40-Yard Dash EchoTrak™ Performance Report (Sample)

Athlete: Jordan Matthews (Age 16)

Event: WITFL 40-Yard Dash Challenge

Date: December 1, 3030

Surface: Turf

Shoes: Cleats

Wind: Indoor (0.0)

Official Time 4.78 seconds

Benchmark: Top 20% for age

Phase Breakdown (EchoTrak™ Sensor Data)

Phase	Distance	Time	Avg Speed	Notes
Start Reaction	0–1 yd	0.22s	—	Slight forward sway before launch; delayed first push
Acceleration 1	1–10 yd	1.82s	13.1 mph	Short steps, high turnover, low propulsion force
Acceleration 2	10–20 yd	1.03s	17.6 mph	Mid-thigh angles strong; hips slightly trailing
Transition	20–30 yd	0.89s	19.9 mph	Elite turnover but limited stride length
Max Velocity	30–40 yd	0.82s	21.3 mph	Excellent velocity, mild heel recovery inefficiency

Motion DNA™ Signature Efficiency Score

Efficiency Score: 73.9 / 100

A score of 73.9 indicates strong natural movement ability with clear opportunities to maximize speed. Your movement signature shows solid coordination and quick turnover, but early-phase propulsion, stride length expansion, and force direction limit how much of your athletic potential shows up in the 40 yards. With targeted adjustments, athletes in this range typically unlock 0.15–0.25 seconds of improvement.

Motion DNA™ Signature Output

Your Motion DNA™ Signature is how you move — your unique pattern of force, stride, timing, efficiency, and coordination. Below is the translation of those patterns in the 40-yard dash.

Key Metrics

Metric	Value	Interpretation
Step Length	1.65–1.92 m	Slightly short for your speed profile; limits max velocity potential
Step Frequency	4.68 steps/sec	High; suggests heavy reliance on turnover vs propulsion
Ground Contact Time	0.132s avg	Fast feet; indicates strong elastic response
Flight Time	0.094s avg	Matches high step frequency; stride not fully extended
Acceleration Curve	88% optimal	Power builds late; first 10 yds limiting total time
Force Direction	73% forward	Too much vertical force early → reduced horizontal drive
Efficiency Score	81 / 100	Very strong but limited by early-phase form
Fatigue Rate	4% decline	Low fatigue; maintains mechanics through finish

Performance Summary

Jordan produces excellent turnover and late-phase velocity, but the first 10 yards hold back total time. The Motion DNA™ Signature shows a mover who relies on quick steps instead of full power application.

Your stride is efficient at speed but underpowered at launch.

Strengths

- High natural step frequency → elite turnover potential
- Strong velocity curve from 20–40 yds
- Low fatigue rate → mechanics hold under stress
- Excellent elastic foot response (ideal for FitFeet™ demo integration)

Inefficiencies

- Underutilized stride length
- Too much vertical force in first 5–8 yards
- Hip position trails shoulders in early acceleration
- First step and second step produce minimal forward projection

Opportunities to Maximize Performance

Top 3 Time-Dropping Changes

1. Increase forward force in first two steps
    - Goal: Move from 73% → 85% forward projection
    - Expected time reduction: 0.08–0.12s

2. Open stride length by 6–8% between 10–25 yds
    - Expected time reduction: 0.05–0.07s

3. Stabilize torso to prevent pre-start sway
    - Expected time reduction: 0.02–0.03s

Total potential improvement: 0.15–0.20 seconds

Projected time: 4.58–4.63 seconds

AI Coaching Feedback (Real-Time Artificial Intelligence Coaching Feedback)

EchoTrak™ identified the following cues that would deliver the biggest gains:

- “Jump forward, don’t step.”
- “Keep hips behind shoulders for the first 3 steps.”
- “Drive legs backward, not upward.”
- “Allow your steps to lengthen at 20 yards and stay tall but leaning forward.”

These cues are based on the movement signature the system detected during your run.

My Motion DNA™ Signature Profile (40-Yard Dash)

Movement Type: High-frequency sprinter

Primary Limiter: Early-phase propulsion

Primary Strength: Velocity and elasticity

Signature Category: Efficient but underpowered accelerator

Performance Outlook: High ceiling with simple mechanical adjustments upon corrective exercise and drill completion.

Force Profile (158-lb Athlete, 4.78s @ 40 Yards)

Force values shown are peak ground-reaction force per step.

This is consistent with EchoTrak™ modeling + published sprint-force research scaled to youth.

Early Acceleration = Highest Force

Mid/Max Velocity = Stabilized, Lower Force

Here's the corrected, realistic table with ALL steps:

Step	Left (lbs)	Right (lbs)	Notes
1	372	419	~2.4–2.7× BW; right-leg dominant launch
2	401	452	Increasing horizontal projection
3	428	480	Peak imbalance; classic youth asymmetry
4	455	503	Athlete nearing true peak force output
5	472	517	~3.0–3.25× BW (normal for 4.7 accel)
6	460	505	Force begins to level as posture rises
7	442	487	Symmetry improves slightly
8	430	468	Entering late-acceleration phase
9	417	455	Stride frequency increasing
10	405	442	Transitioning toward max velocity
11	392	430	Stabilizing force, more elastic demand
12	385	423	2.4–2.7× BW typical mid-phase
13	380	418	
14	376	414	
15	372	410	Slight oscillation is normal
16	368	405	
17	364	402	

18	360	398	
19	357	394	
20	354	390	Approaching max speed
21	350	386	
22	347	383	
23	344	379	
24	340	375	
25	336	371	Final steps before line; elastic output

Average Left: 392 lbs

Average Right: 431 lbs

Symmetry: ~91% (≈9% right-dominance)

Force Direction

Phase / Steps	Forward Power (FPF)	Speed Bounce (DBEF)	Braking (DFBF)
1–3	72–78%	18–25%	2–4%
4–6	48–55%	42–48%	3–5%
7–12	28–38%	58–68%	6–8%
13–25	15–22%	70–80%	5–7%

Summary:

You lose forward power after step 3–4.

Your bounce is good but becomes too straight down by step 10–12.

Right-side braking shows up in the mid steps (6–12).