## Supplementary Figures: Knee joint forces (KJF) time series of all movements

$r$ : Pearson's correlation coefficient; rRMSE: relative root-mean-squared error; OLJ: one-leg jump; TLJ: two-leg jump; mean (standard deviation)



- $\mathrm{F}_{\mathrm{v}}, \mathrm{F}_{\mathrm{ap}}$ and $\mathrm{F}_{\mathrm{ml}}$
$-\mathrm{F}_{\mathrm{v}}^{*} ; r=0.94(0.33), r$ RMSE $=14.2 \%(4.0 \%)$
$-\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.90(0.30), r$ RMSE $=18.9 \%(5.5 \%)$
$-\mathrm{F}_{\mathrm{ml}}^{*} ; r=0.43(0.26), r$ RMSE $=41.7 \%(11.5 \%)$

$$
\begin{aligned}
& \text { - } \mathrm{F}_{\mathrm{v}}, \mathrm{~F}_{\mathrm{ap}} \text { and } \mathrm{F}_{\mathrm{ml}} \\
& \text { - } \mathrm{F}_{\mathrm{v}}^{*} ; r=0.89(0.43), r \text { RMSE }=20.3 \%(5.8 \%) \\
& -\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.88(0.44), r R M S E=22.9 \%(9.5 \%) \\
& -\mathrm{F}_{\mathrm{ml}}^{*} ; r=0.42(0.41), r \text { RMSE }=43.3 \%(12.0 \%)
\end{aligned}
$$



$-F_{v}, F_{a p}$ and $F_{m l}$

- $\mathrm{F}_{\mathrm{v}}, \mathrm{F}_{\text {ap }}$ and $\mathrm{F}_{\mathrm{m}}$
$-\mathrm{F}_{\mathrm{v}}^{*} ; r=0.89$ (0.35), $r$ RMSE $=17.2 \%(4.4 \%)$
$-\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.82(0.36), r$ RMSE $=21.0 \%(6.5 \%)$
— $\mathrm{F}_{\mathrm{v}}^{*} ; r=0.87(0.40), r R M S E=17.5 \%(5.3 \%)$
$-\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.88$ (0.43), rRMSE $=19.5 \%$ (8.1\%)
$-\mathrm{F}_{\mathrm{m}}^{*} ; r=0.37(0.42), r R M S E=37.2 \%(11.5 \%)$

$-F_{v}, F_{a p}$ and $F_{m l}$
— $\mathrm{F}_{\mathrm{v}}^{*} ; r=0.73(0.45)$, RRMSE $=25.9 \%(8.8 \%)$
- $\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.76$ ( 0.40 ), $r$ RMSE $=25.8 \%(9.3 \%)$
— $\mathrm{F}_{\text {ml }}^{*} ; r=0.31$ (0.29), $r$ RMSE $=43.3 \%(10.0 \%)$

- $\mathrm{F}_{\mathrm{v}}, \mathrm{F}_{\mathrm{ap}}$ and $\mathrm{F}_{\mathrm{ml}}$
— $\mathrm{F}_{\mathrm{v}}^{*} ; r=0.86$ (0.44), $r$ RMSE $=19.4 \%(6.6 \%)$
- $\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.86$ ( 0.41 ), $r$ RMSE $=22.0 \%(7.3 \%)$
— $\mathrm{F}_{\mathrm{ml}}^{*} ; r=0.30$ (0.42), $r$ RMSE $=44.8 \%$ (13.0\%)

- $F_{\mathrm{v}}, F_{\mathrm{ap}}$ and $\mathrm{F}_{\mathrm{ml}}$
— $\mathrm{F}_{\mathrm{v}}^{*} ; r=0.78$ (0.45), $r$ RMSE $=24.7 \%(7.2 \%)$
- $\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.80$ (0.34), $r$ RMSE $=\mathbf{2 1 . 8 \%}$ (7.5\%)
$-\mathrm{F}_{\mathrm{ml}}^{*} ; r=0.45(0.29)$, rRMSE $=37.7 \%(9.0 \%)$

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\begin{aligned}
& -\mathrm{F}_{\mathrm{v}}, \mathrm{~F}_{\mathrm{ap}} \text { and } \mathrm{F}_{\mathrm{ml}} \\
& -\mathrm{F}_{\mathrm{v}}^{*} ; r=0.86(0.39), r R M S E=19.0 \%(5.4 \%) \\
& -\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.84(0.35), r \text { MSE }=21.4 \%(5.2 \%) \\
& -\mathrm{F}_{\mathrm{ml}}^{*} ; r=0.25(0.39), r \text { RMSE }=45.7 \%(9.0 \%)
\end{aligned}
$$



- $F_{v}, F_{a p}$ and $F_{m l}$
— $\mathrm{F}_{\mathrm{v}}^{*} ; r=0.79$ (0.47), $r$ RMSE $=20.3 \%(6.6 \%)$
$-\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.81$ (0.43), $r$ RMSE $=19.8 \%(5.9 \%)$
$-\mathrm{F}_{\mathrm{ml}}^{*} ; r=0.35$ (0.45), $r$ RMSE $=36.5 \%$ (9.3\%)

- $F_{v}, F_{a p}$ and $F_{m l}$
- $\mathrm{F}_{\mathrm{v}}^{*} ; r=0.81$ (0.27), $r$ RMSE $=16.9 \%$ ( $4.5 \%$ )
— $\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.65$ ( 0.31 ), $r$ RMSE $=23.0 \%$ ( $6.2 \%$ )
$-\mathrm{F}_{\mathrm{m} \mid}^{*} ; r=0.31$ (0.20), $r$ RMSE $=34.1 \%(8.1 \%)$

$-F_{\mathrm{v}}, F_{\mathrm{ap}}$ and $\mathrm{F}_{\mathrm{ml}}$
— $\mathrm{F}_{\mathrm{v}}^{*} ; r=0.87$ (0.32), $r$ RMSE $=14.2 \%$ (4.3\%)
— $\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.71$ (0.39), $r$ RMSE $=20.8 \%(5.6 \%)$
— $\mathrm{F}_{\mathrm{ml}}^{*} ; r=0.60$ ( 0.31 ), $r$ RMSE $=27.7 \%(5.7 \%)$


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- $F_{v}, F_{a p}$ and $F_{m l}$
— $\mathrm{F}_{\mathrm{v}}^{*} ; r=0.92$ (0.39), $r$ RMSE $=15.4 \%(6.6 \%)$
— $\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.89(0.25), r$ RMSE $=17.4 \%(5.5 \%)$
— $\mathrm{F}_{\mathrm{ml}}^{*} ; r=0.31$ (0.46), $r$ RMSE $=45.9 \%$ ( $19.7 \%$ )
- $F_{v}, F_{a p}$ and $F_{m l}$
— $\mathrm{F}_{\mathrm{v}}^{*} ; r=0.84$ (0.43), $r$ RMSE $=16.7 \%$ (7.2\%)
- $\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.77$ (0.53), $r$ RMSE $=25.1 \%(9.4 \%)$
— $\mathrm{F}_{\mathrm{ml}}^{*} ; r=0.42$ (0.38), $r$ RMSE $=39.0 \%$ (14.4\%)



$$
\begin{aligned}
& -\mathrm{F}_{\mathrm{v}}, \mathrm{~F}_{\mathrm{ap}} \text { and } \mathrm{F}_{\mathrm{ml}} \\
& -\mathrm{F}_{\mathrm{v}}^{*} ; r=0.60(0.36), r R M S E=23.0 \%(8.6 \%) \\
& -\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.82(0.40), r \text { RMSE }=20.5 \%(7.4 \%) \\
& -\mathrm{F}_{\mathrm{ml}}^{*} ; r=0.51(0.23), r \text { RMSE }=27.8 \%(2.9 \%)
\end{aligned}
$$


[^0]:    - $\mathrm{F}_{\mathrm{v}}, \mathrm{F}_{\mathrm{ap}}$ and $\mathrm{F}_{\mathrm{ml}}$
    — $\mathrm{F}_{\mathrm{v}}^{*} ; r=0.83$ (0.29), $r$ RMSE $=15.3 \%(4.0 \%)$
    — $\mathrm{F}_{\mathrm{ap}}^{*} ; r=0.64(0.30), r$ RMSE $=22.7 \%(5.8 \%)$
    $-\mathrm{F}_{\mathrm{m} \mid}^{*} ; r=0.48$ (0.34), $r$ RMSE $=\mathbf{2 9 . 1 \%}$ (6.0\%)

