

# Kneeling with and without kneepads during kneeling tasks

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


## 1 Proportion of FSR Activation

The sample proportions ( $\hat{p}$ ) and confidence intervals (CIs) of FSR activation for all kneeling conditions in both sessions is presented in Table 1. If the proportion CIs overlap between session 1 and session 2, we can conclude that there is no statistically significant difference between the two proportions at the 95% confidence level. For bare kneeling, the proportion CIs overlapped between sessions for all kneeling tasks. For knee pad kneeling, the proportion CIs of sensor b did not overlap for upright kneeling and left and right reaching tasks (highlighted in grey in Table 1).

Table 1: Proportion ( $\hat{p}$ ) and confidence intervals (CI) of force sensitive resistor (FSR) activation for all kneeling trials and conditions. Sn – session, e.g., a1 and a2 indicate session 1 and session 2 for FSR sensor a (see Figure 1).

FSR	Sn	Upright		Backwards		Forward		Left		Right	
		$\hat{p}$ (CI)	Vis	$\hat{p}$ (CI)	Vis	$\hat{p}$ (CI)	Vis	$\hat{p}$ (CI)	Vis	$\hat{p}$ (CI)	Vis
		0.5 (0 - 1)		0.5 (0 - 1)		0.5 (0 - 1)		0.5 (0 - 1)		0.5 (0 - 1)	
<b>Bare</b>											
	a1	0.24 (0.12 - 0.40)		0.07 (0.01 - 0.20)		0.17 (0.07 - 0.32)		0.12 (0.04 - 0.26)		0.22 (0.11 - 0.38)	
	a2	0.38 (0.24 - 0.54)		0.26 (0.14 - 0.42)		0.22 (0.11 - 0.38)		0.21 (0.10 - 0.37)		0.26 (0.14 - 0.42)	
	b1	0.19 (0.09 - 0.34)		0.15 (0.06 - 0.29)		0.17 (0.07 - 0.32)		0.15 (0.06 - 0.29)		0.32 (0.18 - 0.48)	
	b2	0.24 (0.12 - 0.40)		0.29 (0.16 - 0.45)		0.24 (0.12 - 0.40)		0.21 (0.10 - 0.37)		0.33 (0.20 - 0.50)	
	c1	0.48 (0.32 - 0.64)		0.49 (0.33 - 0.65)		0.51 (0.35 - 0.67)		0.49 (0.33 - 0.65)		0.76 (0.60 - 0.88)	
	c2	0.55 (0.39 - 0.70)		0.52 (0.36 - 0.68)		0.56 (0.40 - 0.72)		0.52 (0.36 - 0.68)		0.55 (0.39 - 0.70)	
	d1	0.19 (0.09 - 0.34)		0.22 (0.11 - 0.38)		0.22 (0.11 - 0.38)		0.17 (0.07 - 0.32)		0.34 (0.20 - 0.51)	
	d2	0.41 (0.26 - 0.57)		0.41 (0.26 - 0.57)		0.27 (0.14 - 0.43)		0.26 (0.14 - 0.42)		0.36 (0.22 - 0.52)	
	e1	0.07 (0.01 - 0.20)		0.00 (0.00 - 0.09)		0.00 (0.00 - 0.09)		0.00 (0.00 - 0.09)		0.00 (0.00 - 0.09)	
	e2	0.02 (0.00 - 0.13)		0.02 (0.00 - 0.13)		0.00 (0.00 - 0.09)		0.00 (0.00 - 0.08)		0.00 (0.00 - 0.08)	
	f1	0.07 (0.01 - 0.20)		0.00 (0.00 - 0.09)		0.00 (0.00 - 0.09)		0.00 (0.00 - 0.09)		0.00 (0.00 - 0.09)	
	f2	0.02 (0.00 - 0.13)		0.02 (0.00 - 0.13)		0.00 (0.00 - 0.09)		0.02 (0.00 - 0.13)		0.00 (0.00 - 0.08)	
	g1	0.12 (0.04 - 0.26)		0.24 (0.12 - 0.40)		0.20 (0.09 - 0.35)		0.15 (0.06 - 0.29)		0.29 (0.16 - 0.46)	
	g2	0.02 (0.00 - 0.13)		0.19 (0.09 - 0.34)		0.10 (0.03 - 0.23)		0.07 (0.01 - 0.20)		0.31 (0.18 - 0.47)	
	h1	0.17 (0.07 - 0.31)		0.17 (0.07 - 0.32)		0.12 (0.04 - 0.26)		0.27 (0.14 - 0.43)		0.22 (0.11 - 0.38)	
	h2	0.19 (0.09 - 0.34)		0.17 (0.07 - 0.31)		0.10 (0.03 - 0.23)		0.21 (0.10 - 0.37)		0.26 (0.14 - 0.42)	
<b>Knee Pads</b>											
	a1	0.43 (0.28 - 0.59)		0.10 (0.03 - 0.23)		0.57 (0.41 - 0.72)		0.24 (0.12 - 0.40)		0.24 (0.12 - 0.40)	
	a2	0.43 (0.28 - 0.59)		0.14 (0.05 - 0.28)		0.31 (0.18 - 0.47)		0.17 (0.07 - 0.31)		0.31 (0.18 - 0.47)	
	b1	0.33 (0.20 - 0.50)		0.26 (0.14 - 0.42)		0.43 (0.28 - 0.59)		0.26 (0.14 - 0.42)		0.52 (0.36 - 0.68)	
	b2	0.69 (0.53 - 0.82)		0.57 (0.41 - 0.72)		0.62 (0.46 - 0.76)		0.71 (0.55 - 0.84)		0.86 (0.72 - 0.95)	
	c1	0.60 (0.43 - 0.74)		0.50 (0.34 - 0.66)		0.52 (0.36 - 0.68)		0.33 (0.20 - 0.50)		0.88 (0.74 - 0.96)	
	c2	0.55 (0.39 - 0.70)		0.69 (0.53 - 0.82)		0.79 (0.63 - 0.90)		0.60 (0.43 - 0.74)		0.88 (0.74 - 0.96)	
	d1	0.10 (0.03 - 0.23)		0.36 (0.22 - 0.52)		0.19 (0.09 - 0.34)		0.14 (0.05 - 0.28)		0.64 (0.48 - 0.78)	
	d2	0.05 (0.01 - 0.16)		0.36 (0.22 - 0.52)		0.00 (0.00 - 0.08)		0.00 (0.00 - 0.08)		0.48 (0.32 - 0.64)	

Table 1: Proportion ( $\hat{p}$ ) and confidence intervals (CI) of force sensitive resistor (FSR) activation for all kneeling trials and conditions. Sn – session, e.g., a1 and a2 indicate session 1 and session 2 for FSR sensor a (see Figure 1). *(continued)*

FSR	Sn	Upright		Backwards		Forward		Left		Right	
		$\hat{p}$ (CI)	Vis	$\hat{p}$ (CI)	Vis	$\hat{p}$ (CI)	Vis	$\hat{p}$ (CI)	Vis	$\hat{p}$ (CI)	Vis
	e1	0.00 (0.00 – 0.08)		0.05 (0.01 – 0.16)		0.00 (0.00 – 0.08)		0.00 (0.00 – 0.08)		0.12 (0.04 – 0.26)	
	e2	0.02 (0.00 – 0.13)		0.02 (0.00 – 0.13)		0.00 (0.00 – 0.08)		0.05 (0.01 – 0.16)		0.07 (0.01 – 0.20)	
	f1	0.00 (0.00 – 0.08)		0.02 (0.00 – 0.13)		0.00 (0.00 – 0.08)		0.00 (0.00 – 0.08)		0.00 (0.00 – 0.08)	
	f2	0.07 (0.01 – 0.20)		0.05 (0.01 – 0.16)		0.02 (0.00 – 0.13)		0.00 (0.00 – 0.08)		0.07 (0.01 – 0.20)	
	g1	0.17 (0.07 – 0.31)		0.07 (0.01 – 0.20)		0.07 (0.01 – 0.20)		0.07 (0.01 – 0.20)		0.26 (0.14 – 0.42)	
	g2	0.07 (0.01 – 0.20)		0.02 (0.00 – 0.13)		0.02 (0.00 – 0.13)		0.00 (0.00 – 0.08)		0.12 (0.04 – 0.26)	
	h1	0.19 (0.09 – 0.34)		0.07 (0.01 – 0.20)		0.07 (0.01 – 0.20)		0.05 (0.01 – 0.16)		0.07 (0.01 – 0.20)	
	h2	0.07 (0.01 – 0.20)		0.02 (0.00 – 0.13)		0.00 (0.00 – 0.08)		0.00 (0.00 – 0.08)		0.00 (0.00 – 0.08)	
		0.5 (0 - 1)		0.5 (0 - 1)		0.5 (0 - 1)		0.5 (0 - 1)		0.5 (0 - 1)	