

BIOMECHANICAL ASSESSMENT REPORT

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Drop jump

DATE

6 October 2026

AGE

35 years

SPORT

Running and football

PROFESSIONAL

Sarah Lee

We assessed how you land from a drop and how quickly and high you jump again.

Your summary

For each exercise, the traffic light sums up what we saw. Below we explain, in plain words, what is going well, what we can improve and where to focus your training.

● Good ● Keep an eye on ● To work on ● No reference

Drop jump

● Keep an eye on

Your movement is generally good, with a few points to improve that can be addressed with training.

● WHAT IS GOING WELL

- Rebound speed: within the expected range.
- Landing timing: within the expected range.
- Knee at touchdown: within the expected range.

● WHAT WE CAN IMPROVE

- On landing, the knees move towards each other more than expected.
- Jump reactivity (RSI) is lower than expected for athletes.
- Knee on landing: notable difference between sides, less favourable on the left leg.

● SUGGESTED TRAINING FOCUS

- Two-footed landing training with knees apart and in line with the feet, and hip abductor strengthening.
- Progressive plyometric training, focusing on short contacts and reactive jumps.
- Single-leg exercises with extra work on the less favourable side, to reduce the difference between sides.

Notes from your professional

Sample report with fictitious data.

This video assessment is a movement screen, not a diagnosis. Results should be interpreted by your health professional together with the clinical assessment.

TASK 1 OF 1

Drop jump

Keep an eye on

Drop from a ~30 cm box followed by a maximal vertical jump, in front view. It assesses knee alignment on landing (FPPA, KASR), landing symmetry, contact time and the reactive strength index (RSI).

Box height: 30 cm

CAPTURE QUALITY

Valid repetitions: 3 · Tracking 100 % · 120 fps

Results

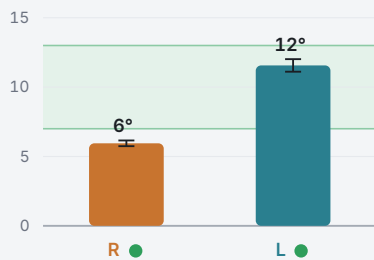
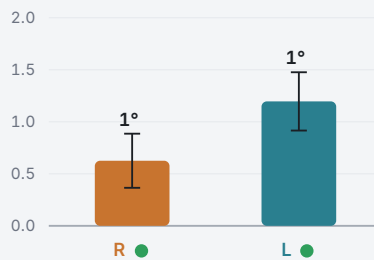
Metric	Right	Left	Asymmetry LSI · R – L	Reference
Ground contact time *	233 ms		—	≤ 250 ms Schmidtbleicher 1992; Flanagan 2008
Jump height ≈	31 cm		—	Track over time Flanagan 2008
Reactive strength index (RSI) *	1.32		—	≥ 1.50 · Athletes: < 1.5 low · 1.5–2.0 moderate · 2.0–2.5 good · > 2.5 very good Flanagan 2008; Flanagan & Comyns 2008
Landing timing asymmetry *	-1 ms		—	≤ 30 ms Padua 2009 (LESS)
Knee-to-ankle separation ratio (KASR) *	0.88		—	≥ 1.00 Mizner 2012; Noyes 2005
Pelvic obliquity on landing ≈	0°		—	No 2D norm: compare sides and progress
Peak landing valgus (FPPA)	6° ± 0.2	12° ± 0.5	-6°	7–13° Herrington & Munro 2010
FPPA at initial contact ≈	1° ± 0.3	1° ± 0.3	-1°	No 2D norm: compare sides and progress Hewett 2005 (3D, contexto)

● within reference ● borderline ● outside reference ● no norm (compare sides)
* threshold proposed from published mean ± SD (to be validated)
≈ no reliable 2D norm: compare sides and track over time
Asymmetry: LSI = smaller side ÷ larger side × 100 %; or difference R – L (right – left).
Values: mean ± SD of valid repetitions/cycles.

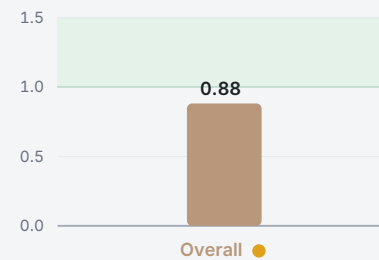
Right vs left

Right Left Overall Reference range

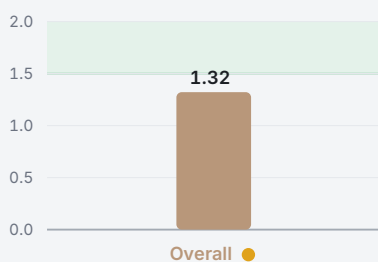
Peak landing valgus (FPPA)

 $\Delta -6^\circ$ FPPA at initial contact $\approx$ $\Delta -1^\circ$ 

Knee-to-ankle separation ratio (KASR) *



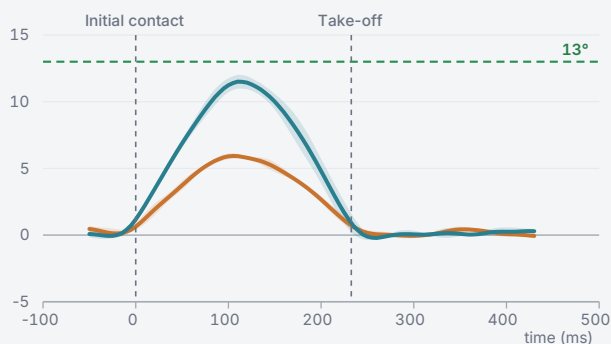
Reactive strength index (RSI) *



Throughout the movement

— Right — Left — mean $\pm$ SD - - - reference limit

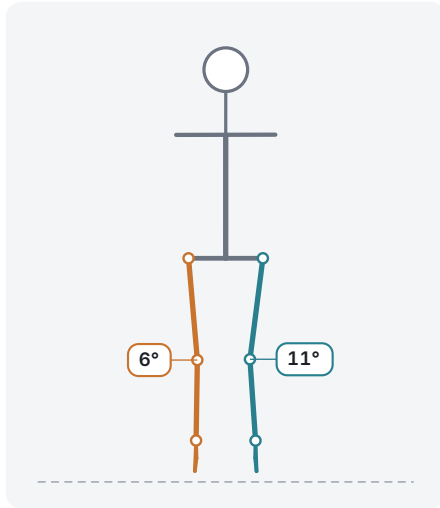
FPPA during landing (°)



Key positions

Front view: the client's right side appears on the left of the image.

Peak knee flexion on landing



● Peak landing valgus (FPPA) · R: 6°

● Peak landing valgus (FPPA) · L: 11°

Methods and references

How the assessment was done

The assessment used 2D video recorded on an iPhone. A pose-estimation model automatically detects the joints in every frame; angles, distances and times are the mean of the valid repetitions or cycles on each side. Curves show the mean $\pm$ standard deviation normalised to 0–100 % of the repetition or cycle (or in milliseconds after contact).

Limitations

Angles measured in 2D are projections onto the camera plane and depend on camera alignment and distance, clothing and lighting. Compared with reference 3D analysis, the typical error of 2D pose estimation is 4–7° (Stenum 2021). Differences between assessments smaller than the measurement error should be interpreted with caution.

How to read the results

Traffic light: green = within reference; amber = borderline, keep an eye on it; red = outside reference, to work on; grey = no reliable 2D norm — compare both sides and track over time. Asymmetry is given by the limb symmetry index (LSI = smaller side $\div$ larger side $\times$ 100 %) or by the right – left difference.

References: unmarked values are published norms; * = threshold proposed from published means $\pm$ standard deviation or measurement error (to be clinically validated); $\approx$ = no reliable 2D norm. References depend on sex and profile (athlete or general population).

This assessment is a movement screening, not a diagnosis. Results should be interpreted by the health professional together with the clinical history and physical examination.

References cited

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