

Force Plate Testing

Quick Reference Guide

Key metrics · Red flags · Force trace interpretation — at a glance

KEY METRICS AT A GLANCE

COUNTERMOVEMENT JUMP (CMJ)			
Metric	Target Range	Amber	Red Flag
Jump Height	M: 35–55 cm F: 25–40 cm	10–15% below baseline	< 30 cm (M) / < 20 cm (F)
Peak Power	40–65 W/kg	Declining trend	Consistent drop > 15%
Limb Symmetry (LSI)	> 95% target / > 90% pass	85–90%	< 85% — physio referral
DROP JUMP / REACTIVE STRENGTH INDEX (RSI)			
Metric	Target Range	Amber	Red Flag
RSI (Height ÷ Contact Time)	> 2.0 Elite: > 2.5	1.5–2.0	< 1.5 or declining
Ground Contact Time	< 250 ms trained / < 200 ms elite	250–300 ms	> 300 ms
Limb Symmetry (LSI)	> 90%	85–90%	< 85% — physio referral
ISOMETRIC MID-THIGH PULL (IMTP)			
Metric	Target Range	Amber	Red Flag
Relative Peak Force	M: 25–40 N/kg F: 20–30 N/kg	18–22 N/kg	< 18 N/kg — strength deficit
RFD (0–200 ms)	Compare within-athlete baseline	Declining trend	Flat early slope on trace
Limb Symmetry (LSI)	> 90%	85–90%	< 85% — physio referral
HOP TESTS (UNILATERAL)			
Metric	Target Range	Amber	Red Flag
Single-Leg Jump Height	~50–70% of bilateral CMJ	One leg 10–15% lower	One leg > 15% lower
LSI — Jump Height	> 95% post-injury / > 90% general	85–90%	< 85% — do not clear
Single-Leg RSI	Compare limbs & vs. bilateral	LSI 85–90%	LSI < 85% — physio review

FORCE TRACE CURVE — WHAT TO LOOK FOR

Test	Feature	Healthy trace ☐	Red flag ☐
CMJ	Unweighting dip	Clear drop below bodyweight	Flat/shallow dip — poor SSC use
CMJ	Concentric peak	Sharp, tall peak well above BW	Rounded peak — limited RFD
CMJ	Landing spikes	Symmetric left & right	Asymmetric — flag for physio
Drop Jump	Impact → push-off gap	Tight, bouncy — peaks close together	Long gap — resetting not reacting
Drop Jump	Push-off vs. impact ratio	Meaningful push-off peak	Tiny push-off — energy not reused
IMTP	Rise steepness 0–200 ms	Steep, continuous ramp to peak	Flat early slope — poor explosiveness
IMTP	Peak plateau	Stable plateau at maximal force	Spike then collapse — re-test
Hop Test	Left vs. right overlay	Near-identical trace shapes	One trace lower or lagging in time

RED FLAG DECISION GUIDE

Flag	Recommended Action
● CMJ drops > 10% vs. baseline	Reduce session intensity · Re-test in 48–72 hrs
● LSI < 85% on any test	Refer to physiotherapist · Do not clear for contact
● RSI drops but CMJ unchanged	Reduce plyometric volume · Check for lower limb stiffness
● IMTP relative force < 18 N/kg	Prioritise strength block · Flag to S&C lead
● Rounded CMJ concentric peak	Cue explosive intent · Check fatigue levels
● Long impact-to-push-off gap (Drop Jump)	Avoid high plyometric load · Review reactive training
● IMTP spike collapses immediately	Check technique · Re-test — may not be valid
● Hop LSI < 90% post-injury	Do not return to sport · Continue rehab protocol
● All metrics declining across a block	Deload week · Review accumulated training load
● Asymmetric landing spikes (CMJ/Hop)	Physio review · Unilateral loading investigation

LSI FORMULA: $LSI (\%) = (\text{Weaker Limb Score} \div \text{Stronger Limb Score}) \times 100$
 Example: Left 28 cm, Right 32 cm → $(28 \div 32) \times 100 = 87.5\%$ ☐ Amber zone

MONITORING FREQUENCY

CMJ:	Weekly — or before/after high-load sessions
Drop Jump / RSI:	Fortnightly pre-season · Monthly in-season