Linear model results

Linear mixed model fit by REML ['lmerMod']

Formula: force ~ finger \* location + (1 | individual)

Data: fingerforce

REML criterion at convergence: 3643.1

Scaled residuals:

Min 1Q Median 3Q Max

-1.9928 -0.6990 -0.0870 0.5645 3.4362

Random effects:

Groups Name Variance Std.Dev.

individual (Intercept) 12.80 3.578

Residual 48.71 6.979

Number of obs: 540, groups: individual, 15

Fixed effects:

Estimate Std. Error t value

(Intercept) 14.7298 1.3914 10.587

fingerL -3.7847 1.4714 -2.572

fingerM -3.5678 1.4714 -2.425

fingerR -4.8960 1.4714 -3.328

location3 2.2311 1.2742 1.751

fingerL:location3 -4.9558 1.8020 -2.750

fingerM:location3 2.9672 1.8020 1.647

fingerR:location3 -0.4937 1.8020 -0.274

Correlation of Fixed Effects:

(Intr) fingrL fingrM fingrR loctn3 fngL:3 fngM:3

fingerL -0.529

fingerM -0.529 0.500

fingerR -0.529 0.500 0.500

location3 -0.611 0.577 0.577 0.577

fngrL:lctn3 0.432 -0.816 -0.408 -0.408 -0.707

fngrM:lctn3 0.432 -0.408 -0.816 -0.408 -0.707 0.500

fngrR:lctn3 0.432 -0.408 -0.408 -0.816 -0.707 0.500 0.500

Anova

Df Sum Sq Mean Sq F value Pr(>F)

finger 3 4286 1428.8 23.485 2.74e-14 \*\*\*

location 1 311 311.3 5.116 0.02411 \*

finger:location 3 962 320.7 5.271 0.00137 \*\*

Residuals 532 32366 60.8

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Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1

LMER with finger and individual relationship random effect will be the trial

Linear mixed model fit by REML ['lmerMod']

Formula: force ~ finger \* individual + (1 | trial)

Data: fingerforce

REML criterion at convergence: 3402.3

Scaled residuals:

Min 1Q Median 3Q Max

-1.9669 -0.6457 -0.1565 0.5206 3.1395

Random effects:

Groups Name Variance Std.Dev.

trial (Intercept) 0.00 0.0

Residual 53.29 7.3

Number of obs: 540, groups: trial, 3

Fixed effects

Fixed effects:

Estimate Std. Error t value

(Intercept) 14.4131 2.4332 5.923

fingerL -7.0258 3.4411 -2.042

fingerM -1.5659 3.4411 -0.455

fingerR -4.2514 3.4411 -1.235

individual3 2.0359 3.4411 0.592

individual4 -1.4336 3.4411 -0.417

individual5 -5.7929 3.4411 -1.683

individual7 -0.3113 3.4411 -0.090

individual8 -3.2491 3.4411 -0.944

individual9 12.4512 3.4411 3.618

individual10 4.3613 3.4411 1.267

individual11 6.3714 3.4411 1.852

individual12 -0.3065 3.4411 -0.089

individual13 -4.5505 3.4411 -1.322

individual15 6.9004 3.4411 2.005

individual16 7.5304 3.4411 2.188

individual17 -4.4827 3.4411 -1.303

individual18 7.5378 3.4411 2.191

fingerL:individual3 -0.1390 4.8665 -0.029

fingerM:individual3 -0.8179 4.8665 -0.168

fingerR:individual3 -0.3927 4.8665 -0.081

fingerL:individual4 2.5004 4.8665 0.514

fingerM:individual4 1.0735 4.8665 0.221

fingerR:individual4 -0.3459 4.8665 -0.071

fingerL:individual5 4.3037 4.8665 0.884

fingerM:individual5 1.6378 4.8665 0.337

fingerR:individual5 3.7876 4.8665 0.778

fingerL:individual7 3.1372 4.8665 0.645

fingerM:individual7 4.7119 4.8665 0.968

fingerR:individual7 1.3129 4.8665 0.270

fingerL:individual8 2.1505 4.8665 0.442

fingerM:individual8 0.6042 4.8665 0.124

fingerR:individual8 -1.1759 4.8665 -0.242

fingerL:individual9 -4.2704 4.8665 -0.878

fingerM:individual9 -4.2487 4.8665 -0.873

fingerR:individual9 -5.9733 4.8665 -1.227

fingerL:individual10 -1.3916 4.8665 -0.286

fingerM:individual10 -1.4133 4.8665 -0.290

fingerR:individual10 -4.9757 4.8665 -1.022

fingerL:individual11 -2.9799 4.8665 -0.612

fingerM:individual11 -1.1848 4.8665 -0.243

fingerR:individual11 -0.8077 4.8665 -0.166

fingerL:individual12 0.7073 4.8665 0.145

fingerM:individual12 0.7277 4.8665 0.150

fingerR:individual12 1.8799 4.8665 0.386

fingerL:individual13 2.6374 4.8665 0.542

fingerM:individual13 2.2054 4.8665 0.453

fingerR:individual13 1.8928 4.8665 0.389

fingerL:individual15 -3.2193 4.8665 -0.662

fingerM:individual15 -1.7544 4.8665 -0.361

fingerR:individual15 -3.7381 4.8665 -0.768

fingerL:individual16 -2.5804 4.8665 -0.530

fingerM:individual16 -1.4391 4.8665 -0.296

fingerR:individual16 -2.6191 4.8665 -0.538

fingerL:individual17 2.9555 4.8665 0.607

fingerM:individual17 1.3441 4.8665 0.276

fingerR:individual17 1.2939 4.8665 0.266

fingerL:individual18 -4.7526 4.8665 -0.977

fingerM:individual18 -1.8039 4.8665 -0.371

fingerR:individual18 -4.7438 4.8665 -0.975

Anova for model 2

> aov.out1 = aov(force ~ finger\*individual + trial,data=fingerforce)

> summary(aov.out1)

Df Sum Sq Mean Sq F value Pr(>F)

finger 3 4286 1428.8 26.745 5.25e-16 \*\*\*

individual 14 7134 509.6 9.538 < 2e-16 \*\*\*

trial 2 41 20.6 0.386 0.68

finger:individual 42 928 22.1 0.414 1.00

Residuals 478 25536 53.4

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Signif. codes: 0 ‘\*\*\*’ 0.001 ‘\*\*’ 0.01 ‘\*’ 0.05 ‘.’ 0.1 ‘ ’ 1