

FINGER AND HAND EXTENSION & ABDUCTION

Finger and Hand Extension & Abduction Strength — Reference Values

A quick-reference for interpreting SPLAYOMETER measurements. Values are reproduced from the biomechanics and rheumatology literature, not from SPLAYOMETER-specific norms.

PRELIMINARY

Published normative data for finger extension and abduction is limited, and comes from small studies rather than clinical norming comparable to Mathiowetz grip and pinch. **No published normative data exists for isolated per-digit finger abduction strength**, and none is presented here. Prefer **within-patient serial tracking** over direct comparison.

Finger Extension Force (Whole Hand)		
All four fingers together, thumb excluded; MCP joints at a fixed angle, force-transducer measurement (EX-it device). Dominant hand. Values in newtons, as reported.		
COHORT	MEN	WOMEN
Healthy adults, mean age 25 n = 10 each · ranges 80.3–126.4 / 42.7–81.5	105.1 ± 6.8 N	58.7 ± 4.0 N
Healthy controls, mean age 55–60 n = 12 men / 45 women	66.2 ± 29.7 N	39.1 ± 12.5 N
Rheumatoid arthritis n = 12 men (p < 0.05) / 45 women (p < 0.001) vs. controls	38.2 ± 16.5 N	14.8 ± 9.5 N
Brorsson, Nilsson, Soller, Baerveldt & Hilliges (2008). Flexion force in the same young cohort, measured with a Gripper dynamometer, was 553.5 N (men) and 320 N (women). Whole-hand values — the source does not report per-digit extension means. Device biomechanics differ from the SPLAYOMETER; treat as orientation, not threshold.		

Whole-Hand Spread (Multifinger Abduction)				
Cumulative four-finger abduction and adduction force — applicable to hand-loop measurement.				
Total abduction (4-finger spread)	~7.3 lb	Total adduction (4-finger squeeze)	~9.5 lb	Sex effect
Mean, healthy adults	~3.3 kg	Mean, healthy adults	~4.3 kg	Sex-stratified means not reported
Pataky, Latash & Zatsiorsky (2008), n = 21 (12 F / 9 M), healthy subjects only. Used four independent transducers; hand-loop biomechanics differ — treat as orientation, not threshold.				

Evidence-based context

- Extension is a fraction of flexion:** in the same young subjects, whole-hand extension averaged 105.1 N (men) and 58.7 N (women) against flexion of 553.5 N and 320 N — roughly 19% (Brorsson 2008).
- Reduced in rheumatoid arthritis:** significantly lower than in age-matched controls (men p < 0.05, women p < 0.001), and correlated with reported pain level (p < 0.01) (Brorsson 2008).
- Flexion stops predicting extension in disease:** the two correlated in healthy women (r = 0.65, p = 0.002) but not in women with RA (r = 0.25, p = 0.289) (Brorsson 2012).
- Inter-finger dependence ("enslaving"):** activating one finger produces force in adjacent fingers (Zatsiorsky 2000).
- Whole-hand spread is its own metric:** multifinger ab/adduction force is not predictable from single-finger strengths (Pataky 2008).
- Age effects:** grip strength peaked within the 25–39 age group for both sexes and declined gradually thereafter (Mathiowetz 1985).

Recommended clinical application

Establish a baseline at session 1, replicate test conditions at each follow-up, and track change over time as the primary outcome. No SPLAYOMETER-specific minimal detectable change (MDC) has been published — interpret session-to-session variation against your own setup repeatability, not a fixed threshold. For context, published MDC values for grip dynamometry range from 2.7 to 5.2 kg (Bohannon 2019); no equivalent value exists for finger extension or abduction.

SOURCES

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