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RETURN TO SPORT AFTER SURGICAL TREATMENT OF CHRONIC LATERAL ANKLE INSTABILITY: A PROPOSED, EXPERT-INFORMED CRITERIA-BASED CLINICAL FRAMEWORK

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ABSTRACT

Chronic lateral ankle instability may limit return to running, jumping and multidirectional sport even after surgery restores mechanical stability. Return-to-sport decisions often rely on elapsed time, while definitions and clearance criteria vary. This structured narrative review examines return to sport after lateral ankle ligament repair or reconstruction and proposes an unvalidated, expert-informed clinical framework. MEDLINE/PubMed, Scopus and Web of Science were searched to 31 August 2026, with a targeted PubMed update on 6 October 2026. Recent pooled evidence indicates that approximately 95% of patients return to any sport and 83% return to their preinjury level, although definitions and procedures are heterogeneous. Postoperative studies of the Ankle-GO battery provide emerging support for multidomain assessment, but samples are small and prognostic thresholds remain uncertain. We propose five gates: protection and clinical quietness; foundational capacity; running and plyometric competence; sport integration; and graded competition followed by sustained performance. The Pain, Ankle impairments, Athlete perception, Sensorimotor control and Sport/functional performance (PAASS) domains are integrated with operative restrictions, procedure-specific healing and progressive sport exposure. Numerical targets and timelines are illustrative, not validated clearance rules. Progression requires surgeon approval, acceptable symptoms, functional competence, psychological readiness and tolerance of relevant training. Passing an assessment supports a clearance decision but does not demonstrate future safety or sustained performance. Prospective evaluation of feasibility, reliability and prognostic accuracy is required before this framework can be recommended as a standardised pathway.

KEYWORDS

Chronic lateral ankle instability, return to sport, lateral ankle ligament repair, lateral ankle ligament reconstruction, modified Broström procedure, rehabilitation, psychological readiness

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INTRODUCTION

Lateral ankle sprain is among the most frequent injuries in sport[1]. A substantial subgroup develops recurrent giving way, pain, perceived instability or reduced confidence despite rehabilitation; this clinical spectrum is described as chronic lateral ankle instability (CLAI)[2-4]. Mechanical insufficiency of the anterior talofibular and calcaneofibular ligaments may coexist with sensorimotor, strength, range-of-motion and psychological deficits[3,4]. For the athlete, the relevant outcome is therefore not simply a stable stress examination, but the capacity to resume training and competition at an acceptable level of performance and risk.

Anatomic repair—most commonly a modified Broström or Broström-Gould procedure—remains the benchmark when native tissue quality is adequate. Arthroscopic repair, suture-tape augmentation and anatomic graft reconstruction are selected according to tissue quality, laxity, revision status, sport demands, concomitant pathology and surgeon preference[5-10]. "Return to sport" (RTS), return to the same sport, return to the preinjury level and return to performance are not interchangeable[11]. Clearance may precede effective competition by weeks or months; therefore, the clearance decision must be distinguished from the later outcome of sustained participation.

Postoperative protocols remain heterogeneous, and time is often used as the principal clearance criterion[12-14]. Time protects healing tissue but does not establish whether an athlete can decelerate, cut, land under fatigue or trust the operated ankle. Recent postoperative applications of PAASS-informed testing, particularly the Ankle-GO battery, provide relevant evidence but do not yet constitute a universally validated postoperative pathway[15-17]. This review is intended primarily for skeletally mature recreational and competitive athletes following anatomic repair or reconstruction for CLAI. Youth athletes, revision surgery and complex cartilage, tendon or osteotomy procedures require separate qualification and the most restrictive operative protocol.

MATERIALS AND METHODS

This review used a structured narrative approach guided by the reporting domains of the Scale for the Assessment of Narrative Review Articles (SANRA), without assigning a formal SANRA score[18]. MEDLINE/PubMed, Scopus and Web of Science were searched from inception to 31 August 2026. PubMed was additionally searched on 6 October 2026 to identify newly indexed postoperative RTS studies and relevant contemporary reviews. The complete PubMed strategy was: (("chronic lateral ankle instability"[Title/Abstract] OR "chronic ankle instability"[Title/Abstract] OR "lateral ankle ligament"[Title/Abstract]) AND (Broström[Title/Abstract] OR Brostrom[Title/Abstract] OR "Broström-Gould"[Title/Abstract] OR "arthroscopic repair"[Title/Abstract] OR "suture tape"[Title/Abstract] OR "internal brace"[Title/Abstract] OR "anatomic reconstruction"[Title/Abstract]) AND ("return to sport"[Title/Abstract] OR "return to play"[Title/Abstract] OR rehabilitation[Title/Abstract] OR "functional testing"[Title/Abstract] OR "psychological readiness"[Title/Abstract])). Equivalent field codes and proximity syntax were used in Scopus and Web of Science. Searches were restricted to human, English-language full-text publications; no publication-type restriction was applied at the search stage. The corresponding author screened titles and abstracts, examined potentially relevant full texts and extracted study design, sample, operation, sporting level, definition and timing of RTS, rehabilitation exposure, tests and relevant outcomes into a working evidence table. The second author reviewed the clinical interpretation and final set of cited evidence; independent duplicate screening was not performed. Reference lists of included systematic reviews, consensus statements and key postoperative studies were searched backwards, and PubMed "similar articles" and citation links were used for forward checking. Because the original narrative search was not prospectively registered and exact deduplicated record counts were not retained, a PRISMA-style record flow cannot be reconstructed reliably; this limitation is stated rather than retrospectively estimated.

Forty-five publications were retained in the final synthesis: 28 were classified as direct postoperative or operative CLAI evidence, nine as indirect ankle-instability or acute-ankle evidence, and eight as broader RTS or methodological evidence. Priority was given to systematic reviews, clinical guidelines, prospective cohorts, randomised trials and athlete-specific series. Publications dealing exclusively with acute sprain or other joints were used only when they informed definitions, test administration or general RTS concepts. No meta-analysis or formal certainty-of-evidence assessment was performed. At the point of use, evidence is labelled as: Direct postoperative evidence (D); Indirect or extrapolated evidence (I); or Author-proposed practice (A). These labels describe source directness, not formal evidence grades.

RESULTS AND DISCUSSION

What does "return to sport" mean?

RTS is a continuum. Return to participation denotes modified or restricted activity below the athlete's desired level. Return to sport denotes resumption of the sport, but not necessarily at the same volume, role or performance. Return to performance denotes sustained participation at or above the preinjury standard[11]. These states should be reported separately because the binary question "Has the athlete returned?" conceals sport change, reduced competitive level, reduced minutes or only brief participation.

Clearance is a risk-management decision at one point in recovery; successful RTS is demonstrated subsequently. Shared decision-making should integrate the athlete, surgeon, rehabilitation clinician, coach and, where

available, sports physician. Each contributes different information about tissue restrictions, objective function, movement quality, training load, competitive context and risk tolerance[11].

Surgical context and evidence for return

A meta-analysis of 25 publications and 1,384 participants reported that 95% (95% confidence interval [CI], 91%–99%) returned to any sport, 83% (95% CI, 73%–91%) returned to the preinjury level and 87% (95% CI, 71%–98%) returned to competitive sport; pooled mean time to RTS was 12.45 weeks (95% CI, 10.8–14.1 weeks)[19]. These estimates provide useful orientation but should not be interpreted as clearance dates because definitions, procedures, rehabilitation and follow-up were heterogeneous. Elite-athlete series and reviews similarly report high RTS rates, but the denominator and preinjury-performance definition are inconsistent[20-22].

Open and arthroscopic repairs generally provide comparable stability and longer-term functional outcomes. A 2026 meta-analysis of 14 studies (875 patients) found modest advantages for arthroscopy in pain and time to RTS, but the certainty was limited[23]. The Medicina study cited previously included a short mean injury-to-operation interval and is therefore treated as indirect evidence for chronic instability; its return times are not used to set this framework[24]. Remnant repair and inferior extensor retinacular reinforcement have not shown consistent superiority in selected arthroscopic populations[25,26].

Suture-tape or internal-brace augmentation has greater construct strength and may support earlier mobilisation, but construct strength is not equivalent to clinical evidence of earlier safe sport. A 2026 meta-analysis of 13 comparative studies (1,015 patients) reported better FAAM-Sport scores and descriptively earlier RTS in only two studies, without significant differences in RTS rate, recurrence or complications[27]. Graft reconstruction is used for poor tissue quality, revision, laxity or selected high-demand cases[9,28,29]. A slower progression after reconstruction is principally a precaution based on graft incorporation, tunnel fixation and case complexity; pooled evidence did not demonstrate a significant difference in RTS between

Study	Design/sample	Procedure/population	RTS or rehabilitation finding	Main limitation/evidence status
Li et al.[19]	Systematic review/meta-analysis; 25 studies, 1,384 patients	Anatomic repair or reconstruction; mixed sporting levels	95% any sport; 83% preinjury level; mean 12.45 weeks	Heterogeneous definitions and mostly nonrandomised evidence; D
Vopat et al.[14]	Systematic review/meta-analysis; 28 studies, 1,457 patients	Primary lateral ligament repair	Early mobilisation improved scores but increased laxity and complications; RTS did not differ	Protocol heterogeneity; predominantly lower-level studies; D
Zhao et al.[30]	Randomised trial; 88 patients	Arthroscopic ATFL repair	Immediate protected weight-bearing hastened unsupported walking but not jogging or sport	Single centre; procedure-specific; D
Hardy et al.[15]	Prospective multicentre cohort; 51 patients	Arthroscopic anatomic graft reconstruction	Ankle-GO discriminated RTS at 4 and 6 months; 4-month score moderately predicted 6-month RTS	Small sample, wide CI and modest specificity; D
Lee et al.[16]	Case-control; 100 patients, including 48 modified Broström patients	Operative and nonoperative CAI	Side hop and figure-of-eight tests discriminated successful RTS; side hop associated with RTS	Retrospective classification; association is not proof of causal or prospective validity; D
Wang et al.[36]	Systematic review; 3 studies, 157 patients	Repair or reconstruction	Higher ALR-RSI scores associated with successful RTS	Scores often measured at follow-up; reverse direction possible; D
Liu et al.[23]	Systematic review/meta-analysis; 14 studies, 875 patients	Open versus arthroscopic Broström-Gould	Broadly comparable outcomes; possible earlier RTS and less pain arthroscopically	Clinical and methodological heterogeneity; D
Li et al.[27]	Systematic review/meta-analysis; 13 studies, 1,015 patients	Internal brace versus Broström-Gould	Better FAAM-Sport; descriptive 4–8-week earlier RTS in two studies; similar RTS rate and recurrence	Limited RTS-time studies and heterogeneous protocols; D
Smiley et al.[32]	Systematic review; 114 studies	Lower-extremity RTS testing	Marked lack of ankle-specific validation; dynamometry most common overall	Evidence dominated by ACL reconstruction; I

Table 1. *Traceable summary of principal evidence informing the framework.*

Abbreviations: ATFL, anterior talofibular ligament; CAI, chronic ankle instability; CI, confidence interval; D, direct postoperative/operative CLAI evidence; I, indirect evidence; RTS, return to sport.

repair and reconstruction[19]. Concomitant cartilage, tendon, bony or syndesmotic procedures may override the ligament pathway *(Table 1)*.

Why time alone is insufficient

Calendar-based protocols protect healing tissue and remain necessary, but recovery rate and exposure demands vary. Early mobilisation after repair may improve function while increasing laxity or wound complications in some series[36]; immediate protected weight-bearing after a specific arthroscopic ATFL repair hastened unsupported walking without hastening jogging or sport[30]. These findings do not justify a single accelerated schedule across repairs, reconstructions, revisions and combined procedures.

Time should define the earliest procedure-specific opportunity to attempt a task, while surgeon restrictions, competence and symptom response determine progression. Passing a test battery must never override fixation, graft, cartilage, tendon or osteotomy restrictions. Conversely, missing a proposed numerical benchmark may be compatible with restricted participation—but not unrestricted competition—when absolute capacity, movement quality and exposure can be safely controlled.

Postoperative PAASS-informed assessment

The PAASS consensus organises RTS assessment after acute lateral ankle sprain into pain, ankle impairments, athlete perception, sensorimotor control and sport/functional performance[31]. Psychological readiness and the ability to complete full training are already represented within PAASS. The present contribution does not add new PAASS domains; it integrates the existing domains with postoperative tissue restrictions, procedure-specific considerations and staged exposure. PAASS itself is not validated as a postoperative CLAI clearance tool. The Ankle-GO battery—single-leg stance, modified star excursion, side hop, figure-of-eight hop, FAAM and ALR-RSI—has emerging postoperative evidence, but its thresholds require cautious interpretation[15-17].

Symptoms and tissue response

Pain should be recorded on the same 0–10 numerical rating scale before, during, immediately after and the morning after a new exposure. Swelling should be monitored consistently by patient report and, when clinically relevant, by figure-of-eight girth at the same time of day. The proposed response rule is no recurrent giving way or mechanical symptom, no increase of more than 2/10 in pain, no clearly observable or measurable increase in swelling, and return to the pre-exposure state by the following morning. This 24-hour rule is an author-proposed monitoring convention (A), not evidence that unrestricted sport is safe. A persistent increase, night pain, loss of motion, wound change or mechanical symptom requires load reduction and clinical reassessment.

Ankle impairments and limb symmetry

Assessment includes weight-bearing dorsiflexion, ankle motion, calf and evertor capacity and mechanical stability. Where hand-held dynamometry is available, isometric eversion and plantarflexion should be tested with standardised joint position, rigid examiner or belt stabilisation and force normalised to body mass; the same device and protocol should be used serially. No particular manufacturer is mandated. Reports should identify manufacturer, model, country, calibration and sampling method, because device-specific measurement error may exceed a small apparent change.

Limb symmetry index (LSI) is calculated as involved/uninvolved ×100 for outcomes in which a higher value is better (force, distance or repetitions), and uninvolved/involved ×100 for timed outcomes in which a lower value is better. A provisional 90% LSI is commonly borrowed from lower-extremity RTS practice[32], but is not validated as a postoperative CLAI pass score. The earlier 95% suggestion for higher-demand athletes has been removed. Symmetry must be interpreted with preinjury measurements, body-mass-normalised strength, available age/sex/sport reference values and observed movement quality. When the opposite ankle is injured or both limbs are deconditioned and no baseline or normative value is available, confidence in clearance is lower even if LSI appears satisfactory.

Sensorimotor control, movement quality and fatigue

The Star Excursion Balance Test uses maximal single-leg reaches in prescribed directions while the stance foot remains planted; the Y-Balance Test is an instrumented three-direction derivative. Reach should be normalised to limb length, familiarisation provided and failed trials repeated. Progression from static stance to reach, perturbation, landing and direction change is preferable to reliance on one score[15-17]. Unacceptable movement errors include loss of balance or extra foot contact, recurrent giving way, inability to stabilise, marked trunk lean, pelvic drop, uncontrolled knee valgus, poor foot placement, avoidance of the operated side or deterioration that persists across trials.

Rested testing is sufficient for early gates. Fatigue testing is proposed at Gate 4 only when the intended sport involves repeated high-intensity efforts. A feasible sequence is the relevant hop or change-of-direction task after a standardised sport-specific conditioning bout, stopped for pain, instability, unsafe mechanics, dizziness or inability to maintain the prescribed intensity. No validated postoperative fatigue protocol or pass threshold exists; duration, intensity, recovery and stopping criteria must therefore be reported. Landing and deceleration are described as tasks involving negative work rather than as “eccentric exercises”[33], and conditioning is prescribed by duration and intensity rather than assumed metabolic labels[34].

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Functional and sport-specific performance

A battery is preferable to a single hop. The ankle-GO literature supports particular attention to the side hop and figure-of-eight hop after modified Broström surgery, but current studies demonstrate discrimination and association rather than universal prospective clearance validity[15-16]. Running should progress through duration, speed, acceleration, deceleration and cutting. The final tasks should resemble the athlete's sport, position, surface and footwear. Test distance or time, movement quality, symptoms, confidence and failed trials should all be recorded. *Table S1* provides a reproducible minimum protocol; locally validated alternatives may be substituted.

Patient-reported function and psychological readiness

The questionnaires assess different constructs. FAAM-Activities of Daily Living and FAAM-Sport quantify perceived activity and sport function; CAIT measures perceived ankle instability; ALR-RSI addresses emotions, confidence and risk appraisal related to sport return[15,35,36]. They are complementary, not interchangeable. Validated language versions should be used where available. A favourable score does not independently establish mechanical stability, physical capacity or safe clearance.

ALR-RSI is valid and reproducible as a measurement instrument after ligament surgery[35]. Higher scores are associated with successful RTS[16,36], but much of the evidence uses cross-sectional postoperative follow-up; successful participation may itself improve confidence. Prospective prognostic validity for reinjury or sustained performance remains unproven. No universal ALR-RSI pass score is recommended *(Table 2 and 3)*.

Development and application of the proposed five-gate framework

The five gates were developed through narrative synthesis of the evidence described above and discussion between the two authors. No Delphi exercise, formal consensus method, external clinician panel or athlete feasibility review was conducted. The framework is therefore an author-proposed clinical scaffold, not a consensus guideline, validated algorithm or prediction rule. "Gate" is used consistently for a decision point; the corresponding rehabilitation period is described as a phase. *Table 4* maps each phase to its gate.

Gate 1: Protection and clinical quietness

The repair or reconstruction is protected according to the operative report. Primary repair commonly involves strict protection for approximately 0–2 weeks followed by progressive protection to 4–6 weeks, whereas graft reconstruction or combined procedures may require longer. Immediate protected weight-bearing may be reasonable after selected arthroscopic ATFL repair, but it did not accelerate jogging or sport in a randomised trial[30], and early mobilisation has been associated with greater laxity and complications in pooled observational evidence[14]. Exit requires surgeon authorisation, a healed wound, safe permitted gait/loading and an acceptable symptom response; the dates are illustrative, not clearance thresholds.

Gate 2: Foundational capacity

This phase commonly begins between weeks 2 and 6 and overlaps with protection. It restores permitted motion, gait, isometric then progressive concentric and negative-work capacity of the calf and evertors, foot-intrinsic and proximal control, and balance. Exit requires surgeon-authorised loading, functional dorsiflexion for the next task, repeated heel-rise and single-leg loading without instability or next-day flare, and documented progress in body-mass-normalised strength. "Near normal" is not treated as a universal number when baseline and normative data are absent.

Gate 3: Running and plyometric competence

No universal week authorises running. In an uncomplicated primary repair, graded running is often considered during approximately weeks 8–16; reconstruction, revision and cartilage/tendon/bony procedures may shift this later. Entry requires surgeon permission, pain-controlled walking, adequate calf capacity and preparatory hopping with acceptable mechanics. Running volume precedes speed; bilateral landing precedes higher-rate unilateral and lateral tasks. Walking-to-jogging criteria borrowed from other ligament surgery are indirect evidence and should be identified as such[37]. Exit requires completion of the prescribed running and submaximal hop exposure without giving way, unsafe mechanics or an adverse next-day response.

Gate 4: Sport integration

This phase is often considered from approximately 12–24 weeks or later, but competence and operative restrictions dominate the calendar. Acceleration, deceleration, cutting angle, visual decision-making, opponent pressure, contact, surface and footwear are reintroduced systematically. Rested testing is performed first; additional fatigue testing is reserved for sports requiring repeated high-intensity efforts and uses a documented, individualised protocol. Repeated-sprint/change-of-direction testing is indirect evidence and may be used when feasible[38]. Exit requires acceptable multidomain findings, surgeon agreement and repeated tolerance of unrestricted training or an equivalent sport simulation.

Gate 5: Graded competition and sustained return to performance

The transition from unrestricted training to competition begins with graded minutes, repetitions, mileage or competition density. This is competition clearance, not yet

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Procedure/context	Clinical implication	RTS interpretation	Evidence status/caution
Primary anatomic repair	Native tissue is retained and repaired. Protection depends on tissue and fixation quality.	Criteria-based progression after surgeon-authorised loading.	Direct rehabilitation evidence exists, but protocols vary[14,30,41].
Arthroscopic repair	May reduce early morbidity in selected patients.	Approach alone does not prove earlier safe RTS.	Comparative pooled evidence is heterogeneous[23,25]. This case[24] is treated as indirect because of acute/early surgery.
Suture-tape/internal-brace augmentation	May increase construct strength and allow selected earlier mobilisation.	Do not bypass strength, control or workload criteria.	Earlier RTS evidence is limited; rates and recurrence were similar in pooled comparison[27,42].
Anatomic graft reconstruction	Used when native tissue is insufficient, in revision or selected lax/high-demand cases.	Progression may be more cautious because of graft/fixation and case complexity.	Precaution is biologically reasoned; pooled data did not prove slower RTS than repair[9,19,28,29].
Concomitant cartilage, tendon, bony or syndesmotic procedure	The most restrictive procedure governs loading and impact.	Ligament milestones do not override the combined procedure.	Procedure-specific restrictions required; author-proposed integration (A).

Table 2. *Procedure-specific modifiers of the proposed pathway.*
Abbreviations: A, author-proposed practice; RTS, return to sport.
Legend: "Repair" denotes preservation and repair of native ligament tissue; "reconstruction" denotes graft-based replacement. Each row must be interpreted with the operative report.

Domain	Measure	Illustrative criterion	Evidence status and interpretation
Symptoms/tissue response	0–10 pain; swelling; wound; instability; next-day response	No giving way/mechanical symptom; pain increase ≤2/10; no clear swelling increase; baseline restored by next morning.	Author-proposed monitoring rule (A), not proof of safety.
Motion/strength	Weight-bearing lunge; body-mass-normalised isometric eversion/plantarflexion; heel-rise endurance	Serial improvement toward baseline, normative demand and uninvolved side; 90% LSI may be reported provisionally.	LSI is extrapolated (I) and not a validated postoperative CLAI cutoff[32].
Sensorimotor control	Single-leg stance; modified star excursion/Y-Balance; perturbation/landing	Task completed without failed trial, giving way or persistent major movement error.	Postoperative Ankle-GO evidence is emerging (D)[15,16]; no universal standalone balance cutoff.
Functional performance	Side hop; figure-of-eight hop; optional single/triple/lateral hop and change-of-direction tasks	Comparable multidirectional performance; provisional 90% LSI where applicable, plus acceptable quality and symptoms.	Side hop/F8T have direct associative evidence (D)[15,16]; 90% LSI is illustrative/extrapolated (I).
Patient-reported function	FAAM-ADL/FAAM-Sport; CAIT	High, stable scores consistent with intended sport and serial recovery.	Different constructs; no score independently clears sport[4,15].
Psychological readiness	ALR-RSI and interview	Confidence sufficient for graded exposure; no persistent avoidance behaviour.	Measurement validity and association supported (D), prognostic cutoff unproven[16,35,36].
Sport exposure	Unrestricted practice or representative simulation; workload and next-day response	Repeated tolerance before competition progression.	Contained in PAASS; postoperative dosing is procedure- and sport-specific[31,43,44].

Table 3. *Proposed multidomain criteria and origin of targets.*
Abbreviations: A, author-proposed; ALR-RSI, Ankle Ligament Reconstruction–Return to Sport after Injury; CAIT, Cumberland Ankle Instability Tool; CLAI, chronic lateral ankle instability; D, direct postoperative/operative evidence; FAAM, Foot and Ankle Ability Measure; F8T, figure-of-eight test; I, indirect/extrapolated evidence; LSI, limb symmetry index. Criteria are illustrative and must not override surgeon restrictions.

return to performance. Workload, symptoms, confidence and availability are monitored through early competition. Return to performance is demonstrated only later by sustained participation at or above the intended standard without recurrent giving way, escalating symptoms or persistent avoidance. Passing a clinic battery supports the clearance decision; subsequent exposure establishes the outcome *(Fig. 1 and Table 4)*.

Gate/phase	Possible start and duration	Entry/exit emphasis	Procedure-dependent qualification
1. Protection and clinical quietness	Starts immediately; strict protection often 0–2 weeks, progressive protection commonly to 4–6 weeks or longer.	Wound, safe permitted loading, stable symptoms and surgeon authorisation.	Reconstruction, revision or combined procedures may prolong protection[14,30,45].
2. Foundational capacity	Often begins between weeks 2 and 6 and continues through approximately weeks 8–12; phases overlap.	Motion, gait, calf/evertor capacity, balance and next-day response.	Only within operative restrictions; augmentation does not remove competence requirements.
3. Running and plyometric competence	Often considered around weeks 8–16 after uncomplicated repair; not a universal minimum.	Running and hopping competence without instability or adverse symptom response.	May be later after reconstruction, revision or cartilage/tendon/bony procedures.
4. Sport integration	Often approximately weeks 12–24 or later.	Multidirectional performance, fatigue when relevant and unrestricted training exposure.	Sport, position, surface, contact and competition density determine content.
5. Graded competition → performance	Competition often from approximately 4–9 months or later; performance requires subsequent sustained exposure.	Controlled competition progression, availability and performance.	Calendar does not establish readiness or outcome; procedure and athlete response govern.

Table 4. *Gate-linked phases and illustrative timing.*
Dates are illustrative clinical windows, not validated clearance thresholds. Phases overlap. Surgeon restrictions are a mandatory condition at every gate, and the most restrictive concomitant procedure governs progression. Dashes indicate ranges, not alternative protocols.

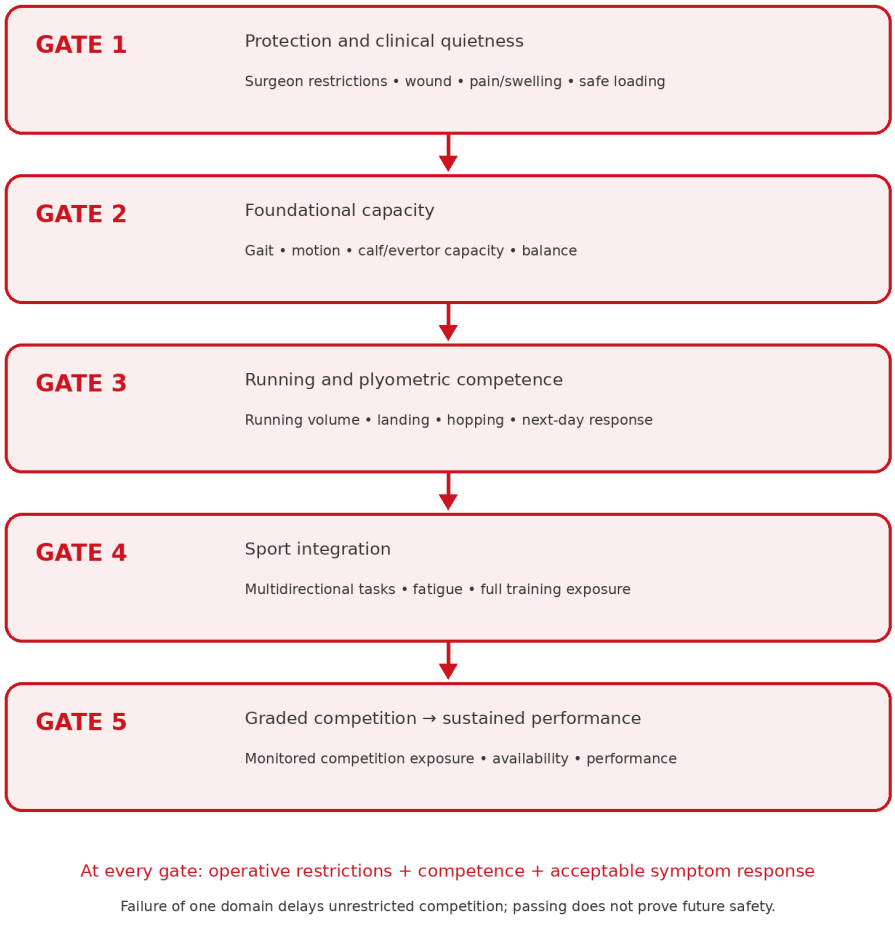


Figure 1. *Proposed five-gate postoperative return-to-sport framework.*
This Figure is author-proposed and unvalidated. It integrates operative restrictions with multidomain competence and staged exposure; it does not replace procedure-specific surgical advice.

Procedure-, athlete- and sport-specific modifiers

Generalised ligamentous laxity is associated with poorer outcomes after modified Broström repair[39]. It should be described using the Beighton score and age-appropriate criteria, while distinguishing a hypermobility trait from a symptomatic hypermobility disorder[43]. Revision surgery, cavovarus morphology and poor tissue quality justify greater caution, although not all modifiers have equal prognostic evidence[40]. The pooled RTS meta-analysis found a 6% increase in failure likelihood per decade of age and a 4% increase for each 5 kg/m^2 increase in body mass index[19]; these associations concern RTS failure and should not be interpreted automatically as wound or recurrent-instability risk.

Previous bilateral ankle injury reduces the usefulness of LSI. Youth athletes require growth and school-sport considerations; professional athletes require position-specific load and competition density. Field and court athletes need repeated cutting and landing; trail runners need uneven-surface endurance; dancers and gymnasts require extreme-range control; combat athletes require pivoting under perturbation. These contextual modifications are clinically reasoned and should be documented as author-proposed when direct evidence is absent.

Shared decision-making and exceptions

A failed important domain should delay unrestricted competition. A limited deficit may be compatible only with explicitly defined restricted participation—for example, noncontact training, reduced minutes, controlled straight-line running or lower competition density—when absolute capacity, movement quality, symptoms and exposure tolerance are satisfactory and a written monitoring plan is in place. Recurrent giving way, mechanical symptoms, wound concerns, substantial reactive swelling, worsening pain, failure to tolerate training or any operative restriction should preclude progression and prompt medical or surgical reassessment.

Any exception to an illustrative numerical target should document the missed target, absolute result, measurement error, compensating strengths, planned restriction, responsible clinician and reassessment date. Confidence or a favourable questionnaire score must never override instability, mechanical symptoms or surgeon-imposed restrictions.

Research priorities

Prospective studies should distinguish first return, sustained availability, recurrent sprain, persistent giving way, repair/graft failure, revision surgery and sport-specific performance. Candidate primary outcomes include sustained availability at 6 and 12 months after first RTS and recurrent instability within 24 months. Sustained participation may be defined prospectively as completion of a prespecified proportion of eligible training and competition exposure without recurrent time-loss ankle injury; performance requires a sport-specific metric defined before enrolment.

Threshold derivation requires adequately powered cohorts, receiver-operating-characteristic analysis and external validation. Prognostic validation asks whether framework findings predict outcomes; an implementation trial asks the different question of whether using the framework improves outcomes compared with usual care. Feasibility, inter-rater reliability and athlete/clinician acceptability should be assessed before effectiveness is claimed. Wearable measures should be used only when the device is validated for the specific variable and sporting context.

Limitations

This is a narrative review without prospective registration, duplicate screening, retained deduplicated record counts, formal risk-of-bias assessment or evidence-certainty grading. Selective citation remains possible. Much of the RTS literature is retrospective, uses inconsistent definitions and combines procedures or sporting levels. The Ankle-GO studies provide important postoperative evidence but remain small and do not establish a universal safe threshold. PAASS was developed for acute sprain, and several tests, LSI values, symptom rules and timelines are extrapolated or author-proposed. The framework has not been externally reviewed for feasibility or evaluated for reliability, predictive accuracy or effectiveness.

CONCLUSION

This narrative review proposes an unvalidated postoperative framework that integrates tissue protection with functional assessment, athlete-reported readiness and progressive sport exposure. Numerical targets and timelines are illustrative and require procedure-specific interpretation. Passing an assessment supports a clearance decision; sustained participation and performance are outcomes demonstrated during subsequent exposure. Prospective evaluation is needed before the framework can be recommended as a standardised clearance pathway.

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SUPPLEMENTARY MATERIALS

Test	Administration	Trial selection/failure	Reporting/calculation
Hand-held dynamometry	Standardised joint angle; isometric eversion and plantarflexion; rigid belt or examiner stabilisation; 3–5-s effort; ≥2 familiarisation trials.	Record three valid maximal trials; repeat if compensation, loss of position or device slippage occurs.	Report device, calibration, force in N, N/kg and best or mean of valid trials; use the same rule serially.
Single-leg heel rise	Barefoot or standardised footwear; fingertip support only for balance; metronome approximately 30 rises/min; full available height.	Stop for loss of cadence/height on two consecutive repetitions, knee flexion compensation, pain or instability.	Report repetitions, symptoms and quality; LSI uses involved/uninvolved ×100.
Modified star excursion/ Y-Balance	Measure limb length; familiarisation; stance foot remains planted; reach in prescribed directions.	Trial fails if stance foot lifts, balance is lost, reach foot bears weight or start position is not recovered.	Normalise reach to limb length; report direction-specific values and composite only when protocol permits.
Side hop	Hop laterally over a standard line or distance using the published local protocol; hands and footwear standardised.	Fail for line contact when prohibited, opposite-foot contact, fall, giving way or incomplete prescribed repetitions.	Timed outcome LSI = uninvolved time/involved time ×100; record symptoms and movement errors.
Figure-of-eight hop	Standardised course length and cone spacing; hop on one leg around the course; same surface/ footwear.	Fail for wrong course, opposite-foot contact, displaced cone, fall or giving way.	Timed outcome LSI = uninvolved time/involved time ×100; report best/mean rule and failed trials.
Distance hops/change of direction	Standardise start, arm use, landing hold and course; familiarisation before recorded trials.	Fail for extra hop, opposite-foot contact, boundary violation, fall, giving way or inability to stabilise.	Distance/force/repetition LSI = involved/uninvolved ×100; timed LSI uses inverse ratio.
Fatigue-conditioned retest	Only when sport-relevant; document conditioning mode, duration, intensity, recovery and sequence.	Stop for pain, instability, unsafe mechanics, dizziness or inability to maintain prescribed intensity.	Report pre/post change; no validated postoperative CLAI pass threshold exists.

Table S1. *Minimum reproducible testing protocol (Administration and calculation guidance).*

Abbreviations: CLAI, chronic lateral ankle instability; LSI, limb symmetry index; N, newtons. No single device or protocol is mandated; clinicians should use a locally reliable method and interpret change against device- and protocol-specific measurement error.