

— FOR PHYSICIANS & REFERRING PROVIDERS

RETURN TO SPORT, BACKED BY DATA.

Objective, criteria-based return-to-sport testing with 1080 Motion and Hawkin Dynamics force plates, and a clear, color-coded report back to you after every session.



9 TESTING DOMAINS

One standardized protocol, same order, every athlete.



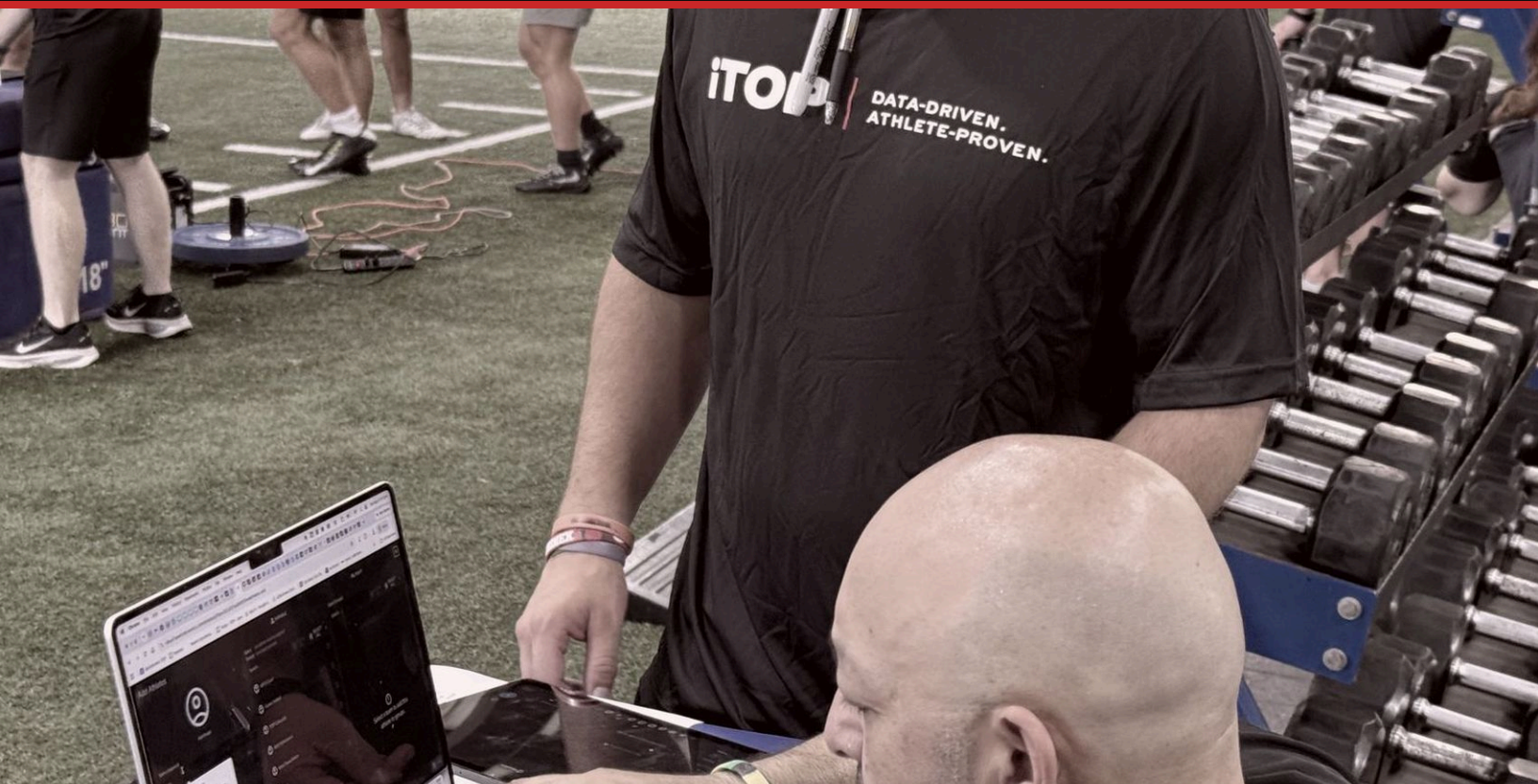
EVERY REP, LEFT VS. RIGHT

Force, speed and power measured limb to limb.



COLOR-CODED REPORT

Red, yellow and green status after every test.



— INSIDE THIS GUIDE

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AT A GLANCE · FOR BUSY PHYSICIANS



WHAT WE TEST

- Nine domains: motion, girth, isometric strength, dynamic strength and power, jump and landing, balance, hop, movement quality, patient-reported
- Every result compared limb to limb with the Limb Symmetry Index (LSI)
- Tested inside the operating surgeon's protocol



WHAT YOU RECEIVE

- A color-coded report after every testing session
- Involved and uninjured values for each test
- An overall status, the gates still open and the plan
- Retest about every 12 weeks; full data on request



HOW TO REFER

- Fax the referral, op note and protocol to the clinic nearest the athlete

LUBBOCK	Fax 806-313-1946
COLLEYVILLE	Fax 469-663-5520
IRVING	Fax 361-277-0056

OUR APPROACH

01

OBJECTIVE

Every result is a number (Newtons, watts, centimeters, seconds) compared limb to limb with a Limb Symmetry Index (LSI).

02

COMPREHENSIVE

No single test clears an athlete. We look at the cluster: strength, power, balance, jump and landing, hop, movement quality and confidence.

03

COMMUNICATED

You get a short report with a red / yellow / green status table, plain-language interpretation and a specific plan.

— 01 WHY CRITERIA-BASED TESTING

TIME TELLS YOU HOW LONG. TESTING TELLS YOU HOW READY.

Weeks since surgery are a minimum, not a green light. Athletes advance when they meet objective criteria, always inside the surgeon's protocol.

CRITERIA-GATED PROGRESSION · WHAT WE TEST, WHEN

0–6 weeks PROTECT ROM, girth and effusion, quad activation, gait	6–12 weeks STRENGTH Hand-held dynamometry; 1080 isokinetic knee extension / flexion	3–6 months LOAD 1080 single-leg squat, Y-Balance, bilateral force-plate jumps	6–9 months RTP BUILD Single-leg jumps, drop jump, hop battery, 1080 lunges and hops	9–12 months RTP TEST Full battery + IKDC and ACL-RSI; clearance recommendation
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Typical timeframes for ACL reconstruction. Progression is gated by criteria, not the calendar.

KEY FINDINGS FROM THE RESEARCH

4×

GREATER RISK OF GRAFT RUPTURE

in professional athletes who returned without meeting all six discharge criteria.

KYRITSIS ET AL., 2016

5.6%^{VS} 38.2%

KNEE REINJURY: PASSED VS. FAILED CRITERIA

in 106 pivoting-sport patients. Risk also fell for each month return was delayed, up to 9 months.

GRINDEM ET AL., 2016

3 stages

RETURN TO SPORT IS A CONTINUUM

participation, then sport, then performance, with graded, criterion-based progression and shared decisions.

ARDERN ET AL., 2016

REFERENCES

1. Kyritsis P, Bahr R, Landreau P, Miladi R, Witvrouw E. Likelihood of ACL graft rupture: not meeting six clinical discharge criteria before return to sport is associated with a four times greater risk of rupture. *Br J Sports Med.* 2016;50(15):946–951. doi.org/10.1136/bjsports-2015-095908
2. Grindem H, Snyder-Mackler L, Moksnes H, Engebretsen L, Risberg MA. Simple decision rules can reduce reinjury risk by 84% after ACL reconstruction: the Delaware-Oslo ACL cohort study. *Br J Sports Med.* 2016;50(13):804–808. doi.org/10.1136/bjsports-2016-096031
3. Ardern CL, Glasgow P, Schneiders A, et al. 2016 Consensus statement on return to sport from the First World Congress in Sports Physical Therapy, Bern. *Br J Sports Med.* 2016;50(14):853–864. doi.org/10.1136/bjsports-2016-096278

Published findings from specific patient groups; not iTOP results.

— 02 THE TEST BATTERY

NINE DOMAINS. ONE STANDARD.

DOMAIN	TOOL	WHAT IT TELLS US	GREEN STANDARD
RANGE OF MOTION	Goniometer	Knee, ankle and hip motion, side to side	Full extension; symmetric
GIRTH	Gulick tape	Quad and calf atrophy; residual swelling	Symmetric; no effusion
ISOMETRIC STRENGTH	Hand-held dynamometer	Quad, hamstring and hip peak strength (lb and % body weight)	LSI ≥ 90%
DYNAMIC STRENGTH & POWER	1080 Motion	Force (N) and power (W) at a controlled speed: knee ext/flex, single-leg squat and endurance, lunges, hops, hip; shoulder: scapula, rotator cuff, overhead press	LSI ≥ 90% ≥ 95% pivot sports
JUMP & REACTIVE STRENGTH	Hawkin Dynamics force plates	CMJ height, modified RSI, braking RFD, single-leg jumps, drop jump	Asymmetry ≤ 10% mRSI ≥ 0.55
DYNAMIC BALANCE	Y-Balance Test	Anterior, posteromedial and posterolateral reach; composite normalized to limb length	Composite ≥ 95% Ant. diff. ≤ 3 cm
HOP BATTERY	Tape, timer	Single hop, triple hop, single-leg vertical, 40 cm lateral hop	LSI ≥ 90% ≥ 95% pivot sports
MOVEMENT QUALITY	Clinician-rated	Gait, overhead squat, single-leg squat, tuck-jump landing assessment	No compensations
PATIENT-REPORTED	IKDC · ACL-RSI	Knee function, confidence and fear of re-injury	Trended every test

Green standard = the criterion to reach before progressing. Thresholds for yellow and red are on page 08.

SAME PROTOCOL, EVERY ATHLETE, EVERY TIME

- 1 WARM-UP**
Bike intervals (20 s on / 10 s off × 8) plus dynamic drills
- 2 PRACTICE**
Demonstration and practice trials: box jumps and broad jumps
- 3 UNINVOLVED FIRST**
Healthy limb tested first to set the reference value
- 4 THREE TRIALS**
Per test, per side; LSI = involved ÷ uninvolved × 100

— 03 1080 MOTION TECHNOLOGY

STRENGTH YOU CAN MEASURE, REP BY REP.

A computer-controlled motor replaces weight stacks. Load and speed are set independently for lifting and lowering, so testing is safe early in rehab, and force, speed and power are recorded on every rep, for each limb.



1080 QUANTUM

- Cable-based testing, training and rehab
- Isokinetic, isotonic, ballistic and eccentric - overload modes
- Force, speed and power recorded 333 times per second



1080 SPRINT 2

- Robotic resisted and assisted sprint system
- Measures speed, force and power
- Speed development and late-stage performance training

TWO TESTS, TWO QUESTIONS

	STRENGTH TEST	POWER TEST
THE QUESTION	How much force can the limb produce?	How fast can it produce it?
MODE	Isokinetic (speed-limited)	Ballistic (NFW)
SPEED	0.2–0.5 m/s concentric	Up to 8 m/s concentric
LOAD	Small external load; athlete self-limits	5–10% of body weight
OUTPUT	Average force per rep (N)	Peak power per rep (W)

— 03 INSIDE A TESTING SESSION

REAL ATHLETES. REAL NUMBERS.

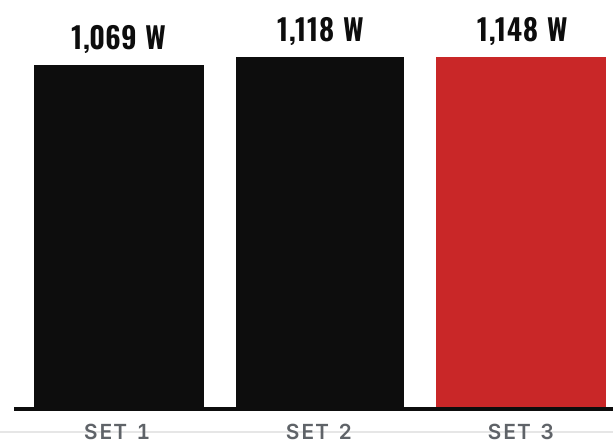
KNEE EXTENSION POWER: LEFT VS. RIGHT

Peak power (W) · LSI 99.5%, goal ≥ 90% met



SINGLE-LEG STEP-UP POWER

Peak power (W) · climbed every set, +7% from set 1 to 3



Measured with 1080 Motion at iTOP Recovery · athlete name withheld · bars start at zero



CASE EXAMPLE

WHY TWO TOOLS MATTER

A post-op knee patient showed a 27% quad deficit on isometric dynamometry, but 97–128% symmetry on 1080 dynamic force and power. Two tools, one clear answer: the gap was peak isometric capacity, not dynamic output, so the plan prioritized loaded isometric quad work instead of more of everything.

OUR 1080 TEST MENU

LOWER BODY

Knee extension

Knee flexion

Single-leg squat

Single-leg squat endurance

Alternating lunges

Anterior / lateral hops

Hip abduction

Hip extension / flexion

SHOULDER

Scapular

Rotator cuff

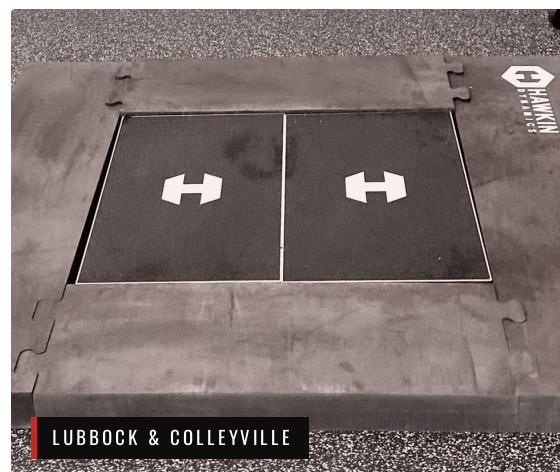
Overhead press

Shoulder tests run on the 1080 Quantum in Lubbock and the 1080 Sprint 2 in Colleyville. Irving refers to Lubbock or Colleyville for 1080 and force plate testing.

— 04 HAWKIN DYNAMICS FORCE PLATES

HOW THE JUMP HAPPENED, NOT JUST HOW FAR.

Hop distance can hide compensation. Dual force plates measure force under each foot through the whole jump: how the athlete loads, brakes and drives, and how much each leg contributes.

**COUNTERMOVEMENT
JUMP**

Bilateral output and strategy

**CMJ REBOUND**

Repeated, reactive jumping

**SINGLE-LEG CMJ**

Involved vs. uninvolved power

**DROP JUMP**

Landing and reactive stiffness

METRIC	IN PLAIN ENGLISH	GREEN STANDARD
JUMP HEIGHT	Overall output: how high the athlete gets	Age / sex / sport target
TIME TO TAKEOFF	How quickly the athlete organizes and launches the jump	< 0.70 s
MODIFIED RSI	Jump height ÷ time to takeoff ("explosiveness")	≥ 0.55
BRAKING RFD	How fast the athlete absorbs load: the deceleration quality behind safe landing and cutting	≥ 90% of baseline
REBOUND / DROP-JUMP RSI	Spring-like reactive strength off the ground	Rebound ≥ 0.70 Drop jump > 2.0
LEFT / RIGHT ASYMMETRY	Side-to-side share of force in braking and propulsion	≤ 10% (≤ 5% late stage)

**CASE EXAMPLE****WHAT A HOP TEST ALONE WOULD HAVE MISSED**

A patient with excellent, symmetric Y-Balance scores still showed about 20% less single-leg jump height and 23% lower reactive strength on the involved leg, with braking RFD below target. Plyometric progression was held until those gaps closed.

— 05 HOW WE SCORE

RED. YELLOW. GREEN. ONE GLANCE.

$$\text{LSI} = \text{Involved} \div \text{Uninvolved} \times 100$$

For timed tests, where faster is better, the formula is reversed (uninvolved ÷ involved).

✓ **GREEN · MET** criterion reached

⚠ **YELLOW · MONITOR** close, keep loading

✗ **RED · NEEDS WORK** gate still open

Each status carries a symbol and a label, so it reads in black-and-white print too.

MEASURE	✗ RED · NEEDS WORK	⚠ YELLOW · MONITOR	✓ GREEN · MET
STRENGTH LSI (HHD, 1080)	✗ < 80%	⚠ 80–89.9%	✓ ≥ 90%
HOP & SINGLE-LEG VERTICAL LSI	✗ < 80%	⚠ 80–89.9%	✓ ≥ 90%
Y-BALANCE COMPOSITE	✗ < 89%	⚠ 89–94.9%	✓ ≥ 95%
Y-BALANCE ANTERIOR REACH DIFF.	✗ > 4 cm	⚠ 3–4 cm	✓ ≤ 3 cm
FORCE-PLATE ASYMMETRY	✗ > 20%	⚠ 10.1–20%	✓ ≤ 10%
CMJ MODIFIED RSI	✗ < 0.40	⚠ 0.40–0.54	✓ ≥ 0.55
CMJ TIME TO TAKEOFF	✗ > 0.80 s	⚠ 0.70–0.80 s	✓ < 0.70 s
PAIN / EFFUSION AFTER LOADING	✗ Pain > 3/10 or effusion ↑	⚠ Pain 1–3/10, mild	✓ 0–1/10, no effusion

Hard stop. Pain or effusion response is checked before any performance number is interpreted.

A HIGHER BAR FOR PIVOT & CUTTING SPORTS

Basketball, soccer, volleyball and football: we look for ≥ 95% on hop and power tests before recommending unrestricted return.

SYMMETRY ISN'T THE WHOLE STORY

The uninvolved leg is often deconditioned too, so LSI is read with absolute values, movement quality, symptoms and psychological readiness.

NO SINGLE TEST CLEARS AN ATHLETE.

The recommendation uses the full cluster, and every clearance decision remains with the treating physician.

— 05 ONE ATHLETE, THREE TEST DATES

WATCH THE RED TURN GREEN.

Example: 17-year-old basketball player, right ACL reconstruction (patellar tendon graft).

Values are LSI unless noted.

✓ **GREEN** · **MET** criterion reached

⚠ **YELLOW** · **MONITOR** close, keep loading

✗ **RED** · **NEEDS WORK** gate still open

Thresholds from page 08.

TEST	3 MONTHS	6 MONTHS	9 MONTHS
QUAD STRENGTH Hand-held dynamometer	✗ 75%	⚠ 85%	✓ 103%
HAMSTRING STRENGTH Hand-held dynamometer	✗ 67%	⚠ 84%	✓ 107%
KNEE EXTENSION FORCE 1080 Quantum	✗ 68%	⚠ 88%	✓ 99%
KNEE FLEXION FORCE 1080 Quantum	✗ 78%	⚠ 88%	✓ 93%
Y-BALANCE COMPOSITE Involved limb, % of limb length	✗ 71%	⚠ 93%	✓ 112%
Y-BALANCE ANTERIOR REACH Deficit vs. uninvolved	✗ 33 cm	✗ 12 cm	✓ None
SINGLE-LEG VERTICAL LSI	✗ 58%	⚠ 81%	✓ 94%
SINGLE-LEG HOP LSI	✗ 76%	⚠ 89%	✓ 97%
TRIPLE HOP LSI	✗ 72%	⚠ 85%	✓ 92%
OVERALL STATUS	✗ NOT READY	⚠ CONDITIONAL	✓ CLEARED TO PROGRESS

✗ 3 MONTHS · NOT READY

Global deficits. Continue strength phase; no impact progression.

⚠ 6 MONTHS · CONDITIONAL

Closing in, but anterior reach and hop symmetry gate running and cutting.

✓ 9 MONTHS · CLEARED TO PROGRESS

All domains green. Recommend sport-specific return, pending physician clearance.

Illustrative example built from de-identified sample data. Not a real patient's results.

— 06 WHAT LANDS ON YOUR DESK

READ IT IN
THIRTY SECONDS.

RETURN TO ACTIVITY PROGRESS REPORT

Prepared by: [Clinician]

ILLUSTRATIVE · DE-IDENTIFIED SAMPLE DATA

Sample athlete · R ACL reconstruction (BTB), 6 months post-op · Basketball

AT-A-GLANCE: WHERE THE ATHLETE STANDS TODAY

AREA	CURRENT RESULT	STATUS
Quad strength (HHD)	85% LSI (15% deficit)	⚠ MONITOR
Hamstring strength (HHD)	84% LSI	⚠ MONITOR
Knee ext./flex. force (1080)	88% LSI both directions	⚠ MONITOR
Y-Balance composite	R 93% / L 103%	⚠ MONITOR
Y-Balance anterior reach	12 cm deficit on involved side	✖ NEEDS WORK
Single-leg vertical	81% LSI	⚠ MONITOR
Single-leg / triple hop	89% / 85% LSI	⚠ MONITOR
Knee ROM	Full and symmetric	✓ MET
Pain / effusion response	0/10, no effusion after testing	✓ MET

Overall status: ⚠ **CONDITIONAL** Continue strength and controlled plyometrics. Not yet cleared for cutting or full-court play; anterior reach and hop symmetry are the open gates. Retest in about 12 weeks.

Pages 2–3: ROM · Girth · HHD · 1080 · Force plate · Y-Balance · Functional tasks · Plan · Summary

1 STATUS FIRST

Every domain on one table: green met, yellow monitor, red needs work.

2 NUMBERS YOU CAN CHECK

Involved and uninvolved values with the LSI for each test, in Newtons, watts, pounds and centimeters.

3 A SHORT INTERPRETATION

One to three sentences per section. No jargon walls.

4 A CLEAR CALL AND THE PLAN

Overall status (Not ready, Conditional or Cleared to progress), the gates still open, visit frequency, focus areas and the retest date.

SENT AFTER EVERY TESTING SESSION.

Reports are about three pages. Need the full data set? Ask. Every rep and trial is on file.

— 07 HOW TO REFER

REFER IN ONE FAX. WE'LL SEND YOU THE DATA.

Fax the referral, operative note and protocol to the clinic nearest the athlete. We schedule the athlete and send the report after every test.

LUBBOCK



806-313-1946

Ph: 806-516-5722

1080 QUANTUM · HAWKIN
DYNAMICS FORCE PLATES

COLLEYVILLE



469-663-5520

Ph: 469-895-5198

1080 SPRINT 2 · HAWKIN DYNAMICS
FORCE PLATES

IRVING



361-277-0056

Ph: 214-225-0291

HANDS-ON CARE · CLINICAL
RETURN-TO-PLAY TESTING



WHO TO REFER

- ACL reconstruction
- Meniscus repair / scope
- Patellar tendon and knee
- Ankle and hip injuries
- Shoulder: rotator cuff and scapular
- Healthy athletes: baseline testing



WHEN

- At phase checkpoints (about 3, 6 and 9 months after ACLR)
- Before any clearance decision
- Whenever you want an objective read



PLEASE SEND

- Referral / prescription
- Operative note (graft, concomitant procedures)
- Date of surgery
- Protocol restrictions

REFERRAL PROCESS

- 1 FAX THE REFERRAL**
Send the referral and records to the clinic nearest the athlete. Fax numbers are below.
- 2 WE TEST INSIDE YOUR PROTOCOL**
Same standardized battery, same order, every athlete, every time.
- 3 YOU GET THE REPORT**
A color-coded report after every testing session. Full data on request.
- 4 RETEST ABOUT EVERY 12 WEEKS**
Until every gate is closed and you make the clearance call.



QUESTIONS ABOUT A PATIENT?

Call the clinic nearest the athlete or email appointments@itoprecovery.com. Patients can also book online.



BOOK ONLINE
itop.janeapp.com

— CLINICS & CONTACTS

THREE TEXAS CLINICS. ONE STANDARD.

LUBBOCK

1080 QUANTUM · HAWKIN DYNAMICS
FORCE PLATES

📍 5614 126th St, Bldg C-3
Lubbock, TX 79424

📞 PH: 806-516-5722

📠 FAX: 806-313-1946

🕒 Mon-Fri 8am-6pm · Sat 8am-12pm

COLLEYVILLE

1080 SPRINT 2 · HAWKIN DYNAMICS
FORCE PLATES

📍 1821 John McCain Rd, Ste 103
Colleyville, TX 76034

📞 PH: 469-895-5198

📠 FAX: 469-663-5520

🕒 Mon-Fri 8am-6pm · Sat 8am-12pm

IRVING

HANDS-ON CARE · CLINICAL RETURN-
TO-PLAY TESTING

📍 2642 N Belt Line Rd
Irving, TX 75062

📞 PH: 214-225-0291

📠 FAX: 361-277-0056

🕒 Mon-Fri 8am-6pm · Sat 8am-12pm

Irving offers hands-on care and clinical return-to-play testing, and refers to Lubbock or Colleyville for force plate and 1080 testing.



BOOK ONLINE

itop.janeapp.com

✉ appointments@itoprecovery.com

itoprecovery.com/for-physicians

Personalized care focused on recovery, strength and performance.

Physical therapy · Rehab · Performance · Recovery.

Our team: PT, DPT, MPT · DSc · ATC, LAT · CSCS · MAT.

Insurance requirements may vary. In Texas, qualified PTs can provide treatment without a referral for up to 30 consecutive calendar days; a referral is required to continue beyond that period.

iTOP provides testing data and recommendations. Every clearance decision remains with the treating physician.