1 **Supplementary Table 1**. Compilation of participant's mean EPT values at the S2 dermatome over

2 time for the right leg (A) and left leg (B).

3 A)

| Right S2 dermatome | | |
|---|---|---|
| | Early IFR | Chronic |
| 001 |  | 20 |
| 002 | 3 | 5.6 |
| 003 | 5 | 2 |
| 004 | 12 | 12 |
| 005 | absent | absent |
| Control average | 3.6 ± 1.2 | |

4

5 B)

| Left S2 dermatome | | |
|---|---|---|
| | Early IFR | Chronic |
| 001 | 30 | 20 |
| 002 | 3.75 | 5.4 |
| 003 | 7.2 | 1.9 |
| 004 | 19 | 9.6 |
| 005 | absent | absent |
| Control average | 3.5 ± 2.0 | |

6

7

8 Note: An absent EPT means that the participant did not feel anything in their lower limbs at stimulation

9 intensities > 40 mA. Shaded areas indicate that EPT was not tested.

10 IFR, intensive functional rehabilitation; EPT, electrical perceptual threshold; S, sacral level

11 **Supplementary Table 2.** Characteristics of participants' H-reflex over time.

12 <u>H/M ratio</u>

| Right H/M ratio | | |
|---|---|---|
| | Early IFR | Chronic |
| 001SCI | | 0.472 |
| 002SCI | 0.559 | 0.686 |
| 003SCI | 0.176 | 0.040 |
| 004SCI | 0.576 | 0.279 |
| 005SCI | absent | absent |
| Control average | 0.4 ± 0.2 | |

13

| Left H/M ratio | | |
|---|---|---|
| | Early IFR | Chronic |
| 001SCI | absent | 0.351 |
| 002SCI | 0.443 | 0.632 |
| 003SCI | 0.061 | 0.062 |
| 004SCI | 0.706 | 0.924 |
| 005SCI | absent | absent |
| Control average | 0.3 ± 0.2 | |

14

15 $H_{max}$ latency

| Right $H_{max}$ latency | | |
|---|---|---|
| | Early IFR | Chronic |
| 001SCI | | 35.5 |
| 002SCI | 34.0 | 32.0 |
| 003SCI | 35.5 | 42.0 |
| 004SCI | 36.5 | 32.9 |
| 005SCI | absent | absent |
| Control average | 33.3 ± 3.0 | |

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| Left $H_{max}$ latency | | |
|---|---|---|
| | Early IFR | Chronic |
| 001SCI | absent | 31.5 |
| 002SCI | 33.5 | 31.0 |
| 003SCI | 38.0 | 40.5 |
| 004SCI | 36.5 | 36.0 |
| 005SCI | absent | absent |
| Control average | 34.0 ± 2.7 | |

17 IFR, intensive functional rehabilitation; $H_{max}$, maximal H wave; shaded areas = H-reflex was not tested;

**Supplementary Table 3.** Characteristics of participants' MEPs across time

| Participants | Variables | Early IFR | | Chronic | |
|---|---|---|---|---|---|
| | | Right leg | Left leg | Right leg | Left leg |
| **002** | MEP (yes/no) | yes | yes | yes | yes |
| | Stim. Intensity (%) | 100 | 100 | 90 | 90 |
| | MEP-A (mV) | 0.292 ± 0.135 | 0.392 ± 0.066 | 0.915 ± 0.231 | 0.88 ± 0.203 |
| | MEP-A (%Mmax) | NA | NA | 30.1 ± 7.59 | 40.73 ± 9.4 |
| | MEP-L (ms) | 47.7 ± 7.6 | 32.6 ± 1.25 | 40.42 ± 5.29 | 35.03 ± 2.85 |
| | SP (yes/no) | yes | yes | yes | yes |
| | SP-Latency (ms) | 71,7 | 74 | 58,2 | 52,5 |
| | SP-Duration (ms) | 150,9 | 208 | 72,51 | 54,48 |
| | Area ratio (%) | 50.3 | 95.1 | 49.2 | 63 |
| **003** | MEP (yes/no) | no | no | yes | yes |
| | Stim. Intensity (%) | | | 94 | 94 |
| | MEP-A (mV) | | | 0.063 ± 0.03 | 0.073 ± 0.03 |
| | MEP-A (%Mmax) | | | NA | NA |
| | MEP-L (ms) | | | 40.29 ± 2.45 | 50.501 ± 5.11 |
| | SP (yes/no) | | | no | no |
| | SP-Latency (ms) | | | | |
| | SP-Duration (ms) | | | | |
| | Area ratio (%) | | | | |
| **004** | MEP (yes/no) | no | no | no | no |
| | Stim. Intensity (%) | | | | |
| | MEP-A (mV) | | | | |
| | MEP-A (%Mmax) | | | | |
| | MEP-L (ms) | | | | |

| | MEP during contraction | | MEP at rest | |
|---|---|---|---|---|
| **Control average** | MEP (yes/no) | yes | MEP (yes/no) | yes |
| | Stim. Intensity (%) | 48 ± 4 | Stim. Intensity (%) | 63 ± 5 |
| | MEP-A (mV) | 0.36 ± 0.10 | MEP-A (mV) | 0.24 ± 0.14 |
| | MEP-A (%Mmax) | 14. 7 ± 3.0 | MEP-A (%Mmax) | 7.8 ± 2.6 |
| | MEP-L (ms) | 33.4 ± 0.9 | MEP-L (ms) | 34.6 ± 1.3 |
| | SP (yes/no) | yes | SP (yes/no) | No clear SP |
| | SP-Latency (ms) | 53.7 ± 2.4 | SP-Latency (ms) | |
| | SP-Duration (ms) | 62.8 ± 14.9 | SP-Duration (ms) | |
| | Area ratio (%) | 55.1 ± 7.9 | Area ratio (%) | |

MEP: motor evoked potential; MEP-A: Amplitude of MEP; MEP-L: Latency of MEP
SP: silent period; IFR, intensive functional rehabilitation
NA: the Mmax was not assessed, so the normalized MEP was not evaluated

**Supplementary Table 4.** MSCC value and combined LEMS

| | MSCC | LEMS (R+L) |
|---|---|---|
| 001SCI | 3,89 | 0 |
| 002SCI | 49,46 | 50 |
| 003SCI | 20,50 | 18 |
| 004SCI | 31,70 | 0 |
| 005SCI | 100,00 | 0 |