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| **Table S1. Mixed model ANOVA results for the constant force and two-force trials** | | | | | |
| (a) | Alpha-band Motor Unit Coherence during Constant Force Trials | | | | |
| Model Term | df1/2 | F-Statistic | P-value | | Semi-Partial R2 |
| Force | 3/151 | 27.08 | <0.001 | \*\*\* | 0.19 [0.17, 0.21] |
| MFR | 1/147 | 32.08 | <0.001 | \*\*\* | 0.21 [0.11, 0.32] |
| MUnum | 1/165 | 38.79 | <0.001 | \*\*\* | 0.18 [0.09, 0.29] |
| Marginal R2 | 0.45 | Conditional R2 | 0.66 |  |  |

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| (b) | Alpha-band Motor Unit Coherence during Two-Force Trials | | | | |
| Model Term | df1/2 | F-Statistic | P-value | | Semi-Partial R2 |
| Force | 7/260 | 49.91 | <0.001 | \*\*\* | 0.29 [0.27, 0.31] |
| MFR | 1/235 | 30.07 | <0.001 | \*\*\* | 0.14 [0.08, 0.22] |
| MUnum | 1/273 | 19.02 | <0.001 | \*\*\* | 0.05 [0.02, 0.13] |
| Marginal R2 | 0.56 | Conditional R2 | 0.72 |  |  |

Table S1. Mixed model ANOVA results (Type III) ANOVAs using the Kenward-Roger approximation for degrees of freedom investigating the effect of each fixed factor on the alpha-band motor unit coherence. The degrees of freedom listed under df1/2 were rounded to the next integer. Values shown are for alpha-band coherence during the (a) constant force trials and (b) two-force trials.

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| **Table S2. Mixed model ANOVA results comparing low and high threshold MUs** | | | | | |
| (a) |  | Beta-band Motor Unit Coherence | | | |
| Model Term | df1/2 | F-Statistic | P-value | | Semi-Partial R2 |
| Force | 3/274 | 9.81 | <0.001 | \*\*\* | 0.047 [0.04, 0.06] |
| MFR | 1/252 | 39.31 | <0.001 | \*\*\* | 0.07 [0.03, 0.14] |
| Group | 1/280 | 16.59 | <0.001 | \*\*\* | 0.02 [0.02, 0.03] |
| Force\*Group | 3/274 | 1.37 | .25 |  | 0.0 [-0.006, 0.01] |

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| (b) |  | Alpha-band Motor Unit Coherence | | | |
| Model Term | df1/2 | F-Statistic | P-value | | Semi-Partial R2 |
| Force | 3/274 | 26.63 | <0.001 | \*\*\* | 0.15 [0.13, 0.16] |
| MFR | 1/262 | 61.09 | <0.001 | \*\*\* | 0.22 [0.15, 0.30] |
| Group | 1/283 | 14.71 | <0.001 | \*\*\* | 0.12 [0.11, 0.13] |
| Force\*Group | 3/273 | 2.98 | .03 | \* | 0.1 [0.09, 0.11] |

Table S2. Mixed model ANOVA results (Type III) ANOVAs using the Kenward-Roger approximation for degrees of freedom investigating the effect of each fixed factor on the beta- and alpha-band motor unit coherence calculated using the 8 lowest threshold MUs (Group = 1) or 8 highest threshold (Group = 2) detected within each trial. The degrees of freedom listed under df1/2 were rounded to the next integer. Values shown are for (a) beta-band, (b) alpha-band coherence.

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| **Table S3. Mixed model ANOVA results comparing the start and end of trials** | | | | | |
| (a) |  | Beta-band Motor Unit Coherence | | | |
| Model Term | df1/2 | F-Statistic | P-value | | Semi-Partial R2 |
| Force | 3/319 | 45.89 | <0.001 | \*\*\* | 0.21 [0.20, 0.21] |
| MFR | 1/294 | 5.55 | .019 | \* | 0.02 [0.003, 0.07] |
| MU No. | 1/331 | 95.64 | <0.001 | \*\*\* | 0.23 [0.16, 0.30] |
| Time | 1/316 | 19.86 | <0.001 | \*\*\* | 0.03 [0.02, 0.04] |
| Force\*Time | 3/316 | 4.207 | .006 | \*\* | 0.01 [0.007, 0.02] |

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| (b) |  | Alpha-band Motor Unit Coherence | | | |
| Model Term | df1/2 | F-Statistic | P-value | | Semi-Partial R2 |
| Force | 3/319 | 31.17 | <0.001 | \*\*\* | 0.17 [0.17, 0.18] |
| MFR | 1/279 | 52.15 | <0.001 | \*\*\* | 0.19 [0.13, 0.27] |
| MU No. | 1/329 | 38.63 | <0.001 | \*\*\* | 0.11 [0.06, 0.18] |
| Time | 1/316 | 21.0 | <0.001 | \*\*\* | 0.02 [0.02, 0.03] |
| Force\*Time | 3/316 | 1.35 | .26 |  | 0.0 [-0.002, 0.01] |

Table S3. Mixed model ANOVA results (Type III) ANOVAs using the Kenward-Roger approximation for degrees of freedom investigating the effect of each fixed factor on the beta- and alpha-band motor unit coherence calculated over the first (Time = 1) or second half (Time = 2) of each trial. The degrees of freedom listed under df1/2 were rounded to the next integer. Values shown are for (a) beta-band and (b) alpha-band coherence.