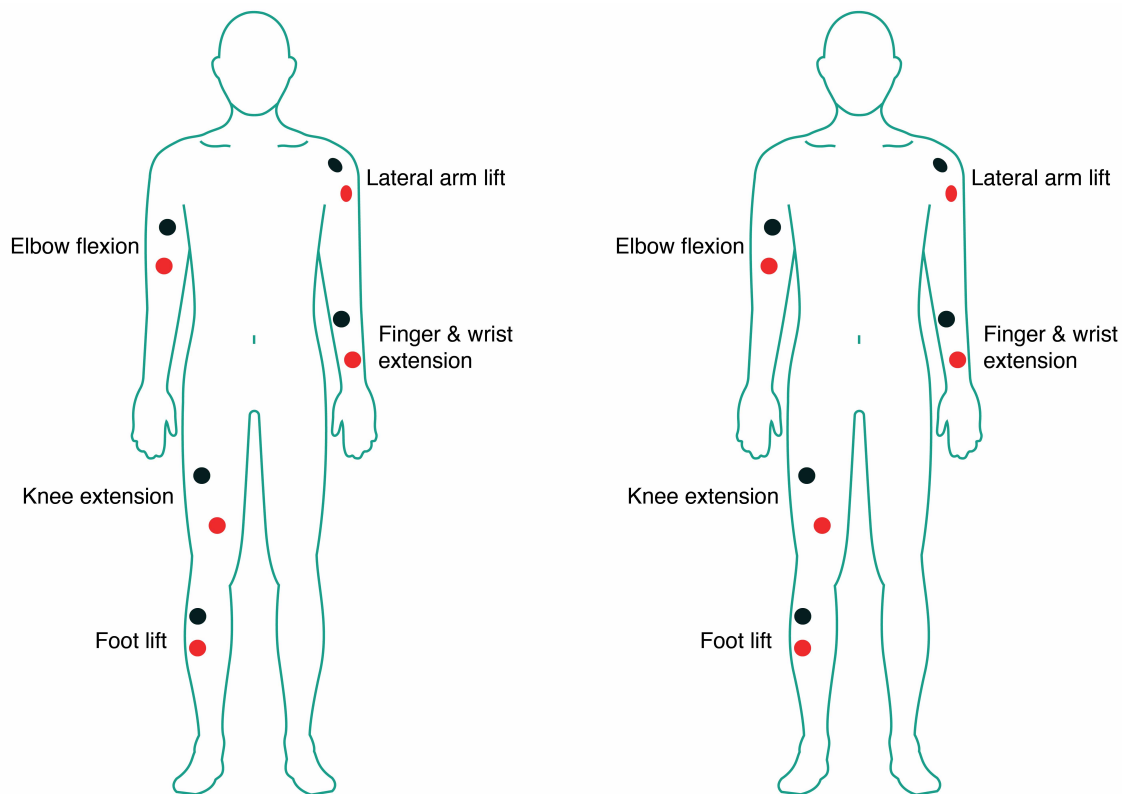
**Solo mode:** No

### Placement of electrodes and stimulator

Channel	Function	Electrode type
1	agonist 1	bipolar, square ≥ 2" x 2" (5cm x 5cm)
2	antagonist 1	bipolar, square ≥ 2" x 2" (5cm x 5cm)
3	agonist 2	bipolar, square ≥ 2" x 2" (5cm x 5cm)
4	antagonist 2	bipolar, square ≥ 2" x 2" (5cm x 5cm)



**Electrode placement:** channel 1 – agonist 1 and channel 2 – antagonist 1



**Electrode placement:** channel 3 – agonist 2 and channel 4 – antagonist 2

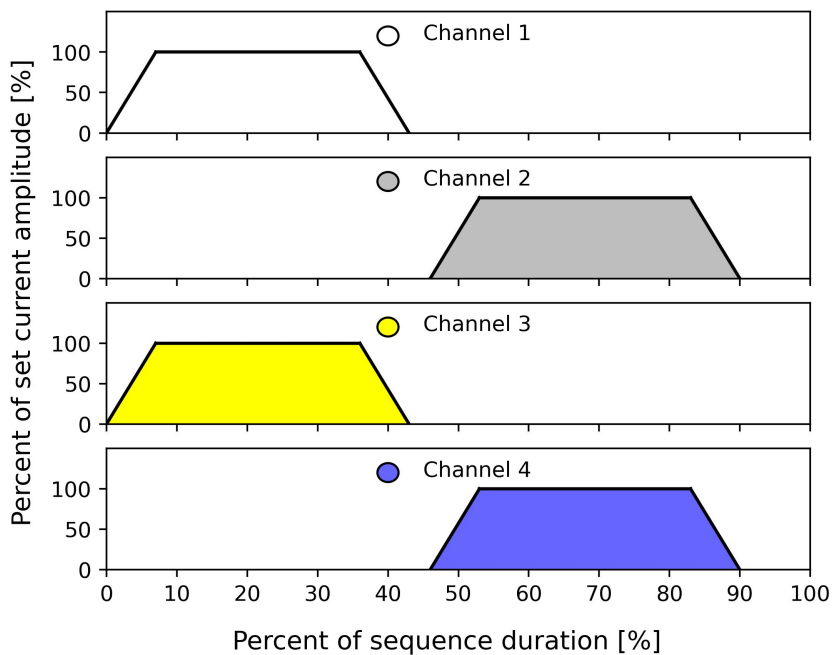
## Current settings for stimulation stages

### Warm-up:

<b>Total duration</b>		05:00:000 (min:sec:msec)			
<b>Sequence duration</b>		00:00:010 (min:sec:msec)			
<b>Sequence mode<sup>1</sup></b>		automatic repetition			
Channel	Maximal current	Maximal pulse width	Frequency	Pulse form	Pulse mode <sup>2</sup>
1	50.0 mA	300 µs	10.0 Hz	biphasic (100 µs pause)	allways on
2	50.0 mA	300 µs	10.0 Hz	biphasic (100 µs pause)	allways on
3	50.0 mA	300 µs	10.0 Hz	biphasic (100 µs pause)	allways on
4	50.0 mA	300 µs	10.0 Hz	biphasic (100 µs pause)	allways on

### Training:

<b>Total duration</b>		30:00:000 (min:sec:msec)			
<b>Sequence duration</b>		00:28:000 (min:sec:msec)			
<b>Sequence mode<sup>1</sup></b>		automatic repetition			
Channel	Maximal current	Maximal pulse width	Frequency	Pulse form	Pulse mode <sup>2</sup>
1	100.0 mA	300 µs	50.0 Hz	biphasic (100 µs pause)	sequential
2	100.0 mA	300 µs	50.0 Hz	biphasic (100 µs pause)	sequential
3	100.0 mA	300 µs	50.0 Hz	biphasic (100 µs pause)	sequential
4	100.0 mA	300 µs	50.0 Hz	biphasic (100 µs pause)	sequential



Activation of the stimulation channels for training

Cool-Down:

<b>Total duration</b>		05:00:000 (min:sec:msec)			
<b>Sequence duration</b>		00:00:010 (min:sec:msec)			
<b>Sequence mode<sup>1</sup></b>		automatic repetition			
Channel	Maximal current	Maximal pulse width	Frequency	Pulse form	Pulse mode <sup>2</sup>
1	50.0 mA	300 µs	3.0 Hz	biphasic (100 µs pause)	always on
2	50.0 mA	300 µs	3.0 Hz	biphasic (100 µs pause)	always on
3	50.0 mA	300 µs	3.0 Hz	biphasic (100 µs pause)	always on
4	50.0 mA	300 µs	3.0 Hz	biphasic (100 µs pause)	always on

**<sup>1</sup>Sequence modes**

- Automatic repetition: The stimulation sequence will be automatically repeated until the total duration of the stage is reached.
- Motion triggered cyclic: The stimulator is placed on a limb and the cycle percentage will be estimated during cyclic movements like leg cycling or arm cranking. The Stimulation is controlled as a function of the current cycle percentage and can be activated in up to three phases per active channel.
- Motion triggered with threshold: The stimulation sequence will be triggered by an change in the inclination angle of a body segment on which the stimulator is placed. The angle and direction of change (increasing or decreasing) must be defined.
- Manually triggered: The stimulation sequence will be manually triggered by the therapist or patient using the Stim2Go app.

**<sup>2</sup>Pulse modes**

- Sequential: The stimulation is activated in up to three phases within a sequence duration or motion cycle.
- Always on: For a current amplitude larger than zero, the stimulation of a channel is permanently on over the entire sequence duration.