



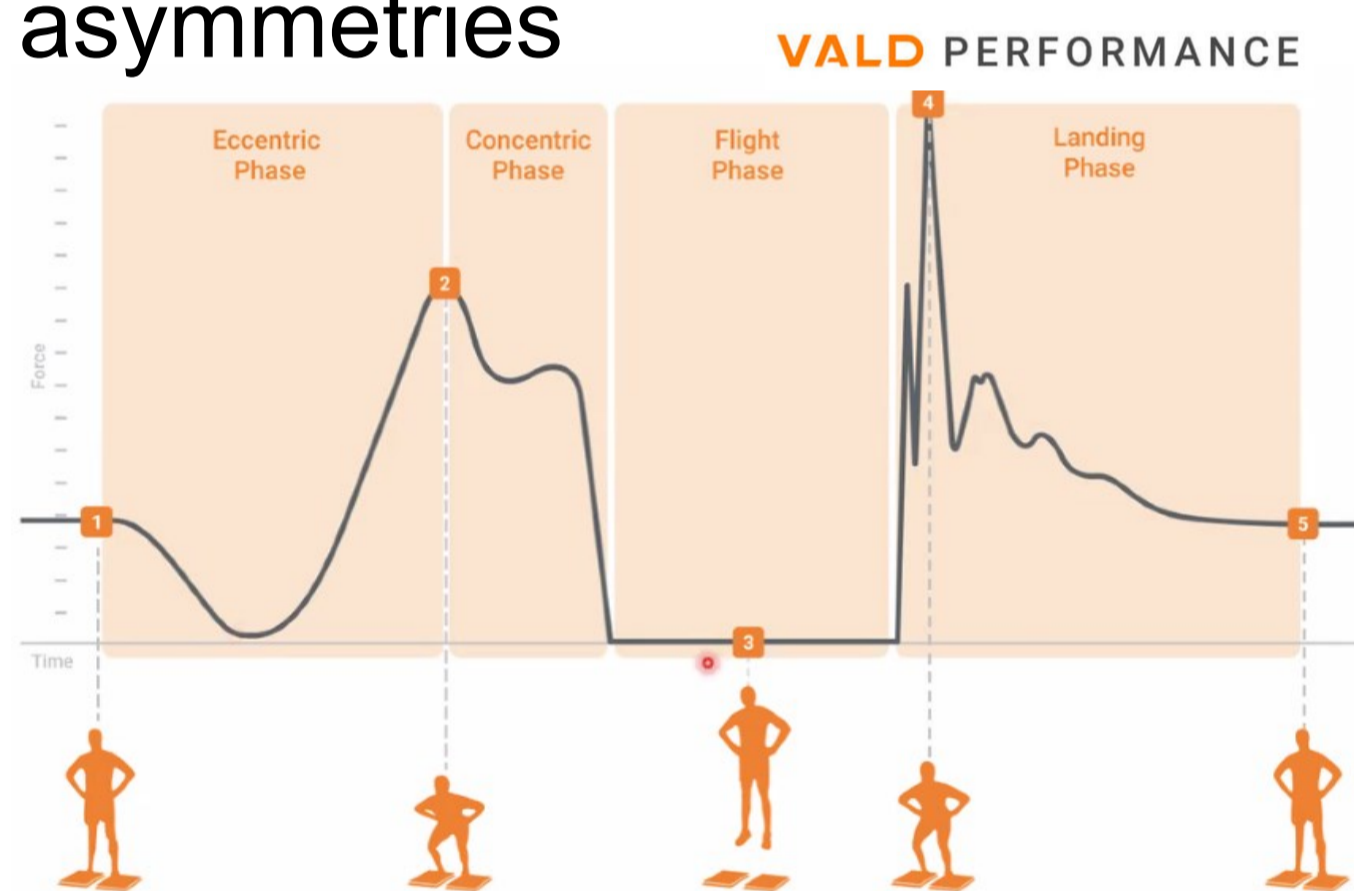
BILATERAL COUNTERMOVEMENT VERTICAL JUMP PERFORMANCE DIFFERS BETWEEN INDIVIDUALS WITH AND WITHOUT A PREVIOUS ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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Introduction

- Countermovement jump (CMJ) kinetics can be altered following knee injury and anterior cruciate ligament reconstruction (ACLR).
- Phase-specific kinetic analyses provide insight to between-limb asymmetries



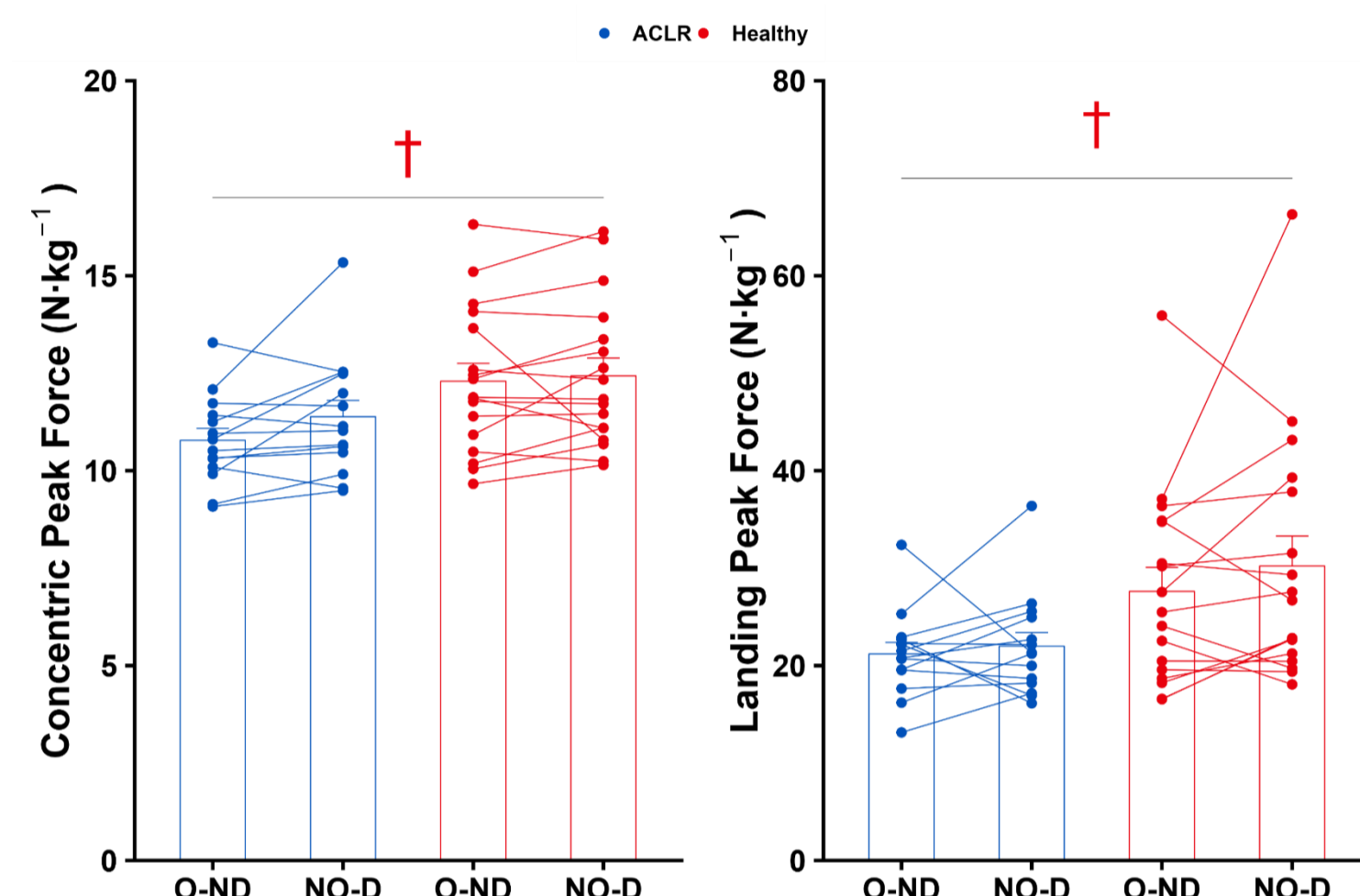
Purpose

The purpose of this study was to compare force-time metrics during bilateral countermovement vertical jump between healthy individuals and individuals with a previous ACLR



Results

Group and leg differences from bilateral CMJ

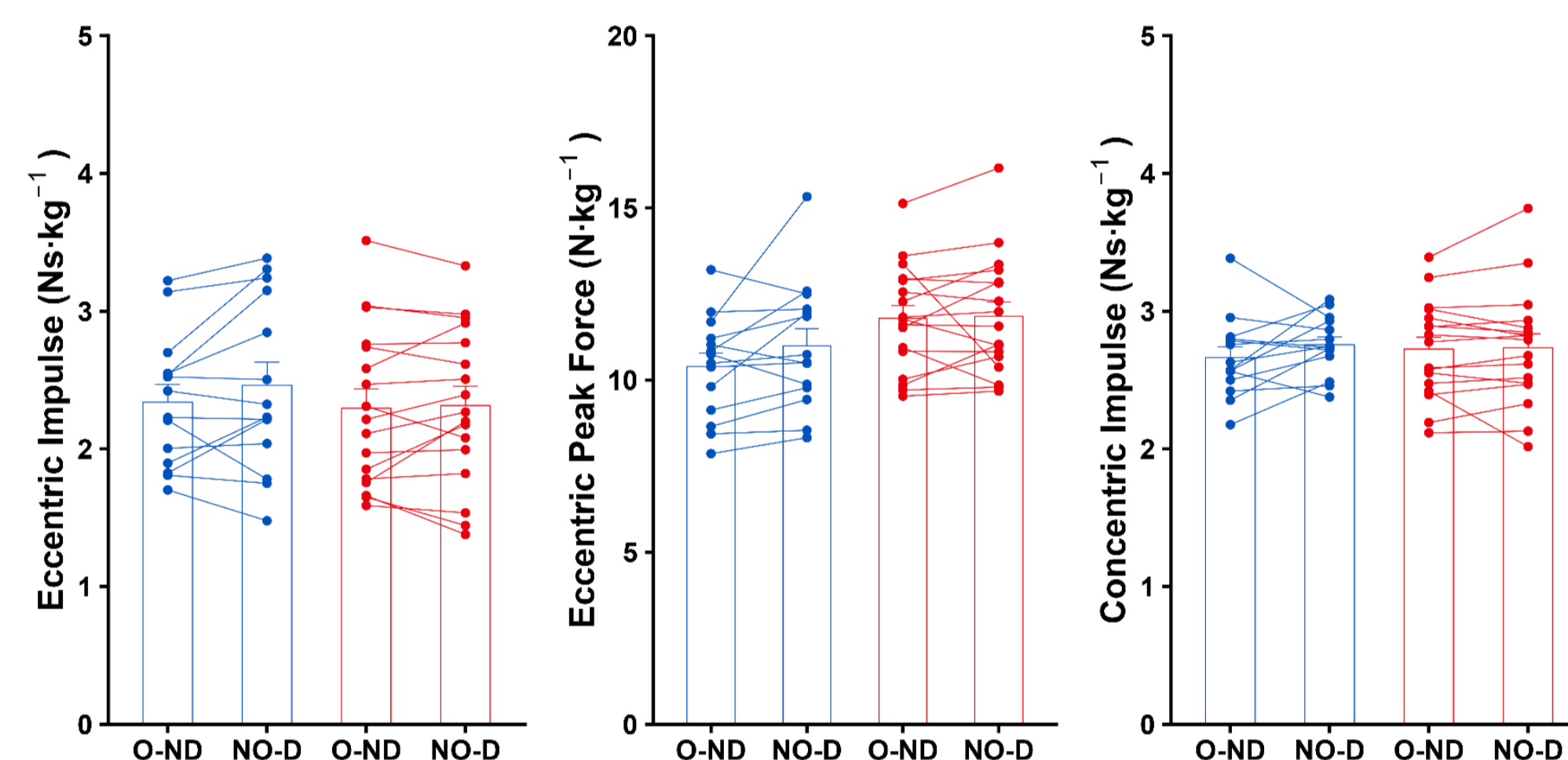


†group main effects:

Concentric Peak Force:
 $p=0.033$

Landing Peak Force:
 $p=0.021$

Healthy > ACLR



Group differences in total variables

	ACLR	Healthy	MD (95% CI)	<i>d</i>
Jump Height (cm)	23.1±5.2	31.4±10.8	-8.3 (-14.0, -2.3)*	0.989
Eccentric Impulse (Ns·kg ⁻¹)	0.61±0.13	0.69±0.21	-0.09 (-0.22, 0.04)	0.500
Eccentric Peak Force (N·kg ⁻¹)	21.2±3.20	23.4±3.2	-2.20 (-4.60, 0.16)	0.689
Concentric Impulse (Ns·kg ⁻¹)	2.14±0.23	2.48±0.43	-0.34 (-0.59, -0.09)*	0.992
Concentric Peak Force (Ns·kg ⁻¹)	21.9±2.40	24.5±3.71	-2.51 (-4.80, -0.24)*	0.802
Peak Landing Force (N·kg ⁻¹)	39.0±6.05	51.5±19.86	-12.5 (-23.0, -1.8)*	0.848

MD = mean difference; *d* = Cohen's *d*, * $p<0.05$

Main Findings: CMJ concentric phase kinetic variables are most altered after ACLR when compared to a healthy control group

Methods

2 Groups: 3 Bilateral Jumps:
 -Previous ACLR -NO-D
 -Healthy -O-ND

	Healthy (n=17)	ACLR (n=14)
Sex	8 M / 9 F	1 M / 13 F
Age (years)	22.8±6.2	26.9±8.5
Height (cm)	172.5±7.5	172.2±6.2
Body Mass (kg)	74.4±17.4	75.3±9.5
Post-ACLR (months)	-	60.6±40.2

Statistical Analyses:

- Group [ACLR v. Healthy] x leg [O-ND vs NO-D] ANOVAs for bilateral variables
- Independent t-tests for total variables
- $p\leq 0.05$.

Practical Applications

Post-ACLR: focus on enhancing skeletal muscle force production to obtain similar kinetic outcomes to healthy individuals without a previous ACLR



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