Supplements for *Characterizing adaptations of prosthetic feet in the frontal plane*

Supplement A:

The measured parameters used to estimate the adaptations of the different feet to cross slopes are given in Table S1 for three load stages, see eq. 6. Furthermore, the effective vertical shift *h* that considers the mean twist of lateral and medial toe, the effective adaptations due to the twist and due to the shift, are given. Note, the effective adaptation due to the shift depends on the width of the toes.

Table S1: Measured adaptations for the investigated feet for different load stages.

	prosthesis placed on	load in kg	**Axtion 27/4-5**	**Pacifica LP 27/5**	**Pro-Flex LP 27/5**	**Triton 27/2**	**Triton 27/3**	**ESRJ 27/3**
twist medial toe in °	hill-side/ eversion	25	-2.1±0.2	0.0±0.3	-1.0±0.2	-0.7±0.2	-0.8±0.2	-5.3±0.3
		50	-3.5±0.2	0.3±0.3	-1.5±0.2	-1.6±0.2	-1.5±0.2	-6.2±0.5
		100	-4.9±0.2	-0.8±0.2	-2.1±0.2	-2.1±0.3	-2.1±0.2	-7.1±0.4
	valley-side/ inversion	25	1.8±0.2	0.2±0.2	1.4±0.2	1.7±0.2	1.2±0.2	6.3±0.5
		50	3.4±0.2	0.5±0.3	2.0±0.2	2.9±0.3	2.3±0.2	6.8±0.2
		100	4.6±0.2	1.5±0.2	2.4±0.3	3.9±0.2	3.4±0.2	7.1±0.2
twist lateral toe in °	hill-side/ eversion	25	-2.4±0.2	-0.5±0.2	-1.0±0.6	-0.8±0.2	-1.6±0.2	-6.0±0.8
		50	-3.9±0.2	-0.9±0.3	-1.9±0.6	-2.5±0.2	-2.4±0.2	-6.6±0.3
		100	-5.2±0.2	-1.1±0.2	-2.7±0.4	-3.4±0.2	-3.0±0.2	-7.2±0.2
	valley-side/ inversion	25	1.7±0.2	0.1±0.2	0.7±0.2	1.2±0.2	0.4±0.2	5.4±0.6
		50	3.0±0.2	0.3±0.3	1.2±0.2	2.0±0.2	1.2±0.2	6.3±0.3
		100	4.4±0.2	0.3±0.3	1.6±0.4	2.6±0.2	2.4±0.2	6.8±0.4
adaptation δ in °	hill-side/ eversion	25	-2.2±0.2	-3.0±0.2	-1.8±0.2	2.0±0.2	-2.2±0.2	-6.4±0.4
		50	-3.6±0.2	-4.4±0.2	-2.6±0.3	3.5±0.3	-3.6±0.2	-6.9±0.3
		100	-5.0±0.2	-5.7±0.3	-4.0±0.2	4.4±0.2	-4.9±0.2	-7.4±0.3
	valley-side/ inversion	25	2.0±0.2	3.2±0.7	2.0±0.2	-2.6±0.3	1.6±0.2	6.7±0.5
		50	3.1±0.2	4.2±0.5	3.7±0.3	-4.1±0.2	2.6±0.2	7.9±0.2
		100	4.4±0.2	4.5±0.2	4.3±0.2	-5.2±0.3	4.2±0.2	8.4±0.2
shift h_{min} in mm	hill-side/ eversion	25	-	3.5±0.2	1.1±0.2	1.0±0.2	0.8±0.2	1.0±0.2
		50	-	4.6±0.2	1.8±0.2	2.0±0.2	1.4±0.2	0.7±0.2
		100	-	4.8±0.2	2.5±0.2	2.1±0.2	1.8±0.2	0.6±0.2
	valley-side/ inversion	25	-	3.3±0.2	1.3±0.3	1.0±0.2	0.8±0.2	0.8±0.2
		50	-	4.5±0.2	1.6±0.3	1.9±0.2	1.3±0.2	1.0±0.2
		100	-	4.7±0.2	2.5±0.3	2.0±0.2	2.0±0.2	0.6±0.2
shift *h*	hill-side/ eversion	25	-	3.7±0.4	1.3±0.4	1.0±0.4	0.9±0.4	1.1±0.4
		50	-	4.9±0.4	2.0±0.4	2.2±0.4	1.6±0.4	0.7±0.4

in mm		100	-	4.9±0.4	2.8±0.4	2.3±0.4	2.0±0.4	0.6±0.4
	valley-side/	25	-	3.5±0.4	1.5±0.4	1.0±0.4	0.9±0.4	0.9±0.4
	inversion	50	-	4.6±0.4	1.8±0.4	2.0±0.4	1.5±0.4	1.0±0.4
		100	-	5.1±0.4	2.7±0.4	2.2±0.4	2.2±0.4	0.6±0.4
adaptation	hill-side/	25	-	6.1±1.0	2.0±1.0	2.7±1.0	2.6±1.0	2.9±1.0
φ in °	eversion	50	-	8.2±1.0	3.0±1.0	6.0±1.0	4.3±1.0	1.8±1.0
due to		100	-	8.2±1.0	4.3±1.0	6.2±1.0	5.3±1.0	1.4±1.0
shift *h*	valley-side/	25	-	5.8±1.0	2.5±1.0	2.8±1.0	2.5±1.0	2.4±1.0
	inversion	50	-	7.8±1.0	3.1±1.0	5.6±1.0	4.1±1.0	2.7±1.0
		100	-	8.5±1.0	4.5±1.0	6.0±1.0	6.0±1.0	1.6±1.0
adaptation	hill-side/	25	2.0±1.0	0.3±1.0	1.0±1.0	0.8±1.0	1.2±1.0	5.7±1.0
α in °	eversion	50	3.7±1.0	0.3±1.0	1.7±1.0	2.0±1.0	1.9±1.0	6.4±1.0
due to		100	5.0±1.0	1.0±1.0	2.4±1.0	2.7±1.0	2.5±1.0	7.2±1.0
twists	valley-side/	25	1.8±1.0	0.2±1.0	1.1±1.0	1.5±1.0	0.8±1.0	5.9±1.0
	inversion	50	3.2±1.0	0.4±1.0	1.7±1.0	2.5±1.0	1.8±1.0	6.6±1.0
		100	4.5±1.0	0.9±1.0	2.0±1.0	3.2±1.0	2.9±1.0	7.0±1.0

Supplement B:

The data given in Table S2 are coefficients of determination (R^2) and gradients of the linear regression (*A* and *B*) of α and β on δ for the different feet. The sum of *A* and *B*, using model (III) eq.6, $\alpha + \beta = \delta = A\,\delta + B\,\delta$, is ideally 1. The corresponding graphs are shown in Figure 4. For the linear regression, the eversion and inversion of the asymmetric feet (hill-side and valley side conditions) were not separately investigated, i.e. both values were taken into account for one regression. Furthermore, the linear regression of β on δ, eq. 1, and φ on δ, eq. 2, deliver almost identical values for the coefficients of determination (compare Table S2 with Figure 4).

Table S2: Coefficients of determination and corresponding gradients of the linear regressions of α and β on δ:

	Axtion 27/4-5	**Pacifica® LP 27/5**	**Pro-Flex® LP 27/5**	**Triton LP 27/2**	**Triton LP 27/3**	**ESRJ 27/3**
$A = \alpha / \delta$	1.02	0.12	0.53	0.58	0.56	0.89
R^2_{twist}	1.00	0.87	0.98	0.95	0.98	0.99
$B = \beta / \delta$	-	0.86	0.54	0.41	0.38	0.07
R^2_{shift}	-	0.99	0.98	0.99	0.98	0.92