lme_mods

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Packages & Setup

```
# install.packages(c("tidyverse","purrr","R.matlab","readxl","dplyr"))
library(readxl);
library(purrr)
library(tidyverse);
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   3.5.0     v tibble    3.2.1
## v lubridate 1.9.3     v tidyr     1.3.1
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(tibble)
library(knitr);
library(gtsummary)
library(kableExtra)
```

```
##
## Attaching package: 'kableExtra'
##
## The following object is masked from 'package:dplyr':
##
##     group_rows
```

```
library(lme4)
```

```
## Loading required package: Matrix
##
## Attaching package: 'Matrix'
##
## The following objects are masked from 'package:tidyr':
##
##     expand, pack, unpack
```

GTSUMMARY THEME

```
# my_theme <-
#   list(
#     "tbl_summary-str:default_con_type" = "continuous2",
#     "tbl_summary-str:continuous_stat" = c(
#       "{median} ({p25} - {p75})",
#       "{mean} ({sd})",
#       "{min} - {max}"
#     ),
#     "tbl_summary-str:categorical_stat" = "{n} / {N} ({p}%)",
#     "style_number-arg:big.mark" = "",
#     "tbl_summary-fn:percent_fun" = function(x) style_percent(x, digits = 3)
#   )
# my_theme <-
#   list()
# gtsummary::set_gtsummary_theme(my_theme)
gtsummary::set_gtsummary_theme(theme_gtsummary_journal("jama"))
```

```
## Setting theme `JAMA`
## Setting theme `JAMA`
```

```
# reset_gtsummary_theme()
```

load table

```
# excel_dir <-"M:/jsalminen/GitHub/par_EEGProcessing/src/_data/MIM_dataset/_studies/04162024_MIM_YAOAN8
excel_dir <-"M:/jsalminen/GitHub/par_EEGProcessing/src/_data/MIM_dataset/_studies/04232024_MIM_YAOAN89_a
eegt <- read_excel(excel_dir,sheet="Sheet1")
```

get unique entries

```
clusters = unique(eegt$cluster_id);
subjects = unique(eegt$subj_char);
groups = unique(eegt$group_char);
kin_measures = c('mean_APexc_COV','mean_APexc_mean','mean_MLexc_COV','mean_MLexc_mean','mean_StepDur','m
eeg_measures = c('theta_avg_power','alpha_avg_power','beta_avg_power','aperiodic_exp','aperiodic_offset
```

get speeds only

```
eegt <- filter_at(eegt,vars('cond_char'), any_vars(. %in% c('0.25','0.5','0.75','1.0')))
flat_speeds = unique(eegt$cond_char)
eegt$cond_char <- as.numeric(eegt$cond_char)
eegt$speed_cond_num <- as.numeric(eegt$cond_char)
eegt <- mutate(eegt,across(c('subj_char'), factor))
```

Cluster:	3																															
	APerc COV			APerc			MLeng COV			MLeng			Step Dur			UDens COV			UDens			Stance Dur			GaitCycle Dur			Peak UpDown Vel		
Characteristic	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value
(Intercept)	19 (18 to 20)	<0.001	<0.001	0.07 (0.07 to 0.08)	<0.001	<0.001	16 (15.5 to 16)	<0.001	<0.001	0.14 (0.13 to 0.15)	<0.001	<0.001	1.8 (1.3 to 1.8)	<0.001	<0.001	22 (21 to 23)	<0.001	<0.001	0.01 (0.00 to 0.01)	<0.001	<0.001	2.0 (1.9 to 2.1)	<0.001	<0.001	2.7 (2.6 to 2.8)	<0.001	<0.001	0.01 (0.02 to 0.03)	0.9	0.9
speed_cond_ums	-4.1 (-5.8 to -2.3)	<0.001	<0.001	-0.03 (-0.04 to -0.03)	<0.001	<0.001	6.9 (5.5 to 8.3)	<0.001	<0.001	-0.09 (-0.09 to -0.09)	<0.001	<0.001	-0.73 (-0.79 to -0.67)	<0.001	<0.001	-16 (-17 to -15)	<0.001	<0.001	0.03 (0.03 to 0.03)	<0.001	<0.001	-1.2 (-1.3 to -1.1)	<0.001	<0.001	-1.5 (-1.6 to -1.3)	<0.001	<0.001	0.38 (0.37 to 0.39)	<0.001	<0.001
group_char		<0.001	<0.001		<0.001	<0.001		0.94	0.94		0.21	0.21		<0.001	<0.001		0.056	0.056		0.93	0.93		<0.001	<0.001		<0.001	<0.001		0.062	0.12
H1000's																														
H2000's	6.7 (4.3 to 9.1)			-0.01 (-0.02 to -0.01)			0.27 (-1.5 to 2.1)			0.01 (0.00 to 0.02)			-0.16 (-0.21 to -0.11)			1.0 (-0.30 to 2.3)			0.00 (0.00 to 0.00)			-0.21 (-0.39 to -0.04)			-0.32 (-0.42 to -0.22)			0.02 (0.00 to 0.05)		
H3000's	9.2 (7.0 to 11)			-0.01 (-0.02 to -0.01)			-0.03 (-1.7 to 1.7)			0.00 (-0.01 to 0.01)			-0.23 (-0.28 to -0.18)			1.5 (0.25 to 2.8)			0.00 (0.00 to 0.00)			-0.32 (-0.39 to -0.25)			-0.46 (-0.55 to -0.37)			0.03 (0.00 to 0.05)		
subj_char_ol__(Intercept)	2.6 (NA to NA)			0.01 (NA to NA)			3.4 (NA to NA)			0.02 (NA to NA)			0.05 (NA to NA)			1.9 (NA to NA)			0.00 (NA to NA)			0.05 (NA to NA)			0.59 (NA to NA)			0.04 (NA to NA)		
Residual_ol__Observation	4.3 (NA to NA)			0.01 (NA to NA)			3.5 (NA to NA)			0.01 (NA to NA)			0.14 (NA to NA)			2.7 (NA to NA)			0.00 (NA to NA)			0.24 (NA to NA)			0.28 (NA to NA)			0.03 (NA to NA)		

[1] CI = Confidence Interval
[2] False discovery rate correction for multiple testing

Cluster:	4																															
	APerc COV			APerc			MLeng COV			MLeng			Step Dur			UDens COV			UDens			Stance Dur			GaitCycle Dur			Peak UpDown Vel		
Characteristic	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value
(Intercept)	18 (16 to 20)	<0.001	<0.001	0.07 (0.07 to 0.08)	<0.001	<0.001	11 (9.8 to 12)	<0.001	<0.001	0.13 (0.12 to 0.14)	<0.001	<0.001	1.4 (1.3 to 1.4)	<0.001	<0.001	22 (21 to 24)	<0.001	<0.001	0.01 (0.01 to 0.01)	<0.001	<0.001	2.0 (2.0 to 2.1)	<0.001	<0.001	2.4 (2.0 to 2.3)	<0.001	<0.001	0.00 (-0.02 to 0.02)	0.92	0.92
speed_cond_ums	-2.3 (-5.7 to -2.2)	<0.001	<0.001	-0.03 (-0.04 to -0.03)	<0.001	<0.001	5.9 (4.4 to 7.3)	<0.001	<0.001	-0.08 (-0.09 to -0.08)	<0.001	<0.001	-0.54 (-0.60 to -0.47)	<0.001	<0.001	-16 (-17 to -14)	<0.001	<0.001	0.03 (0.03 to 0.03)	<0.001	<0.001	-1.2 (-1.4 to -1.1)	<0.001	<0.001	-1.5 (-1.6 to -1.3)	<0.001	<0.001	0.38 (0.36 to 0.39)	<0.001	<0.001
group_char		<0.001	<0.001		<0.001	<0.001		0.57	0.57		0.20	0.20		<0.001	<0.001		0.15	0.15		0.69	0.69		<0.001	<0.001		<0.001	<0.001		0.19	0.28
H1000's																														
H2000's	6.1 (3.8 to 8.5)			-0.01 (-0.01 to 0.00)			-1.1 (-2.2 to 1.0)			0.01 (0.00 to 0.02)			-0.15 (-0.20 to -0.09)			0.73 (-0.75 to 2.2)			0.00 (0.00 to 0.00)			-0.21 (-0.29 to -0.13)			-0.29 (-0.40 to -0.18)			0.02 (-0.01 to 0.05)		
H3000's	8.5 (5.3 to 12)			-0.01 (-0.02 to -0.01)			-0.71 (-2.8 to 1.3)			0.00 (-0.01 to 0.02)			-0.23 (-0.28 to -0.18)			1.4 (-0.01 to 2.8)			0.00 (0.00 to 0.00)			-0.33 (-0.40 to -0.26)			-0.46 (-0.56 to -0.36)			0.02 (-0.01 to 0.04)		
subj_char_ol__(Intercept)	3.4 (NA to NA)			0.01 (NA to NA)			3.2 (NA to NA)			0.02 (NA to NA)			0.05 (NA to NA)			2.1 (NA to NA)			0.00 (NA to NA)			0.04 (NA to NA)			0.10 (NA to NA)			0.04 (NA to NA)		
Residual_ol__Observation	3.4 (NA to NA)			0.01 (NA to NA)			3.4 (NA to NA)			0.01 (NA to NA)			0.15 (NA to NA)			2.7 (NA to NA)			0.00 (NA to NA)			0.25 (NA to NA)			0.28 (NA to NA)			0.03 (NA to NA)		

[1] CI = Confidence Interval
[2] False discovery rate correction for multiple testing

get terrains only (if applicable)

```
# eegt <- filter_at(eegt,vars('cond_char'), any_vars(. %in% c('flat','low','med','high')))
# eegt <- filter_at(eegt,vars('cond_char'), any_vars(. %in% c('high')))
# eegt$terr_ord_speed <- cut(eegt$speed_ms, 4, ordered = TRUE)
```

convert speeds to ordered & groups to factors

```
eegt <- mutate(eegt,across(c('group_char'), factor))
eegt$speed_ord <- cut(eegt$cond_char, 4, ordered = TRUE)
eegt <- mutate(eegt,across(c('cond_char'), factor))
head(eegt)
```

```
## # A tibble: 6 x 139
##   speed_ms subj_id subj_cl_ind subj_char comp_id design_id cond_id cond_char
##      <dbl> <chr>          <dbl> <fct>        <dbl> <chr>     <chr>   <fct>
## 1     0.87 1                  1 H1004            3 2         1       0.25
## 2     0.91 2                  2 H1007            3 2         1       0.25
## 3     0.67 3                  3 H1009            4 2         1       0.25
## 4     0.78 4                  4 H1010            4 2         1       0.25
## 5     1.2  5                  5 H1011            5 2         1       0.25
## 6     0.7  6                  6 H1012            8 2         1       0.25
## # i 131 more variables: group_id <chr>, cluster_id <chr>, aperiodic_exp <dbl>,
## #   aperiodic_offset <dbl>, central_freq_1 <dbl>, central_freq_2 <dbl>,
## #   central_freq_3 <dbl>, power_1 <dbl>, power_2 <dbl>, power_3 <dbl>,
## #   r_squared <dbl>, theta_avg_power <dbl>, alpha_avg_power <dbl>,
## #   beta_avg_power <dbl>, theta_1 <dbl>, theta_2 <dbl>, theta_3 <dbl>,
## #   theta_4 <dbl>, theta_5 <dbl>, theta_6 <dbl>, theta_7 <dbl>, theta_8 <dbl>,
## #   `alpha_ 1` <dbl>, `alpha_ 2` <dbl>, `alpha_ 3` <dbl>, `alpha_ 4` <dbl>, ...
```

```
eegt$group_speed_code = paste(eegt$group_char,eegt$cond_char,sep="_")
```

LME KIN ~ 1+speed+group

Cluster:	5																															
	APerc COV			APerc			MLeng COV			MLeng			Step Dur			UDens COV			UDens			Stance Dur			GaitCycle Dur			Peak UpDown Vel		
Characteristic	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value	Beta (95% CI)	p-value	q-value
(Intercept)	18 (16 to 20)	<0.001	<0.001	0.07 (0.07 to 0.08)	<0.001	<0.001	11 (9.8 to 12)	<0.001	<0.001	0.13 (0.12 to 0.14)	<0.001	<0.001	1.4 (1.3 to 1.4)	<0.001	<0.001	22 (21 to 24)	<0.001	<0.001	0.01 (0.01 to 0.01)	<0.001	<0.001	2.0 (1.9 to 2.1)	<0.001	<0.001	2.4 (2.1 to 2.3)	<0.001	<0.001	0.01 (-0.02 to 0.02)	0.96	0.96
speed_cond_ums	-3.6 (-5.7 to -1.5)	<0.001	<0.001	-0.03 (-0.04 to -0.03)	<0.001	<0.001	6.7 (5.1 to 8.4)	<0.001	<0.001	-0.08 (-0.09 to -0.08)	<0.001	<0.001	-0.78 (-0.85 to -0.70)	<0.001	<0.001	-16 (-18 to -15)	<0.001	<0.001	0.03 (0.03 to 0.03)	<0.001	<0.001	-1.3 (-1.4 to -1.2)	<0.001	<0.001	-1.6 (-1.7 to -1.4)	<0.001	<0.001	0.38 (0.36 to 0.40)	<0.001	<0.001
group_char		<0.001	<0.001		<0.001	<0.001		0.76	0.76		0.40	0.40		<0.001	<0.001		0.14	0.14		0.91	0.91		<0.001	<0.001		<0.001	<0.001		0.012	0.02
H1000's																														
H2000's	5.6 (2.3 to 8.9)			-0.01 (-0.01 to 0.00)			-0.91 (-3.9 to 2.1)			0.01 (-0.01 to 0.02)			-0.12 (-0.19 to -0.05)			1.0 (-0.89 to 2.9)			0.00 (0.00 to 0.00)			-0.15 (-0.25 to -0.04)			-0.23 (-0.37 to -0.09)			0.02 (-0.02 to 0.05)		
H3000's	10 (7.6 to 13)			-0.02 (-0.02 to -0.01)			-0.75 (-3.2 to 1.7)			0.01 (-0.01 to 0.02)			-0.24 (-0.29 to -0.18)			1.5 (-0.04 to 3.1)			0.00 (0.00 to 0.00)			-0.32 (-0.40 to -0.24)			-0.47 (-0.58 to -0.36)			0.04 (0.01 to 0.07)		
subj_char_ol__(Intercept)	3.6 (NA to NA)			0.01 (NA to NA)			3.4 (NA to NA)			0.02 (NA to NA)			0.05 (NA to NA)			2.0 (NA to NA)			0.00 (NA to NA)			0.05 (NA to NA)			0.10 (NA to NA)			0.04 (NA to NA)		
Residual_ol__Observation	4.1 (NA to NA)			0.01 (NA to NA)			3.3 (NA to NA)			0.01 (NA to NA)			0.15 (NA to NA)			2.7 (NA to NA)			0.00 (NA to NA)			0.25 (NA to NA)			0.29 (NA to NA)			0.03 (NA to NA)		

[1] CI = Confidence Interval
[2] False discovery rate correction for multiple testing

Cluster:	6																															
	APosc COV			APosc			MLosc COV			MLosc			Step Dur			UDesc COV			UDesc			Stance Dur			GaitCycle Dur			Peak UpDown Vel		
Characteristic	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**
(Intercept)	19 (18 to 21)	<0.001	<0.001	0.07 (0.07 to 0.08)	<0.001	<0.001	10 (8.5 to 12)	<0.001	<0.001	0.14 (0.13 to 0.15)	<0.001	<0.001	1.4 (1.3 to 1.4)	<0.001	<0.001	22 (21 to 23)	<0.001	<0.001	0.01 (0.00 to 0.01)	<0.001	<0.001	2.0 (1.9 to 2.1)	<0.001	<0.001	2.7 (2.6 to 2.9)	<0.001	<0.001	-0.01 (-0.02 to 0.01)	0.51	0.51
speed_cond_mm	-5.3 (-7.3 to -3.4)	<0.001	<0.001	-0.03 (-0.04 to -0.03)	<0.001	<0.001	6.8 (5.2 to 8.5)	<0.001	<0.001	-0.09 (-0.10 to -0.08)	<0.001	<0.001	-0.74 (-0.85 to -0.66)	<0.001	<0.001	-15 (-16 to -14)	<0.001	<0.001	0.03 (0.03 to 0.03)	<0.001	<0.001	-1.3 (-1.4 to -1.1)	<0.001	<0.001	-1.5 (-1.6 to -1.4)	<0.001	<0.001	0.38 (0.37 to 0.40)	<0.001	<0.001
group_char		<0.001	<0.001		<0.001	<0.001		0.92	0.92		0.38	0.38		<0.001	<0.001		0.11	0.11		0.77	0.77		<0.001	<0.001		<0.001	<0.001		0.004	0.005
H1000's																																
H2000's	6.8 (4.4 to 9.3)			-0.01 (-0.02 to 0.00)			-0.40 (-2.7 to 1.9)			0.01 (0.00 to 0.02)			-0.16 (-0.21 to -0.10)			1.4 (-0.04 to 2.9)			0.00 (0.00 to 0.00)			-0.23 (-0.31 to -0.14)			-0.31 (-0.43 to -0.20)			0.03 (0.00 to 0.05)		
H3000's	-9.3 (-7.1 to 12)			-0.01 (-0.02 to -0.01)			-0.38 (-2.5 to 1.8)			0.00 (-0.01 to 0.02)			-0.23 (-0.29 to -0.18)			1.5 (-0.30 to 2.5)			0.00 (0.00 to 0.00)			-0.32 (-0.40 to -0.24)			-0.37 (-0.50 to -0.26)			0.04 (0.02 to 0.06)		
subj_char.sd__(Intercept)	3.1 (NA to NA)			0.01 (NA to NA)			3.2 (NA to NA)			0.02 (NA to NA)			0.06 (NA to NA)			2.0 (NA to NA)			0.00 (NA to NA)			0.06 (NA to NA)			0.11 (NA to NA)			0.04 (NA to NA)		
Residual.sd__Observation	4.2 (NA to NA)			0.01 (NA to NA)			3.3 (NA to NA)			0.01 (NA to NA)			0.14 (NA to NA)			2.8 (NA to NA)			0.00 (NA to NA)			0.24 (NA to NA)			0.28 (NA to NA)			0.03 (NA to NA)		

[1] CI = Confidence Interval

[2] False discovery rate correction for multiple testing

Cluster:	7																															
	APosc COV			APosc			MLosc COV			MLosc			Step Dur			UDesc COV			UDesc			Stance Dur			GaitCycle Dur			Peak UpDown Vel		
Characteristic	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**
(Intercept)	19 (17 to 21)	<0.001	<0.001	0.08 (0.07 to 0.09)	<0.001	<0.001	9.7 (8.3 to 11)	<0.001	<0.001	0.14 (0.13 to 0.15)	<0.001	<0.001	1.4 (1.3 to 1.4)	<0.001	<0.001	22 (21 to 23)	<0.001	<0.001	0.01 (0.01 to 0.01)	<0.001	<0.001	2.0 (1.9 to 2.1)	<0.001	<0.001	2.7 (2.6 to 2.8)	<0.001	<0.001	0.01 (-0.02 to 0.03)	0.75	0.75
speed_cond_mm	-4.4 (-6.1 to -2.6)	<0.001	<0.001	-0.03 (-0.04 to -0.03)	<0.001	<0.001	6.3 (4.9 to 7.8)	<0.001	<0.001	-0.09 (-0.09 to -0.08)	<0.001	<0.001	-0.75 (-0.81 to -0.69)	<0.001	<0.001	-15 (-17 to -14)	<0.001	<0.001	0.03 (0.03 to 0.03)	<0.001	<0.001	-1.3 (-1.4 to -1.2)	<0.001	<0.001	-1.5 (-1.6 to -1.4)	<0.001	<0.001	0.37 (0.36 to 0.39)	<0.001	<0.001
group_char		<0.001	<0.001		<0.001	<0.001		0.95	0.95		0.46	0.46		<0.001	<0.001		0.074	0.074		0.92	0.92		<0.001	<0.001		<0.001	<0.001		0.14	0.23
H1000's																																
H2000's	6.0 (3.4 to 8.7)			-0.01 (-0.01 to 0.00)			0.42 (-1.6 to 2.5)			0.01 (-0.01 to 0.02)			-0.12 (-0.17 to -0.07)			0.66 (-0.87 to 2.2)			0.00 (0.00 to 0.00)			-0.18 (-0.26 to -0.10)			-0.34 (-0.45 to -0.23)			0.02 (-0.01 to 0.05)		
H3000's	9.0 (6.7 to 11)			-0.01 (-0.02 to -0.01)			0.49 (-1.3 to 2.3)			0.00 (-0.01 to 0.01)			-0.21 (-0.26 to -0.16)			1.6 (0.22 to 2.9)			0.00 (0.00 to 0.00)			-0.30 (-0.37 to -0.23)			-0.42 (-0.52 to -0.33)			0.02 (0.00 to 0.05)		
subj_char.sd__(Intercept)	5.8 (NA to NA)			0.01 (NA to NA)			2.9 (NA to NA)			0.02 (NA to NA)			0.05 (NA to NA)			2.1 (NA to NA)			0.00 (NA to NA)			0.04 (NA to NA)			0.10 (NA to NA)			0.04 (NA to NA)		
Residual.sd__Observation	4.1 (NA to NA)			0.01 (NA to NA)			3.3 (NA to NA)			0.01 (NA to NA)			0.14 (NA to NA)			2.5 (NA to NA)			0.00 (NA to NA)			0.24 (NA to NA)			0.28 (NA to NA)			0.03 (NA to NA)		

[1] CI = Confidence Interval

[2] False discovery rate correction for multiple testing

Cluster:	8																															
	APosc COV			APosc			MLosc COV			MLosc			Step Dur			UDesc COV			UDesc			Stance Dur			GaitCycle Dur			Peak UpDown Vel		
Characteristic	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**
(Intercept)	19 (17 to 21)	<0.001	<0.001	0.08 (0.07 to 0.08)	<0.001	<0.001	11 (9.0 to 12)	<0.001	<0.001	0.14 (0.13 to 0.14)	<0.001	<0.001	1.4 (1.3 to 1.4)	<0.001	<0.001	22 (22 to 24)	<0.001	<0.001	0.01 (0.00 to 0.01)	<0.001	<0.001	2.0 (2.0 to 2.1)	<0.001	<0.001	2.8 (2.7 to 2.9)	<0.001	<0.001	0.00 (-0.02 to 0.01)	0.71	0.71
speed_cond_mm	-5.8 (-6.7 to -5.2)	<0.001	<0.001	-0.03 (-0.04 to -0.03)	<0.001	<0.001	6.3 (4.8 to 7.8)	<0.001	<0.001	-0.09 (-0.09 to -0.08)	<0.001	<0.001	-0.75 (-0.83 to -0.68)	<0.001	<0.001	-16 (-17 to -15)	<0.001	<0.001	0.03 (0.03 to 0.03)	<0.001	<0.001	-1.3 (-1.4 to -1.2)	<0.001	<0.001	-1.5 (-1.6 to -1.4)	<0.001	<0.001	0.38 (0.37 to 0.39)	<0.001	<0.001
group_char		<0.001	<0.001		<0.001	<0.001		0.91	0.91		0.38	0.38		<0.001	<0.001		0.11	0.11		0.59	0.59		<0.001	<0.001		<0.001	<0.001		0.007	0.011
H1000's																																
H2000's	5.9 (3.7 to 8.0)			-0.01 (-0.01 to 0.00)			-0.46 (-2.5 to 1.6)			0.01 (0.00 to 0.02)			-0.15 (-0.20 to -0.10)			1.1 (-0.22 to 2.4)			0.00 (0.00 to 0.00)			-0.22 (-0.29 to -0.15)			-0.30 (-0.40 to -0.20)			0.02 (0.00 to 0.04)		
H3000's	8.8 (6.7 to 11)			-0.01 (-0.02 to -0.01)			-0.23 (-2.2 to 1.8)			0.00 (-0.01 to 0.01)			-0.22 (-0.28 to -0.18)			1.2 (-0.06 to 2.5)			0.00 (0.00 to 0.00)			-0.32 (-0.39 to -0.25)			-0.46 (-0.55 to -0.37)			0.04 (0.01 to 0.06)		
subj_char.sd__(Intercept)	3.1 (NA to NA)			0.01 (NA to NA)			3.1 (NA to NA)			0.02 (NA to NA)			0.04 (NA to NA)			1.9 (NA to NA)			0.00 (NA to NA)			0.03 (NA to NA)			0.09 (NA to NA)			0.04 (NA to NA)		
Residual.sd__Observation	4.3 (NA to NA)			0.01 (NA to NA)			3.7 (NA to NA)			0.01 (NA to NA)			0.14 (NA to NA)			2.5 (NA to NA)			0.00 (NA to NA)			0.25 (NA to NA)			0.29 (NA to NA)			0.03 (NA to NA)		

[1] CI = Confidence Interval

[2] False discovery rate correction for multiple testing

Cluster:	9																															
	APosc COV			APosc			MLosc COV			MLosc			Step Dur			UDesc COV			UDesc			Stance Dur			GaitCycle Dur			Peak UpDown Vel		
Characteristic	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**
(Intercept)	19 (16 to 22)	<0.001	<0.001	0.08 (0.07 to 0.09)	<0.001	<0.001	11 (9.8 to 12)	<0.001	<0.001	0.14 (0.12 to 0.15)	<0.001	<0.001	1.4 (1.2 to 1.5)	<0.001	<0.001	22 (21 to 24)	<0.001	<0.001	0.01 (0.00 to 0.01)	<0.001	<0.001	2.1 (1.9 to 2.2)	<0.001	<0.001	2.8 (2.6 to 2.9)	<0.001	<0.001	0.01 (-0.02 to 0.03)	0.72	0.72
speed_cond_mm	-4.8 (-7.6 to -2.1)	<0.001	<0.001	-0.03 (-0.04 to -0.03)	<0.001	<0.001	6.2 (4.2 to 8.3)	<0.001	<0.001	-0.09 (-0.10 to -0.08)	<0.001	<0.001	-0.74 (-0.84 to -0.64)	<0.001	<0.001	-15 (-17 to -14)	<0.001	<0.001	0.03 (0.02 to 0.03)	<0.001	<0.001	-1.2 (-1.4 to -1.1)	<0.001	<0.001	-1.5 (-1.6 to -1.3)	<0.001	<0.001	0.37 (0.36 to 0.39)	<0.001	<0.001
group_char		<0.001	<0.001		<0.001	<0.001		0.69	0.69		0.23	0.23		<0.001	<0.001		0.13	0.13		0.66	0.66		<0.001	<0.001		<0.001	<0.001		0.45	0.67
H1000's																																
H2000's	6.6 (3.1 to 10)			-0.01 (-0.02 to -0.01)			-0.10 (-2.9 to 2.7)			0.00 (-0.01 to 0.02)			-0.18 (-0.25 to -0.12)			1.4 (-0.37 to 3.2)			0.00 (0.00 to 0.00)			-0.26 (-0.36 to -0.16)			-0.37 (-0.49 to -0.24)			0.02 (-0.02 to 0.05)		
H3000's	8.4 (5.2 to 12)			-0.01 (-0.02 to -0.01)			-1.2 (-3.8 to 1.4)			0.01 (0.00 to 0.03)			-0.24 (-0.30 to -0.18)			1.6 (-0.05 to 3.2)			0.00 (0.00 to 0.00)			-0.34 (-0.43 to -0.24)			-0.48 (-0.60 to -0.36)			0.02 (-0.01 to 0.06)		
subj_char.sd__(Intercept)	3.5 (NA to NA)			0.02 (NA to NA)			3.0 (NA to NA)			0.02 (NA to NA)			0.02 (NA to NA)			1.8 (NA to NA)			0.00 (NA to NA)			0.00 (NA to NA)			0.04 (NA to NA)			0.04 (NA to NA)		
Residual.sd__Observation	4.8 (NA to NA)			0.01 (NA to NA)			3.7 (NA to NA)			0.02 (NA to NA)			0.15 (NA to NA)			2.5 (NA to NA)			0.00 (NA to NA)			0.25 (NA to NA)			0.31 (NA to NA)			0.03 (NA to NA)		

[1] CI = Confidence Interval

[2] False discovery rate correction for multiple testing

Cluster:	10																															
	APosc COV			APosc			MLosc COV			MLosc			Step Dur			UDesc COV			UDesc			Stance Dur			GaitCycle Dur			Peak UpDown Vel		
Characteristic	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**
(Intercept)	20 (17 to 22)	<0.001	<0.001	0.07 (0.07 to 0.08)	<0.001	<0.001	11 (9.8 to 13)	<0.001	<0.001	0.14 (0.13 to 0.15)	<0.001	<0.001	1.4 (1.3 to 1.4)	<0.001	<0.001	22 (21 to 24)	<0.001	<0.001	0.01 (0.00 to 0.01)	<0.001	<0.001	2.0 (1.9 to 2.1)	<0.001	<0.001	2.7 (2.6 to 2.8)	<0.001	<0.001	0.02 (-0.01 to 0.04)	0.16	0.16
speed_cond_mm	-5.0 (-7.3 to -2.6)	<0.001	<0.001	-0.03 (-0.04 to -0.03)	<0.001	<0.001	5.4 (3.6 to 7.3)	<0.001	<0.001	-0.09 (-0.10 to -0.08)	<0.001	<0.001	-0.71 (-0.78 to -0.64)	<0.001	<0.001	-15 (-17 to -14)	<0.001	<0.001	0.03 (0.03 to 0.03)	<0.001	<0.001	-1.2 (-1.3 to -1.1)	<0.001	<0.001	-1.4 (-1.6 to -1.3)	<0.001	<0.001	0.40 (0.38 to 0.41)	<0.001	<0.001
group_char		<0.001	<0.001		<0.001	<0.001		0.32	0.32		0.55	0.55		<0.001	<0.001		0.40	0.40		0.050	0.050		<0.001	<0.001		<0.001	<0.001		0.009	0.014
H1000's																																
H2000's	5.1 (1.9 to 8.3)			-0.01 (-0.02 to -0.01)			-1.7 (-4.0 to 0.71)			0.01 (-0.01 to 0.02)			-0.16 (-0.22 to -0.10)			0.58 (-1.1 to 2.2)			0.00 (0.00 to 0.01)			-0.23 (-0.32 to -0.15)			-0.33 (-0.44 to -0.21)			0.03 (0.00 to 0.07)		
H3000's	9.6 (6.8 to 12)			-0.01 (-0.02 to -0.01)			-0.04 (-2.1 to 2.0)			0.01 (-0.01 to 0.02)			-0.22 (-0.27 to -0.17)			1.0 (-0.46 to 2.5)			0.00 (0.00 to 0.01)			-0.31 (-0.38 to -0.23)			-0.44 (-0.54 to -0.34)			0.05 (0.02 to 0.08)		
subj_char.sd__(Intercept)	3.5 (NA to NA)			0.01 (NA to NA)			2.0 (NA to NA)			0.02 (NA to NA)			0.05 (NA to NA)			1.8 (NA to NA)			0.00 (NA to NA)			0.06 (NA to NA)			0.09 (NA to NA)			0.04 (NA to NA)		
Residual.sd__Observation	4.6 (NA to NA)			0.01 (NA to NA)			3.5 (NA to NA)			0.01 (NA to NA)			0.14 (NA to NA)			2.6 (NA to NA)			0.00 (NA to NA)			0.23 (NA to NA)			0.27 (NA to NA)			0.03 (NA to NA)		

[1] CI = Confidence Interval

[2] False discovery rate correction for multiple testing

Cluster:	11																															
	APosc COV			APosc			MLosc COV			MLosc			Step Dur			UDesc COV			UDesc			Stance Dur			GaitCycle Dur			Peak UpDown Vel		
Characteristic	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**
(Intercept)	19 (17 to 21)	<0.001	<0.001	0.07 (0.07 to 0.08)	<0.001	<0.001	9.9 (8.3 to 11)	<0.001	<0.001	0.14 (0.13 to 0.15)	<0.001	<0.001	1.3 (1.3 to 1.4)	<0.001	<0.001	22 (21 to 23)	<0.001	<0.001	0.01 (0.00 to 0.01)	<0.001	<0.001	2.0 (1.9 to 2.0)	<0.001	<0.001	2.7 (2.5 to 2.8)	<0.001	<0.001	-0.01 (-0.03 to 0.01)	0.37	0.37
speed_cond_mm	-5.0 (-7.0 to -3.1)	<0.001	<0.001	-0.03 (-0.03 to -0.02)	<0.001	<0.001	6.7 (5.0 to 8.3)	<0.001	<0.001	-0.09 (-0.09 to -0.08)	<0.001	<0.001	-0.68 (-0.74 to -0.61)	<0.001	<0.001	-16 (-17 to -15)	<0.001	<0.001	0.03 (0.03 to 0.03)	<0.001	<0.001	-1.1 (-1.1 to -1.0)	<0.001	<0.001	-1.4 (-1.5 to -1.2)	<0.001	<0.001	0.39 (0.38 to 0.41)	<0.001	<0.001
group_char		<0.001	<0.001		<0.001	<0.001		0.43	0.43		0.23	0.23		<0.001	<0.001		0.039	0.039		0.39	0.39		<0.001	<0.001		<0.001	<0.001		0.006	0.010
H1000's																																
H2000's	6.3 (3.8 to 8.8)			-0.01 (-0.02 to 0.00)			-0.46 (-2.2 to 1.2)			0.01 (0.00 to 0.02)			-0.15 (-0.20 to -0.09)			1.0 (-0.33 to 2.4)			0.00 (0.00 to 0.00)			-0.21 (-0.30 to -0.13)			-0.29 (-0.40 to -0.18)			0.02 (-0.01 to 0.05)		
H3000's	11 (8.8 to 14)			-0.01 (-0.02 to -0.01)			0.09 (-2.0 to 2.4)			0.00 (-0.01 to 0.01)			-0.26 (-0.31 to -0.20)			1.8 (0.38 to 3.1)			0.00 (0.00 to 0.00)			-0.26 (-0.34 to -0.17)			-0.52 (-0.63 to -0.40)			0.05 (0.02 to 0.08)		
subj_char.sd__(Intercept)	3.4 (NA to NA)			0.01 (NA to NA)			2.0 (NA to NA)			0.02 (NA to NA)			0.05 (NA to NA)			1.9 (NA to NA)			0.00 (NA to NA)			0.06 (NA to NA)			0.11 (NA to NA)			0.04 (NA to NA)		
Residual.sd__Observation	4.3 (NA to NA)			0.01 (NA to NA)			3.7 (NA to NA)			0.01 (NA to NA)			0.14 (NA to NA)			2.5 (NA to NA)			0.00 (NA to NA)			0.24 (NA to NA)			0.28 (NA to NA)			0.03 (NA to NA)		

[1] CI = Confidence Interval

[2] False discovery rate correction for multiple testing

Cluster:	12																															
	APosc COV			APosc			MLosc COV			MLosc			Step Dur			UDesc COV			UDesc			Stance Dur			GaitCycle Dur			Peak UpDown Vel		
Characteristic	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**	**Beta (95% CI)**	**p-value**	**q-value**
(Intercept)	18 (16 to 20)	<0.001	<0.001	0.08 (0.07 to 0.09)	<0.001	<0.001	11 (9.7 to 13)	<0.001	<0.001	0.13 (0.12 to 0.14)	<0.001	<0.001	1.4 (1.3 to 1.5)	<0.001	<0.001	21 (20 to 23)	<0.001	<0.001	0.01 (0.00 to 0.01)	<0.001	<0.001	2.1 (2.0 to 2.2)	<0.001	<0.001	2.8 (2.7 to 2.9)	<0.001	<0.001	0.00 (-0.02 to 0.02)	0.92	0.92
speed_cond_mm	-3.8 (-6.0 to -1.7)	<0.001	<0.001	-0.03 (-0.04 to -0.03)	<0.001	<0.001	6.1 (4.3 to 7.9)	<0.001	<0.001	-0.08 (-0.09 to -0.08)	<0.001	<0.001	-0.76 (-0.83 to -0.68)	<0.001	<0.001	-15 (-16 to -13)	<0.001	<0.001	0.03 (0.02 to 0.03)	<0.001	<0.001	-1.3 (-1.4 to -1.1)	<0.001	<0.001	-1.5 (-1.7 to -1.4)	<0.001	<0.001	0.38 (0.36 to 0.39)	<0.001	<0.001
group_char		<0.001	<0.001		<0.001	<0.001		0.68	0.68		0.080	0.080		<0.001	<0.001		0.040	0.040		0.96	0.96		<0.001	<0.001		<0.001	<0.001		0.12	0.18
H1000's																																
H2000's	6.1 (3.2 to 9.0)			-0.01 (-0.02 to 0.00)			-0.97 (-3.5 to 1.5)			0.02 (0.00 to 0.03)			-0.16 (-0.22 to -0.10)			1.0 (-0.62 to 2.7)			0.00 (0.00 to 0.00)			-0.24 (-0.32 to -0.15)			-0.32 (-0.44 to -0.20)			0.02 (-0.01 to 0.05)		
H3000's	11 (8.8 to 14)			-0.01 (-0.02 to -0.01)			0.50 (-2.2 to 2.4)			0.01 (0.00 to 0.02)			-0.24 (-0.29 to -0.18)			2.0 (0.45 to 3.5)			0.00 (0.00 to 0.00)			-0.34 (-0.42 to -0.25)			-0.48 (-0.59 to -0.36)			0.03 (0.00 to 0.05)		
subj_char.sd__(Intercept)	3.5 (NA to NA)			0.01 (NA to NA)			3.1 (NA to NA)			0.02 (NA to NA)			0.05 (NA to NA)			1.9 (NA to NA)			0.00 (NA to NA)			0.03 (NA to NA)			0.08 (NA to NA)			0.04 (NA to NA)		
Residual.sd__Observation	4.3 (NA to NA)			0.01 (NA to NA)			3.6 (NA to NA)			0.01 (NA to NA)			0.15 (NA to NA)			2.7 (NA to NA)			0.00 (NA to NA)			0.25 (NA to NA)			0.30 (NA to NA)			0.03 (NA to NA)		

[1] CI = Confidence Interval

[2] False discovery rate correction for multiple testing