

# Hip - Neck of Femur Stress Injury

Return-to-Run Rehabilitation Program (~16 weeks total)

Female | 28 years old | Runner | Right hip | Grade 3 Medial (Compressive) NOF Stress Injury



## Clinical Presentation

A 28-year-old female runner presents to our clinic with pain on running in her right hip. MRI demonstrates a Grade 3 stress injury to the medial (compressive) side of the neck of femur.

*The following is an example of a treatment plan and return-to-running program involving a multidisciplinary team:*

- Sports Physician
- Physiotherapy
- Podiatry
- Dietitian

## Phase 1 — Offloading & Load Management (Weeks 1–6)

**Goal:** Protect healing bone, maintain fitness, address contributing factors.

### Cardiovascular — Non-Impact

- Pool/Aqua jogging — primary non-impact cardiovascular work

### Upper Body & Contralateral Limb Strength

- Seated hip abduction (unaffected side)
- Upper body ergometer
- Core: dead bugs (lying)
- Core: Pallof press (lying/seated)

### Address Contributing Factors

Common in female runners — consider RED-S, bone density, training load, menstrual function, calcium/Vit D status.

### Biomechanics & Footwear

Early assessment of running biomechanics and footwear to be completed by physiotherapy and podiatry.

## Phase 2 — Weight Bearing Restoration (Weeks 6–10)

**Goal:** Restore normal gait, build hip and core strength — pain-free weight bearing confirmed.

### Strengthening (Bilateral → Unilateral Progression)

- Glute bridges → single-leg bridges
- Clamshells with resistance band
- Side-lying hip abduction
- Mini squats → full bodyweight squats
- Step-ups (low box, progress height)

- Terminal knee extensions

### Balance / Proprioception

- Double-leg stance → single-leg stance (eyes open → closed)
- Bosu balance (bilateral first)

### Gait Retraining

- Walking — normal surfaces, then inclines
- Focus on hip extension, avoid Trendelenburg

### Phase 3 — Progressive Loading (Weeks 10–14)

**Goal:** Build capacity for impact. MRI/clinical clearance required before commencing this phase.

#### Higher-Load Strength

- Single-leg squats (to box initially)
- Romanian deadlifts → single-leg RDL
- Hip thrust (loaded)
- Lateral band walks
- Calf raises (impact preparation)
- Nordic hamstring curls

#### Low-Impact Impact Introduction

- Marching on the spot → skipping
- Double-leg hops (low) → single-leg hops (progress gradually)
- Jump rope (if cleared)

### Phase 4 — Return to Running (Weeks 14–18)

**Gate criteria:** Pain-free at rest | Pain-free single-leg squat ×20 | MRI healing confirmed | Normal gait

#### Walk-Run Protocol

Week	Session
14	3 min run / 2 min walk × 5 = 25 min
15	5 min run / 2 min walk × 5 = 35 min
16	10 min run / 2 min walk × 3 = 36 min
17	20 min continuous run
18	30 min continuous run

**Run 3× per week maximum — rest or cross-train on other days. Stop if groin/hip pain develops.**

### Phase 5 — Return to Full Training (Weeks 18+)

- Gradually reintroduce speed, hills, and mileage (no more than 10% weekly volume increase)
- Continue strength work 2× weekly ongoing

- Address original load error that caused injury

### Key Contributing Factors to Address in Parallel

Factor	Action
Relative Energy Deficiency (RED-S)	Dietitian referral; increase caloric intake if needed
Bone density	DEXA scan recommended; calcium 1000–1200 mg/day, Vit D 1000–2000 IU/day
Menstrual function	Regular cycle is protective; investigate if amenorrhoeic
Running biomechanics	Cadence, hip drop, crossover gait — address with physio
Training load	Structured periodisation on return

### Disclaimer

This rehab protocol was used for this patient and should not be used without supervision by your physiotherapist or sports physician.

This document is provided as an example of multidisciplinary management and does not constitute medical advice. Individual presentations vary and all clinical decisions should be made in consultation with a qualified healthcare professional.