

HIP SPRAIN AND FAI

Nonoperative Physical Therapy Protocol

PATIENT

PHYSICIAN

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DATE OF REFERRAL

PT START DATE

For the patient

Hip sprains and hip impingement (FAI) both cause pain in the groin or the front of the hip. A **hip sprain** is a strain of the muscles or tendons around the hip, most often the hip flexor or groin (adductor) muscles; it heals with gradual loading. **FAI** happens when the ball and socket of the hip pinch in certain positions and irritate the joint lining. Both are treated with **physical therapy first**, to reduce pain, strengthen the muscles that steady the hip, and correct the movements that bring on symptoms. **Most people with FAI do well without surgery**, especially with a structured 3–6 month PT program.

PROTOCOL AT A GLANCE

DIAGNOSIS · GOAL	PT first: calm the pain, strengthen the hip, learn which positions to avoid
ACTIVITY	Full weight as tolerated; crutches only if walking hurts. Avoid deep hip bending (past 90°) with the knee turned in and crossing the midline
PHYSICAL THERAPY	2× a week for weeks 0–12, then 1× a week , then as needed
KEY PRECAUTIONS	Exercise pain 2/10 or less . No stretching into pain early. Raised seat cushion; avoid low chairs and bucket seats
PROGRESSION	Next phase when all its goals are met. Avoiding the positions that trigger pain matters as much as the exercises
RETURN TO ACTIVITY	Low-impact sport 12–16 weeks at the earliest. Contact or pivoting sport 4–6 months , after testing and clearance by Dr. Merritt

Recovery Timeline

Phase	When	PT visits	Focus
1	Weeks 0–4	2× a week	Rest from aggravating activities; core activation; gentle pain-free motion; ice; bike (seat high)
2	Weeks 4–12	2× a week	Hip strengthening; mini squats, step-ups, balance; Copenhagen adduction (sprain); walking, jogging when pain-free
3	Weeks 12–16+	1× a week, then as needed	Sport training, agility, cutting; strength and hop testing; full activity ≥12–16 weeks, contact sport 4–6 months

Questions about PT? Call our office or ask at your next visit. We are glad to coordinate with your therapist.

For the Therapist

Check the surgeon notes first. They override anything else in this protocol. Questions or setbacks: call (425) 656-5060.

Surgeon notes and special instructions

General principles

- **Scope.** Conservative (nonoperative) management of two overlapping conditions: (1) **hip sprain**, an acute or subacute strain of the hip flexors, adductors, or capsular structures; and (2) **femoroacetabular impingement syndrome (FAI)**, pain from cam, pincer, or mixed morphology causing mechanical contact within the hip joint. Both cause anterior or anteromedial hip and groin pain aggravated by the impingement triad (hip flexion $>90^\circ$ + internal rotation + adduction), and both need the same foundation: lumbopelvic motor control, hip abductor and external rotator strengthening, and activity modification to avoid provocative end-range positions.
- **Impingement positions to avoid (FAI).** Any combination of hip flexion $>90^\circ$ + internal rotation + adduction at the same time. Deep squats, sitting cross-legged, “hanging on one hip” posture, and bucket-seat car positions are the most common daily triggers.
- **Lumbopelvic stability first.** Deficient lumbopelvic control increases intra-articular pressure and is a primary driver of FAI symptoms. Transverse abdominis and pelvic floor co-activation is required throughout early exercise. Do not advance to loaded hip exercises before establishing pelvic control.
- **Progressive loading (hip sprain).** Use a pain-controlled repetition maximum: exercise to fatigue within $\leq 2/10$ NRS pain. If pain is $\leq 1/10$, increase load; if $\geq 3/10$, reduce load. This accelerates recovery compared with strict pain avoidance. Progressive loading, not stretching, is the primary treatment.
- **No aggressive passive stretching acutely.** Aggressive passive stretching of acutely strained hip flexors or adductors worsens the injury. Pain-guided active flexibility and loading begin early; aggressive end-range stretching waits for Phase 2 or 3.
- **Surgical escalation (FAI).** If symptoms persist after at least 3–6 months of supervised, structured conservative care, surgical consultation is appropriate. Criteria: failure of ≥ 3 –6 months of supervised PT; persistent pain limiting function and quality of life; confirmed FAI morphology on imaging with correlating positive clinical tests (FADIR, FABER); confirmed labral tear on MR arthrogram with mechanical symptoms; progressive cartilage damage.

PHASE

1

Acute and Protection

Weeks 0–4

For the patient: what to expect

The first priority is calming down the pain and learning which positions irritate your hip. Use crutches if walking is painful. Exercises focus on waking up your deep core and pelvic floor muscles and gently starting the hip muscles. **Do not stretch into pain.** Ice and changing how you do daily activities are your best friends in this phase. Pain during exercise should stay at **2/10 or less**.

WEIGHT BEARING	Full weight bearing as tolerated. Crutches as needed for acutely painful weight bearing (hip sprain). Normalize gait before stopping crutches: walking with an antalgic limp increases compensatory loading and prolongs recovery. Goal: crutch-free by the end of Phase 1
MOTION	Gentle, pain-free passive ROM in non-provocative planes. Avoid end-range hip flexion + IR + adduction (FAI). Hip extension and anterior capsule stretching (prone or standing lunge) in pain-free range. Stationary bike: seat high, no resistance at first, 15–20 min. Manual or belt-assisted joint distraction in restricted planes as clinician-indicated
BRACE · SUPPORT	No brace indicated. Compression shorts (hip sprain, adductor strain) for comfort when walking. Crutches as needed, as above

Goals

- Control pain and inflammation; reduce acute joint synovitis or muscle injury response
- Normalize gait (crutches as needed); crutch-free before Phase 2
- Patient education: FAI positions to avoid, posture habits, pain-guided exercise rules
- Establish baseline hip ROM and identify restricted planes
- Initiate motor control of the lumbopelvic-hip complex (TA, pelvic floor)
- Begin pain-free activation of the hip stabilizers

Move on when

- ☐ Pain-free passive ROM in functional ranges
- ☐ Minimal swelling or tenderness over the hip musculature
- ☐ Pain-free gait; crutches discontinued
- ☐ Concentric hip adduction against gravity without pain (adductor sprain)
- ☐ Isometric hip abduction without pain
- ☐ Stationary bike 15–20 min without symptom increase

Exercises

Exercise	How
TA activation (supine)	“Lift the pelvic floor and draw in the lower abdomen while breathing normally.” Effort 2–4/10. 3 × 10, 10-sec hold. Prerequisite for all other exercises
Bent-knee fall-outs	Supine with TA active; let the knees fall open to pain-free range. 3 × 10
Supine heel slides	Active hip flexion in supine, pain-guided. 3 × 15
Supine heel march	Alternating hip flexion with TA maintained. 3 × 10 each leg
Prone hip extension	Off the edge of the bed, pain-free arc. 3 × 10
Supine bridges (double-leg)	Feet hip-width, drive through the heels, neutral pelvis. 3 × 15
Clamshells → side-lying hip abduction	Isometric clamshell → isotonic side-lying abduction. 3 × 15. Modified: not lying on the affected hip if painful

Isometric adduction (hip sprain)	Knees bent, squeeze a pillow between the knees; progress to knees straight, then resisted. 3 × 10, 5-sec hold. Pain ≤2/10
Standing hip abduction and extension	With support, pain-free range. 3 × 15
Leg swings (active flexibility)	Side to side and front to back. 4 × 20 (Aspetar Phase 1)
Stationary bike	Seat high, no resistance. 15–20 min for conditioning and gentle ROM
Single-leg weight shift	Bilateral stance → shift weight forward/back and side to side, core active. 3 × 30 sec
Wobble board balance	Bilateral, with support; side to side and forward/backward. 3 × 30 sec
Ice	20 min on, 20 min off, as needed; most useful in the first 48–72 hours (hip sprain)

Precautions

- **FAI:** avoid combined hip flexion >90° + internal rotation + adduction at the same time (the impingement triad)
- **FAI:** use a raised seat cushion for driving and sitting to avoid deep hip flexion; avoid low chairs and bucket seats
- **Hip sprain:** crutches as needed; normalize gait before discarding them; no walking with an antalgic limp
- **Hip sprain:** no passive stretching into a painful range acutely; ice 20 min on, 20 min off, as needed; compression shorts for adductor strains
- **All:** no aggressive manual therapy or massage directly on acutely strained muscle
- **All:** pain during exercise must not exceed 2/10; any increase in symptoms requires load reduction
- **All:** patients should not progress through phases while taking pain medication that masks symptoms

PHASE

2

Subacute and Progressive Loading

Weeks 4–12

For the patient: what to expect

Your pain has improved and you are ready to load the hip step by step. Exercises build from simple lying-down movements to full standing strength exercises. Walking, stairs, and eventually jogging are added when pain allows. If you have a sprain, **strengthening (not stretching) the groin and hip flexor muscles** is the priority. If you have FAI, keep avoiding deep hip bending combined with turning the knee inward. Pain of **2/10 or less** is still your exercise guide; mild discomfort is acceptable.

WEIGHT BEARING	Full. Crutches fully discontinued. Progress from bilateral to unilateral closed-chain exercises as strength and pain allow
MOTION	Active ROM in all planes; full ROM equal to the other side is the Phase 2 target. FAI: avoid provocative combined hip flexion + IR + adduction until pain-free throughout. Hip flexor and adductor flexibility progressed through active ROM and non-aggressive stretching in Phase 2b. Posterior capsule mobilization only if a posterior capsular contracture is documented
BRACE · SUPPORT	None. Stop compression shorts as tolerated. Elastic support as needed for adductor sprain on higher-activity days

Goals

- Progress lumbopelvic-hip control in closed-chain exercises
- Strengthen hip abductors, external rotators, and extensors, with gluteus medius emphasis
- Progress to single-leg stance without Trendelenburg
- Expand ROM in pain-free ranges; equal to the other side
- Advance conditioning: bike → elliptical → walking → jogging
- Adductor eccentric loading (Copenhagen adduction) for hip sprain

Move on when

- ☐ Full passive ROM equal to the other side
- ☐ Adductor strength $\geq 75\%$ of abductor strength on the involved side (hip sprain)
- ☐ Single-leg stance ≥ 30 sec without Trendelenburg on a firm surface
- ☐ Mini squats to 45° pain-free, neutral knee alignment, no valgus
- ☐ Step-up, 10 reps on a 4-inch step, without pain or compensation
- ☐ Pain-free jogging (hip sprain)
- ☐ Pain $\leq 2/10$ with all Phase 2 exercises

Exercises: Phase 2a (weeks 4–6)

Exercise	How
Side plank (elbows/feet)	3 × 20–30 sec (74% gluteus medius MVIC); advance to feet stacked, then add hip abduction
Prone plank (elbows/toes)	3 × 20–30 sec. Progress to alternating arm/leg lift, 3 × 10
Side-lying hip abduction with band	3 × 15, affected side up
Standing resisted hip ER/IR (Theraband)	In flexed, neutral, and extended hip positions. 3 × 12
Mini squats (0–45°)	3 × 15. Cue knee over the 2nd toe, neutral pelvis, no valgus; use mirror feedback
Sit-to-stand (high seat)	3 × 10. Push through the heels; neutral spine and pelvis

Step-ups (4-inch)	Affected leg leads. 3 × 10. Heel strike on the step, level pelvis
Hamstring curls with resistance	3 × 12. Progress to single-leg deadlift
Hip adduction with band (hip sprain)	Standing, affected leg adducting against the band. 3 × 20 at 3 sec concentric / 3 sec eccentric (Aspetar Phase 2–3)
Hip flexion with band	3 × 20 (Aspetar Phase 2)

Exercises: Phase 2b (weeks 6–10)

Exercise	How
Sahrmann wall glute med	Standing against a wall, one leg lifted, level pelvis. 3 × 30–45 sec (highest gluteus medius EMG activation, 76% MVIC)
Single-leg balance (firm surface)	3 × 30–60 sec → foam pad or BOSU; eyes open → closed
Single-leg squat (partial, 30–45°)	3 × 8–10. Watch for valgus and lateral trunk shift
Single-leg deadlift	Bilateral support → single leg. 3 × 10. High gluteus medius activation
Step-down (eccentric, 4-inch)	3 × 10, slow descent, neutral pelvis
Lateral band walk (ankle band)	3 × 15 steps (61% gluteus medius MVIC)
Leg press (0–60°)	Bilateral → unilateral. 3 × 12, progressive resistance
Lunges	Static ¼ → ½ → full range → walking lunges with hand weights. 3 × 10 each leg
Copenhagen adduction (hip sprain)	Partner- or table-supported; 3 sets of max reps. Start with knee support, progress to ankle support. Key eccentric adductor exercise; target 2× a week
Run-walk intervals (hip sprain)	Start when adductor strength is 75% of abductor and gait is pain-free. Intervals at 30% → 60% → 80% effort (Aspetar running protocol)
Conditioning	Stationary bike → elliptical (forward) → stair machine

Precautions

- **FAI:** no deep squats >90° hip flexion until Phase 2b or later; watch for groin pain with loading
- No dynamic knee valgus (inward knee collapse) during squats, step-ups, or lunges; hip external rotator strengthening prevents this
- Advance to step-ups only after mini squats to 45° are pain-free with consistent quad control
- **Hip sprain:** no high-speed running or agility drills until Phase 3 criteria are met
- No contact or pivoting sport in Phase 2
- Reactive effusion or more pain after loading: reduce intensity and reassess

PHASE

3

Return to Function and Sport

Weeks 12–16+

For the patient: what to expect

This phase prepares you for the full demands of sport and activity. You will add jumping, cutting, and change-of-direction exercises. **Your hip and leg strength need to be within 10% of the other side** before you are cleared. If you had a groin (adductor) sprain, keep doing the Copenhagen adduction exercise **2× a week** after you return to sport, to help prevent another injury. If you have FAI and the pain has not improved by now, a surgical consultation is appropriate.

WEIGHT BEARING	Full, unrestricted. Progressive impact loading
MOTION	Full, unrestricted. Continue posterior capsule mobilization if indicated. FAI: gradually test provocative positions as strength and neuromuscular control are established

Goals

- Symmetric lower-extremity strength: $\geq 90\%$ LSI on functional tests
- Full, pain-free active and passive ROM equal to the other side
- Criteria-based return to sport and work activities
- Long-term self-management education to prevent FAI recurrence
- Copenhagen adduction 2× a week as ongoing maintenance (hip sprain)

Move on when

- ☐ Full ROM equal to the other side; no anterior hip pain at end range
- ☐ Adductor strength $\geq 90\%$ of abductor strength on the involved side (hip sprain)
- ☐ Single-leg stance ≥ 60 sec on stable and unstable surfaces without Trendelenburg
- ☐ Single-leg squat to 60° without valgus, 10 reps, pain-free
- ☐ Single-leg hop for distance $\geq 90\%$ LSI
- ☐ Pain-free T-test at 100% effort
- ☐ Pain-free 10 × 30 m sprints at 100% (hip sprain)
- ☐ Illinois Agility Test pain-free at 100%
- ☐ Sport-specific drills pain-free at full intensity
- ☐ Post-activity soreness resolves within 24 hours
- ☐ Surgeon clearance: at least 12–16 weeks for non-contact, 4–6 months for contact or pivoting sport

Exercises

Exercise	How
Phase 2 program	Continue and advance with increased resistance
Multi-plane lunges with rotation	Forward, lateral, diagonal. 3 × 10 each direction
Box jumps (bilateral)	3 × 8. Cue a quiet, symmetric landing
Single-leg hop and stick	3 × 5–8 each leg; hold a controlled landing
Lateral bounds and hop-overs	3 × 8 each direction
Perturbation training	Single-leg stance with arm perturbations from the therapist. 3 × 30 sec each leg
Quick kicks with band (hip flexion)	High speed, extension → flexion. 3 × 15
Agility ladder	Footwork patterns at progressive speed

T-test	4 cones: sprint, lateral shuffle, backpedal; timed at 80% → 100%
Illinois Agility Test	At full speed (sport clearance testing)
Sport-specific drills	Acceleration, deceleration, 45°/90°/135°/180° cutting; pain-free at 100% self-reported intensity
Linear running	Progress to full-speed sprints, 10 × 30 m (Aspetar sprint criterion)
Copenhagen adduction	3 sets of max reps, 2× a week; mandatory maintenance for adductor sprain return to sport
Olympic lifts	As appropriate for high-demand athletes (squats, deadlifts, split squats)

Precautions

- No single-leg plyometrics until single-leg squat mechanics are controlled; poor neuromuscular control under reactive loading increases re-injury risk
- Full-speed running and agility drills only after pain-free linear running at 80–100%
- Contact and pivoting sports (soccer, hockey, basketball) not before agility testing criteria are met and surgeon clearance is obtained
- **FAI:** if symptoms persist or worsen with Phase 3 loading, escalate to surgical consultation
- At least 4–6 months before full return to contact or pivoting sport; at least 12–16 weeks for low-impact sport

Return to Activity

All criteria in a group must be met before that step.

Return to daily activity and low-impact exercise

- Pain-free passive ROM in all functional planes
- Crutch-free, normal gait pattern
- Pain $\leq 2/10$ with all daily activities: stairs, sit-to-stand, walking
- Single-leg stance ≥ 30 sec without Trendelenburg

Return to running (hip sprain)

- Adductor strength $\geq 75\%$ of abductor strength on the involved side
- Pain-free isometric adduction and Copenhagen adduction $\times 10$ reps
- Pain-free gait and brisk walking, with no antalgic pattern
- Progress running intensity 30% $\rightarrow$ 60% $\rightarrow$ 80% $\rightarrow$ 100% (Aspetar protocol)
- Pain-free 10 $\times$ 30 m sprints at 100% before agility clearance

Return to sport and contact activity

- All Phase 3 criteria met
- Hip adductor strength $\geq 90\%$ of the other side and $\geq 90\%$ of abductor strength
- Single-leg hop testing $\geq 90\%$ LSI
- Pain-free agility testing (T-test, Illinois Agility Test) at 100%
- Pain-free sport-specific drills at full intensity
- At least 4–6 months for contact or pivoting sports; shorter for non-contact
- Surgeon clearance required

Return to sport after conservative management of FAI

- Pain-free with all functional and sport-specific movement patterns, including impingement positions
- Symmetric strength and hop testing, as above
- Physician clearance, with review of imaging if indicated
- Surgical consultation is indicated if symptoms persist despite completing this full protocol

Clinical note for FAI

Conservative management reduces pain and restores function in the majority of patients. Cam or pincer morphology on imaging does not mean surgery is required; imaging findings alone do not determine treatment. Re-evaluate surgical candidacy after at least 3–6 months of supervised, structured PT with full compliance.