



Fit to Play Protocol at Elite Boxing National Camp

A fit-to-play protocol in boxing is a structured stepwise process used to determine whether a boxer is medically, physically, and psychologically ready to safely return to training and competition after injury, illness, or a period of inactivity.

Team Doctor: -

Clinical Criteria

- Afebrile
- No systemic symptoms
- Normal hydration and nutritional status
- Resting heart rate within 10% of baseline
- Normal clinical examination (cardiorespiratory, gastrointestinal, and neurological systems)

Basic Screening

- Vital signs within normal limits
- Blood investigations in moderate illness (*CBC, CRP, etc.*)
- Electrocardiogram if cardiac symptoms are present

Red Flags Requiring Further Evaluation

- Persistence of symptoms
- Chest pain
- Palpitations
- Syncope
- Persistent dyspnoea
- Severe fatigue
- Persistent headache

Monitoring During RTP

Clinical Monitoring

- Fatigue
- Muscle soreness
- Symptom progression

Physiological Monitoring

- Resting heart rate
- Heart rate recovery
- RPE (*Rate of Perceived Exertion*)

Performance Monitoring

- Exercise load tolerance
- Technical response to training
- Recovery between sessions

Team Physiotherapist: -

PHASE 1: CLINICAL RESOLUTION (Return to Activity)

- Minimal / no swelling
- Full active & passive ROM (within 5° of opposite side)
- Pain free during daily activities and low-level rehab
- Basic movement patterns normal (Squat / Lunge / Rotation)

PHASE 2: FUNCTIONAL LOADING (Return to Sport)

Objective: Progress toward sport loading safely.

- Strength \geq 80% compared to opposite side
- Tolerates hopping / shadow boxing / light jogging pain free
- Good balance / stability test performance
- Good trunk control during rotational movement

PHASE 3: SPORT-SPECIFIC INTEGRATION

Objective: Prepare for boxing-specific high intensity work.

- Technical drills completed at high speed
- Power tests \geq 90% symmetry
- Full conditioning session completed
- No movement breakdown under fatigue

PHASE 4: FULL CLEARANCE (Return to Performance)

Objective: Full return to unrestricted training / competition.

- Controlled sparring completed successfully
- Training load well tolerated
- Medically fit for full return

**** Note:** - If a boxer gets injured during national camp or joins camp with an existing injury, the medical team will assess the injury immediately. If the injury is **high grade (Grade II or above)** or the expected recovery time is **more than two weeks**, the medical team will take a **second opinion from a specialist**. If the boxer is not likely to recover quickly enough to participate effectively in camp training, the athlete may be **withdrawn (weeded out) from the camp** to allow proper treatment and recovery.

Team Psychologist: -

Psychological readiness assessments post-injury:

1. Injury-Psychological Readiness to Return to Sport Scale

Purpose: Measures athlete's confidence in returning to sport after injury.

Structure

- 6 questions
- Rated 0–100 confidence scale

When to Use

- Before Return to Training
- Before Return to Competition

2. Anterior Cruciate Ligament–Return to Sport after Injury Scale

Purpose: Measures emotional readiness, confidence, and fear of reinjury.

Structure

- 12 items
- 0–100 scale

Measures

- Fear of reinjury
- Confidence in knee (or injured body part)
- Risk appraisal

3. Tampa Scale of Kinesiophobia

Purpose: Measures fear of movement and reinjury.

Structure

- 17 statements
- 4-point Likert scale

Examples

- “I am afraid that I might injure myself if I exercise.”
- “Pain means something dangerous is happening.”

Psychological Readiness Interview

For athletes like boxers, also assess:

- Fear of impact/contact
- Reaction speed confidence
- Trust in defensive movement
- Aggression control
- Focus under sparring pressure

Ideal Integration in Sport Science RTP Model

Stage Psychological Tool

Rehab Phase TSK

Return to Training I-PRRS

Return to Sparring I-PRRS + Interview

Return to Competition ACL-RSI / Confidence Scale

Team Strength & Conditioning Expert: -

The athletes will be placed in the right RTP phase based on the decision tree. As we have a limited time during the national camp, the injuries will be considered based on its severity.

Basically, athletes will go through 3 phases after injury before getting clearance to compete.

- **Phase 01** - Return to Training (RTT)
- **Phase 02** - Return to Sparring (RTS)
- **Phase 03** - Return to Competition (RTC)

PHASE 1

RETURN TO TRAINING (RTT)

Pre-Requisite Clearance

Medical Department

- Pain \leq 2/10
- No inflammation
- Full or near-full ROM

- Clinical stability confirmed

Physiotherapy Department

Athlete must perform pain-free:

- Bodyweight squat
- Split squat
- Single-leg balance (30s)
- Push-up progression
- Shadow boxing movements

Testing Battery – Lower Limb

- Single Leg CMJ ($\geq 85-90\%$ LSI)
- Single Leg Hop ($\geq 85-90\%$ LSI)
- Isometric Strength ($\geq 85-90\%$)
- Force Asymmetry ($< 15\%$)

Testing Battery – Upper Limb

- Isometric shoulder IR, ER strength ($\geq 85-90\%$ LSI)
- Closed Kinetic Chain Upper Extremity Stability Test (CKCUEST) (Within 90% baseline)
- Push-up force symmetry ($< 15\%$ asymmetry)
- Handgrip strength ($> 90\%$ baseline)

Force Plate Metrics (Lower Limb)

- Peak Force ($< 15\%$ asymmetry)
- Concentric Impulse ($< 15\%$ asymmetry)
- Braking RFD ($< 15\%$)
- Peak Landing Force ($< 15\%$)
- Take off Impulse ($< 15\%$)

Force Plate Metrics (Upper Limb)

- Plyometric push-up (Peak force symmetry, RFD)
- Push ups - (M-L/A-P sway)

Exit Criteria (RTT → RTS)

Athlete must achieve:

- Pain-free training
- $\geq 90\%$ LSI
- Force asymmetry $< 10-15\%$
- Completion of full S&C session with $> 90\%$ of their baseline strength achieved.

PHASE 2

RETURN TO SPARRING (RTS)

Physical

- High-intensity conditioning

- Olympic lift derivatives
- Reactive agility and plyometrics
- Rotational power drills

Boxing

Progression:

1. Partner technical drills
2. Controlled sparring
3. Open sparring

Testing Battery – Lower Limb

- Single Leg CMJ ($\geq 90-95\%$ LSI)
- Drop Jump RSI (Within 10% baseline)
- Single Leg Hop ($\geq 90-95\%$ LSI)

Testing Battery – Upper Limb

- CKCUEST ($\geq 95\%$ baseline)
- Isometric Shoulder Strength ($\geq 90-95\%$)
- Grip strength ($> 95\%$ baseline)

Force Plate Metrics

- Peak Force ($< 10\%$ asymmetry)
- Concentric Impulse ($< 10\%$)
- RSI (Within 10% baseline)

Agility and quickness

- Reactive agility test $< 10\%$ difference from the baseline

Exit Criteria (RTS \rightarrow RTC)

Athlete must demonstrate:

- Pain-free sparring
- Full weekly training load tolerance
- $\geq 95\%$ LSI
- Inter-limb Force asymmetry $< 10-15\%$

PHASE 3

RETURN TO COMPETITION (RTC)

Athlete must complete:

- Full sparring rounds
- High-intensity conditioning
- Technical and tactical sessions
- Strength and power training Without symptoms.

Objective Testing

Lower Limb

- Single Leg Jump ($\geq 95\%$ LSI)
- CMJ Metrics ($\geq 95\%$ baseline)
- RSI ($\geq 95\%$ baseline)

Upper Limb

- Landmine Punch Throw ($\geq 95\%$ from baseline Peak Velocity, Peak & Average Relative Power)
- Shoulder strength ($\geq 95\%$)
- CKCUEST ($\geq 95\%$)

Final Clearance

Athlete must receive approval from:

1. Medical Doctor
2. Physiotherapist
3. Strength & Conditioning Department
4. Head Coach

Daily Monitoring During RTP

- Wellness (Hooper Index)
- CMJ readiness
- Session RPE
- HRV / sleep data (if wearable available)

**** Note:** - The above mentioned RTP S&C SOP is only for the grade 1 injuries. In case of Grade 2 and Grade 3 injuries, respecting the timeline for tissue healing, considering the time availability in the National camp, the medical department will take decisions.