EXAMPLE

Applied Biomechanics - UNH, Athletes, Fall Risk Assessment

ASSESSMENT: Force Plate Assessment

BODY WEIGHT: 179.1 lb (81.2 kg)

CMJ HEIGHT	RSIMOD	SJ HEIGHT
38.5 / 15.1	0.53	25.2 / 9.9
cm / in	explosive index	cm / in
↑ +33.1%	↓ -5.5%	↓ -4.5%

EUR (CMJ÷SJ)

1.53

elastic energy (03/03/2026)

< 1.00 | 1.00–1.10 | > 1.10

GOOD ELASTIC UTILIZATION

REACTIVE RSI

1.28

rebound ability

↓ -7.7%

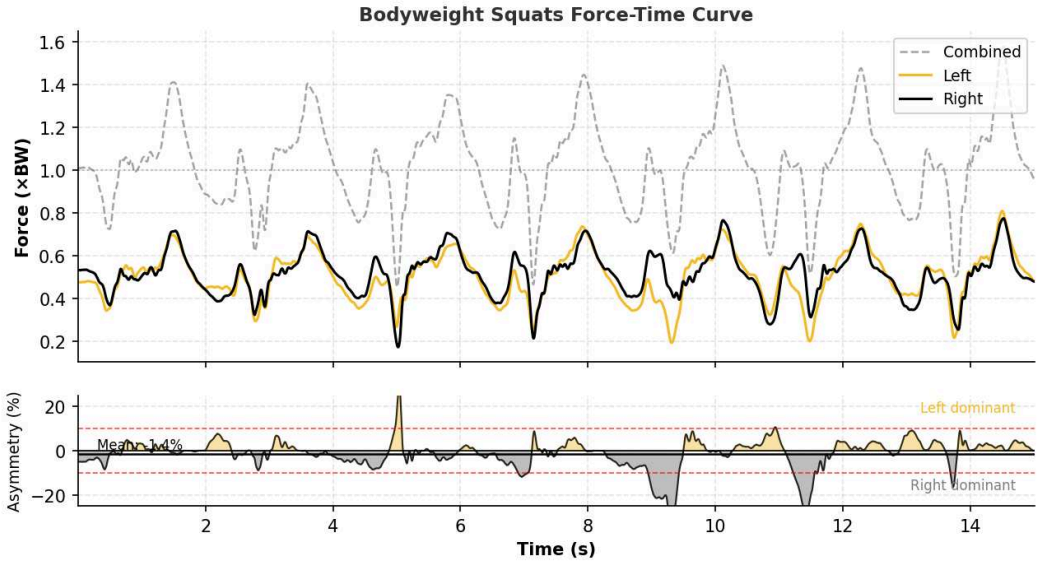
SUMMARY

Example 's force plate profile shows strong improvement in countermovement jump height, increasing to 38.5 cm, while maintaining a good elastic utilization ratio of 1.53. This suggests he benefits from using the dip before jumping and can effectively use stored elastic energy during explosive movement. RSImod, squat jump height, and reactive RSI were slightly lower than previous values, suggesting that explosiveness, concentric-only power, and repeated rebound ability should continue to be monitored. Overall, the profile shows solid lower-body power with good elastic energy use, while future training should emphasize concentric strength, reactive stiffness, and maintaining jump quality across repeated efforts.

*See **Glossary & Definitions** on the last page for metric explanations.*

BODYWEIGHT SQUATS ASSESSMENT

SESSION 12/10/2025 • **TRIAL** 12/10/2025 17:59 • *Selected trial*



ABOUT THIS TEST

WHAT

Repeated bodyweight squats performed on dual force plates.

WHY

Assesses bilateral symmetry and movement quality during a controlled, familiar movement pattern. Useful for screening and monitoring.

SESSION AVERAGES

Avg Force Asym	-1.19 RIGHT %
Peak Force Asym	+2.29 LEFT %

INDIVIDUAL TRIALS

TRIAL	AVG FORCE ASYM	PEAK FORCE ASYM
1 ★	-1.19 Right %	+2.29 Left %

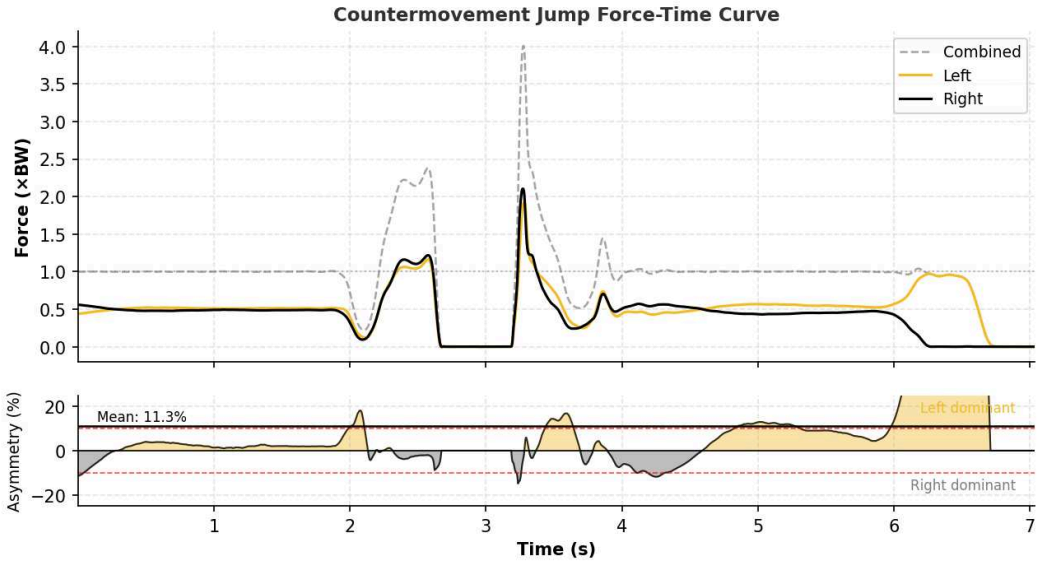
★ = Best trial (force-time curve & dashboard)

COACH'S NOTES

During bodyweight squats, Example showed very small force asymmetries, with average force asymmetry of -1.19% right and peak force asymmetry of +2.29% left. These values suggest a well-balanced controlled squat pattern, with no meaningful left-right difference during this task. The force-time curve shows some natural repetition-to-repetition variation, but overall, this movement appears symmetrical and controlled. This provides a useful baseline for comparing more explosive or higher-impact tasks.

COUNTERMOVEMENT JUMP ASSESSMENT

SESSION 03/03/2026 • **TRIAL** 03/03/2026 09:04 • *Selected trial*



ABOUT THIS TEST

WHAT

A maximal vertical jump starting from standing, using a quick dip before jumping.

WHY

Measures lower-body power, explosiveness, and how well you use the stretch-shortening cycle. Changes over time can indicate fatigue, recovery status, or training adaptations.

SESSION AVERAGES (avg of 2)

Jump Height *How high you jumped*	**41.7 / 16.4** cm / in
RSImod *Explosiveness: height ÷ time*	**0.52**
Prop. Impulse *Total push applied*	**5.78** N·s/kg

INDIVIDUAL TRIALS

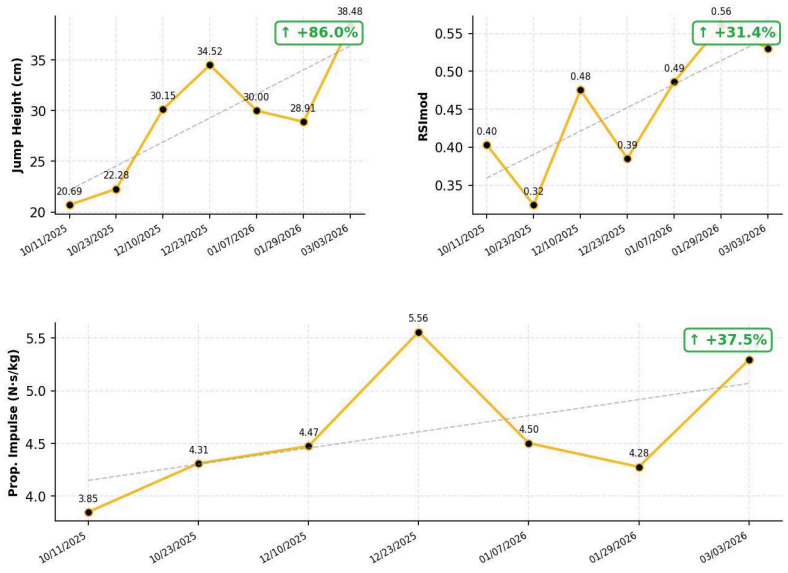
TRIAL	JUMP HEIGHT	RSIMOD	PROP. IMPULSE
1 ★	**38.5 / 15.1** cm / in	**0.53**	**5.29** N·s/kg
2	44.9 / 17.7 cm / in	0.51	6.27 N·s/kg

★ = Best trial (force-time curve & dashboard)

COACH'S NOTES

Example 's countermovement jump performance was strong, with a session average jump height of 41.7 cm and selected trial height of 38.5 cm. His RSImod was 0.53, indicating solid explosiveness relative to movement time, and propulsive impulse averaged 5.78 N·s/kg. The trend data show a large improvement in jump height over time, suggesting meaningful gains in lower-body power. However, RSImod was slightly lower than the previous comparison value, so continued focus on producing force quickly may help convert strength and power into even more explosive movement.

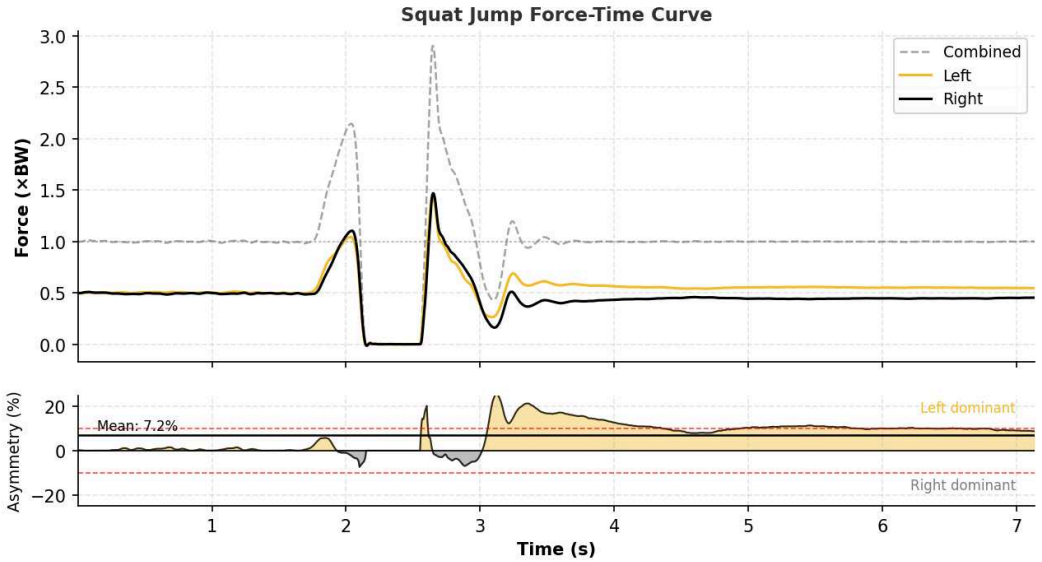
COUNTERMOVEMENT JUMP — TRENDS



DATE	JUMP HEIGHT	RSIMOD	PROP. IMPULSE
10/11/2025	20.7 / 8.1 cm / in	0.40	3.85 N·s/kg
10/23/2025	22.3 / 8.8 cm / in	0.32	4.31 N·s/kg
12/10/2025	30.1 / 11.9 cm / in	0.48	4.47 N·s/kg
12/23/2025	34.5 / 13.6 cm / in	0.39	5.56 N·s/kg
01/07/2026	30.0 / 11.8 cm / in	0.49	4.50 N·s/kg
01/29/2026	28.9 / 11.4 cm / in	0.56	4.28 N·s/kg
03/03/2026	38.5 / 15.1 cm / in	0.53	5.29 N·s/kg

SQUAT JUMP ASSESSMENT

SESSION 01/29/2026 • **TRIAL** 01/29/2026 17:34 • *Selected trial*



ABOUT THIS TEST

WHAT

A vertical jump starting from a held squat position with no countermovement.

WHY

Measures concentric-only power without the benefit of the stretch-shortening cycle. Comparing SJ to CMJ helps assess how well you use elastic energy.

SESSION AVERAGES

Jump Height — **25.2 / 9.9** cm / in
How high you jumped

Peak Power — **42.3** W/kg
Maximum power output

Prop. Impulse — **5.63** N·s/kg
Total push applied

INDIVIDUAL TRIALS

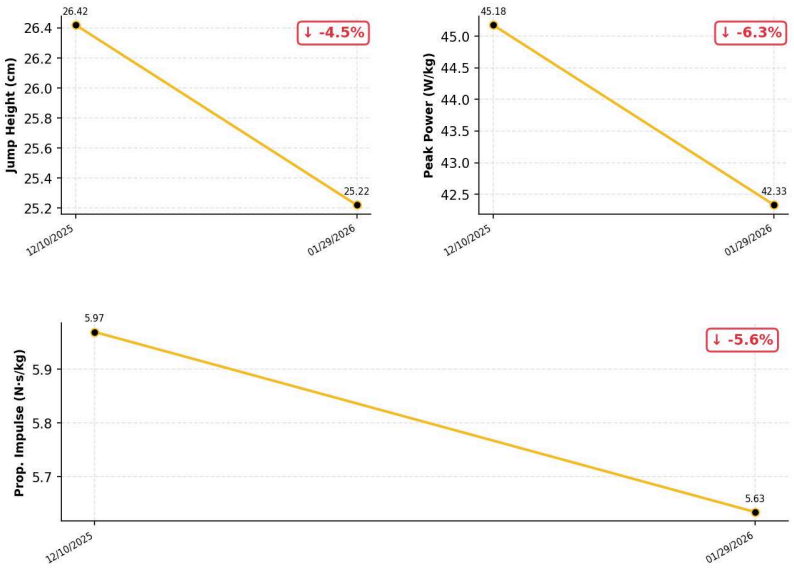
TRIAL	JUMP HEIGHT	PEAK POWER	PROP. IMPULSE
1 ★	25.2 / 9.9 cm / in	42.3 W/kg	5.63 N·s/kg

★ = Best trial (force-time curve & dashboard)

COACH'S NOTES

Example 's squat jump height was 25.2 cm, with peak power of 42.3 W/kg and propulsive impulse of 5.63 N·s/kg. Since the squat jump removes the benefit of the countermovement, this test reflects concentric-only force production. Compared with the previous squat jump assessment, jump height, peak power, and propulsive impulse were slightly lower. This suggests that concentric power should continue to be developed, especially through exercises that emphasize force production from a static or paused position.

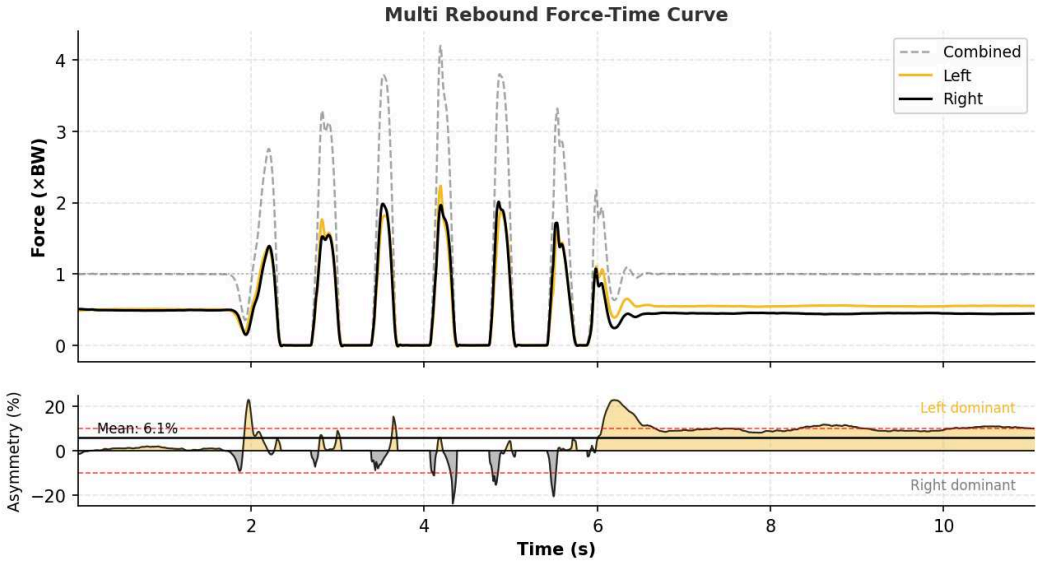
SQUAT JUMP — TRENDS



DATE	JUMP HEIGHT	PEAK POWER	PROP. IMPULSE
12/10/2025	26.4 / 10.4 cm / in	45.18 W/kg	5.97 N·s/kg
01/29/2026	25.2 / 9.9 cm / in	42.33 W/kg	5.63 N·s/kg

MULTI REBOUND ASSESSMENT

SESSION 01/29/2026 • **TRIAL** 01/29/2026 17:31 • *Selected trial*



ABOUT THIS TEST

WHAT

A series of repeated maximal jumps with minimal ground contact time.

WHY

Measures reactive strength, leg stiffness, and ability to use elastic energy repeatedly. Reflects performance in activities requiring repeated jumping or bounding.

SESSION AVERAGES

RSI *Reactive strength index*	**1.28**
Avg Height *Average height achieved*	**16.7 / 6.6** cm / in
Avg Contact *Average ground time*	**282** ms

INDIVIDUAL TRIALS

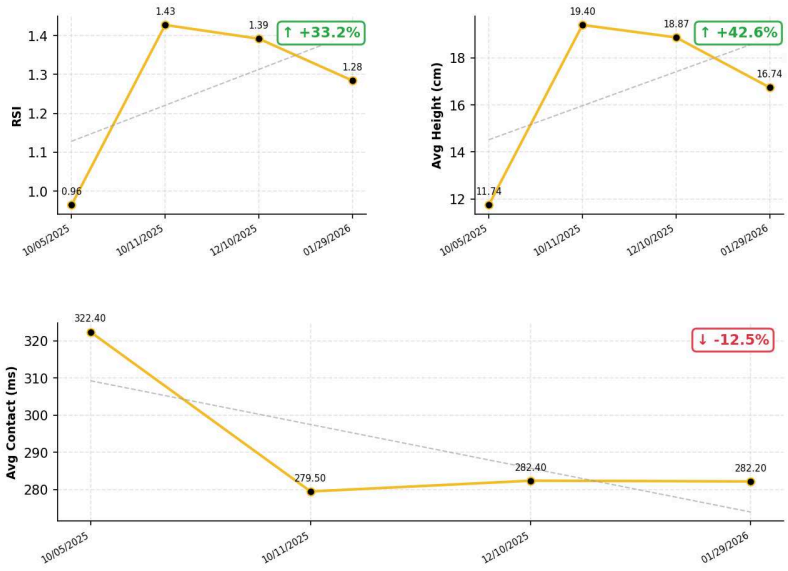
TRIAL	RSI	AVG HEIGHT	AVG CONTACT
1 ★	1.28	16.7 / 6.6 cm / in	282 ms

★ = Best trial (force-time curve & dashboard)

COACH'S NOTES

Example 's multi rebound test showed a reactive RSI of 1.28, average jump height of 16.7 cm, and average contact time of 282 ms. These values suggest a reasonable ability to repeat jumps while limiting ground contact time. Compared with earlier testing, RSI and average jump height remain improved from the first assessment, but they are lower than the best prior values. Average contact time has stayed relatively stable across recent sessions, so the main opportunity may be improving rebound height while maintaining short ground contact.

MULTI REBOUND – TRENDS



DATE	RSI	AVG HEIGHT	AVG CONTACT
10/05/2025	0.96	11.7 / 4.6 cm / in	322.40 ms
10/11/2025	1.43	19.4 / 7.6 cm / in	279.50 ms
12/10/2025	1.39	18.9 / 7.4 cm / in	282.40 ms
01/29/2026	1.28	16.7 / 6.6 cm / in	282.20 ms

ASYMMETRY SUMMARY

Bilateral asymmetries flagged for attention. Values represent left-right differences as a percentage. Positive = left dominant, negative = right dominant. Measures within normal range (<10%) are not shown.

MONITOR (10–15%) ADDRESS (>15%)

TEST	METRIC	ASYMMETRY	STATUS
Multi Rebound	Peak Force	**12.0% Left**	**MONITOR**

COACH'S NOTES

The asymmetry summary shows only one flagged item: multi rebound peak force at 12.0% left, which falls in the monitor range. No values were flagged in the address range. This suggests that Example 's overall left-right force balance is generally acceptable across the tested movements, with only a mild left-dominant peak force pattern during repeated rebound jumping. This should be monitored over time, especially during plyometric or repeated jumping tasks, but it does not appear to be a major concern based on this report.

GLOSSARY & DEFINITIONS

ABBREVIATIONS

ABBREV.	MEANING
BW	Body Weight
CMJ	Countermovement Jump — a jump where you dip down first, then explode up
DSI	Dynamic Strength Index — compares jumping force to max pulling force
EUR	Elastic Utilization Ratio — compares CMJ to SJ to see how well you use the “dip”
IMTP	Isometric Mid-Thigh Pull — a max-effort pull against an immovable bar
MRSI	Modified RSI (also RSImod) — similar to RSI but uses total movement time instead of contact time
N	Newtons — the standard unit for measuring force
RFD	Rate of Force Development — how fast you can ramp up force
RSI	Reactive Strength Index — how well you jump relative to time on the ground
SJ	Squat Jump — a jump from a still, held squat position (no dip)
W/KG	Watts per kilogram — power output adjusted for body size
×BW	Times body weight — force expressed as a multiple of your own weight

METRIC DEFINITIONS

METRIC	DEFINITION
Asymmetry	The percentage difference between your left and right sides. A positive number means the left side is stronger; negative means the right. Smaller numbers are better.
Braking Impulse Idx	Left-right difference in braking impulse — how evenly each leg absorbs force during the dip.
Braking RFD	How quickly you absorb force during the dip phase of a jump. A higher number means you can “catch” yourself faster, setting up a more explosive push-off.
Contact Time	How long your feet are on the ground during a bounce or rebound. Shorter ground time at the same jump height means you’re more spring-like.
Contraction Time	How long the entire dip-and-jump movement takes from start to takeoff. Getting the same height in less time means you’re getting more explosive.
DSI	Compares your jumping force to your max pulling strength. Helps guide training: a low number means focus on speed and power; a high number means build more raw strength. Typical range: 0.60–0.80.
EUR	Compares your CMJ to your SJ. A value above 1.0 means the dip before the jump is helping you — you’re using stored energy effectively. Typical range: 1.00–1.10.
Jump Height	How high you jumped. A direct measure of lower-body power — higher is better.
Peak Force	The maximum force you pushed into the ground during the movement. Can be shown in Newtons (N) or as a multiple of body weight (×BW).
Peak Landing Force	The highest force during a landing, shown as a multiple of body weight (×BW). Lower numbers mean you’re absorbing the impact more smoothly.
Peak Propulsive Force	The maximum force during the push-off (upward) portion of a jump. Shows how hard you can drive into the ground when it matters most.
Propulsive Impulse	The total “push” you put into the ground during takeoff. This is the single biggest factor in how high you jump — more push equals more height.
Propulsive Impulse Idx	Left-right difference in push-off impulse — how evenly each leg contributes to driving upward.
Rate of Force Development	How fast you can ramp up force. Think of it as your “quickness off the line” — important for any movement where you need to be fast.
RSI	How high you jumped relative to how long your feet were on the ground. Important for quick, bouncy movements like sprinting and cutting.
RSImod	How high you jumped relative to how long the entire movement took. A higher number means you’re more explosive — getting more height in less time.
Time to Stabilization	How quickly you “stick” a landing and become still. Faster times mean better body control and balance after impact.