ACJ SEPARATION

A Hockey-Specific Return to Play Progression

Evidence-Based Rehabilitation Timeline (Days 0 - 6+ Months)

Prepared for clinical use

This document is intended for physicians, physical therapists, athletic trainers, strength and conditioning coaches, performance staff, players, parents, coaches, and rehabilitation professionals involved in return-to-play decision-making after acromioclavicular joint separation in hockey athletes.

Important note

Every ACJ separation is unique. This timeline provides a framework for progression after uncomplicated nonoperative management or surgical stabilization/reconstruction. Progression should be based on injury grade, pain response, scapular control, shoulder strength, hockey-specific tolerance, contact exposure, and surgeon/rehabilitation team recommendations. Do not progress solely based on time.

1. Clinical Purpose and Guiding Decision Rule

Time is a reference point - not clearance

Clinical purpose. Provide a structured, hockey-specific rehabilitation framework for ACJ separation, including both nonoperative low-grade injuries and surgically managed high-grade injuries.

Primary decision rule. Progress the athlete when pain, range of motion, scapular mechanics, strength capacity, psychological readiness, contact tolerance, and objective performance testing support advancement. Time-based milestones are reference points, not automatic clearance criteria.

2. What the Research Tells Us

Collision-sport evidence adapted to hockey

ACJ injury research has shifted from simple time-based return-to-play decisions toward a more nuanced model that integrates injury grade, treatment approach, tissue healing, shoulder capacity, and sport-specific collision exposure.

Key Finding	Clinical Meaning	Implication for Hockey Rehabilitation
No hockey-only protocol exists	Hockey is repeatedly grouped within contact/collision sport literature, but validated hockey-specific progression studies are lacking.	Use collision-sport principles, then layer in skating, stick handling, shooting, board contact, and checking exposure.
Early strengthening matters	Starting strengthening within 6 weeks has been associated with faster RTS and higher return to preinjury level.	Do not delay all loading unnecessarily. Start appropriately dosed scapular, rotator cuff, and kinetic-chain strength once tissue response allows.
Collision athletes can return at high rates	Surgical ACJ literature reports high RTP rates in collision athletes, but criteria are often time-based.	Full-contact hockey should require objective testing and graded contact tolerance, not calendar clearance alone.
Type III decisions are individualized	RCT meta-analyses do not show clear long-term functional superiority for surgery over conservative care, and surgery carries higher complication burden.	Use shared decision-making for Type III injuries, especially for high-demand, in-season, or persistently unstable players.

3. Quick Reference Timeline

Progression is criteria-based

Phase	Timeframe	Primary Focus	Advancement Theme
1	Days 0-14	Acute protection and pain control	Pain, sling comfort, inflammation control
2	Weeks 2-6	Early motion and activation	ROM, scapular control, isometrics
3	Weeks 6-12	Progressive strengthening	Rotator cuff, periscapular, closed-chain strength
4	Weeks 12-16	Hockey skill integration	Skating, stick handling, shooting progression
5	Weeks 16-24	Contact progression and RTP testing	Board work, controlled checking, objective testing
6	6+ months	Full competition and monitoring	Game exposure, recurrence prevention, late remodeling

4. Treatment Pathway and Biological Healing Map

Management depends on grade and stability

The ACJ is stabilized by the AC ligaments, CC ligaments, joint capsule, and deltotrapezial fascia. The AC ligaments primarily resist horizontal translation, while the CC ligament complex provides vertical stability. Protocol progression should respect both the healing ligament biology and the demands of hockey contact.

Clinical Scenario	Typical Management Direction	Return-to-Play Implication
Type I-II	Usually nonoperative; sling for comfort and early controlled motion.	May progress quickly once pain-free ROM, strength, and contact tolerance are restored.
Type III	Individualized; often initial nonoperative trial, with surgical consideration for persistent pain, scapular dysfunction, unacceptable deformity, or high-demand collision needs.	Requires careful monitoring. Type III athletes may return early nonoperatively, but persistent instability delays contact clearance.
Type IV-VI / unstable high-grade	Orthopedic/surgical evaluation is typical. Reconstruction or stabilization may be considered.	Postoperative timelines are longer; full contact is commonly delayed toward 5-6 months or longer depending on fixation and healing.

Biological Healing Timelines and Protocol Alignment

Timeframe	Biological Process	Tissue Status	Protocol Activity
Days 0-7	Acute inflammation and macrophage infiltration	Structurally vulnerable; maximal pain and swelling	Sling for comfort, pain control, hand/elbow ROM, pendulums only
Days 8-21	Fibroblast proliferation and collagen type III repair response	Weak repair tissue forming; low tensile strength	Gentle passive/AAROM, scapular setting, sling weaning as appropriate
Weeks 3-6	Early remodeling; collagen transition begins	Increasing but still submaximal strength	Active ROM, isometrics, scapular control, low-load activation
Weeks 6-12	Progressive remodeling and functional strength development	Sufficient for progressive loading if symptoms allow	Isotonic strengthening, closed-chain loading, early sport-specific preparation
Months 3-6	Continued collagen maturation and graft incorporation if surgical	Near-functional strength; contact readiness still criteria-based	Hockey skill progression, contact drills, objective RTP testing
Months 6-24	Late remodeling and maturation	Matured tissue/graft; ongoing adaptation	Full sport with maintenance strength and monitoring for late symptoms

5. Detailed Phase-by-Phase Clinical Guideline

Clean criteria-based flow

PHASE 1 | Days 0-14 | Acute Protection and Pain Control

Clinical Intent	Protect the ACJ, reduce pain and swelling, maintain distal mobility, and establish early scapular awareness without stressing the healing AC/CC ligament complex.
Primary Goals	• Control pain and inflammation • Protect the injury or reconstruction • Maintain elbow, wrist, and hand ROM • Begin gentle scapular setting • Educate the athlete on contact avoidance
Sling / Protection	• Sling for comfort in nonoperative cases, often 1-3 weeks depending on grade and pain • Postoperative cases commonly require stricter sling use per surgeon protocol • Avoid direct pressure over the ACJ and avoid shoulder straps that irritate the joint
Mobility	• Pendulums as tolerated • Elbow, wrist, and hand ROM • Cervical/thoracic mobility • Gentle scapular clocks below symptom threshold
Hockey Conditioning	• Bike or lower-body training if safe • No falls, contact, upper-body lifting, shooting, or stick battles

Avoid / Defer
- End-range cross-body adduction
- Loaded shoulder elevation
- Bench press, dips, push-ups
- Contact, checking, falls, board battles

Criteria to Progress
- Pain controlled at rest
- Tolerates gentle ROM below shoulder height
- No increase in deformity or instability symptoms
- Medical team confirms pathway and restrictions

PHASE 2 | Weeks 2-6 | Early Motion and Activation

Clinical Intent	Restore pain-free shoulder motion, normalize scapulohumeral rhythm, and begin low-load activation while respecting early collagen remodeling.
Goals	• Restore active-assisted and active ROM • Improve scapular control • Begin rotator cuff and deltoid activation • Maintain aerobic conditioning
ROM Progression	• AAROM to AROM in tolerable planes • Gradual elevation and ER based on symptoms • Cross-body adduction only when pain-free and clinically appropriate
Activation	• Submaximal isometrics for IR/ER, scaption, extension • Serratus anterior and lower trapezius activation • Scapular PNF, wall slides, scapular depression drills

Avoid / Defer
- Painful cross-body loading
- Heavy pressing/pulling
- Lifting away from body under fatigue
- Contact or unpredictable falls

Criteria to Progress
- Pain-free functional AROM
- No visible scapular dyskinesis with basic elevation
- Tolerates isometric resistance
- No reactive ACJ pain after rehab

PHASE 3 | Weeks 6-12 | Progressive Strengthening and Shoulder Capacity

Clinical Intent	Build rotator cuff, deltoid, periscapular, trunk, and kinetic-chain strength while gradually restoring load through the ACJ.
Why This Phase Matters	The evidence supports initiating strengthening within 6 weeks when tolerated. This phase should convert early motion into usable strength before high-speed hockey tasks are reintroduced.
Strength	• Band and cable IR/ER • Rows and pulldown progressions • Landmine press progression if pain-free • Scaption raises and lateral raises below symptom threshold • Farmer carries and suitcase carries if ACJ pressure is tolerated
Closed Chain	• Quadruped weight shifts • Wall plank shoulder taps • Incline push-up plus • CKC preparation before floor-based loading
Kinetic Chain	• Thoracic rotation • Anti-rotation core work • Hip hinge, split squat, sled push/pull as tolerated • Conditioning that avoids shoulder contact
Clinical Emphasis	Watch for scapular dyskinesis, ACJ tenderness, clavicular elevation dominance, pain with cross-body loading, and compensatory trunk rotation during resisted tasks.

Avoid / Defer
- Heavy barbell bench press
- Weighted dips
- Painful horizontal adduction
- Contact drills before strength symmetry

Criteria to Progress
- Full or near-full pain-free ROM
- Isometric strength at least 80% of uninvolved side
- Pain-free closed-chain loading at incline
- No next-day ACJ flare after strengthening

Nonoperative versus Postoperative Progression

Pathway	Typical Early Progression	Contact Consideration
Nonoperative Type I-II	Often advances as symptoms permit; many athletes regain skating and skill work earlier.	Contact may return in 3-6+ weeks only when pain-free, strong, and protected.
Nonoperative Type III	Progression depends on pain, deformity tolerance, scapular control, and horizontal instability.	Do not rush board contact if cross-body loading or stick battles provoke symptoms.
Postoperative high-grade	Usually sling/protection longer, resisted work delayed until fixation/graft healing allows.	Full contact is typically delayed toward 5-6 months and must be surgeon-cleared.

PHASE 4 | Weeks 12-16 | Hockey Skill Integration

Clinical Intent	Transition from gym strength to hockey-specific upper-extremity function while maintaining symptom control and avoiding uncontrolled contact.
On-Ice Entry	• Non-contact skating • Easy laps and stride mechanics • Stick handling without contact • Puck touches at low volume • No checking or board battles initially
Shooting Progression	• Stage 1: stationary wrist shots • Stage 2: moving wrist shots and passing • Stage 3: snap shots and quick release • Stage 4: controlled slap shots only after pain-free prior stages
Gym Progression	• Floor push-up progression • Heavier rows and carries • Rotational med-ball throws • Plyometric wall taps • Eccentric cuff and scapular endurance work
Hockey-Specific Load Checks	• Can the athlete absorb stick contact? • Can they shoot without ACJ pain? • Can they reach across body without apprehension? • Can they tolerate shoulder pads without irritation?

Avoid / Defer
- Full slap-shot volume too early
- Unexpected contact
- One-arm stick battles
- Falling drills without preparation

Criteria to Progress
- Pain-free stick handling and passing
- Wrist/snap shots tolerated without next-day pain
- Strength at least 85-90% of uninvolved side
- Closed-chain tests progressing without symptoms

Suggested Hockey Skill Ramp

Exposure	Allowed Tasks	Do Not Add Yet
Ice 1	Straight-line skating, puck touches, light passing	Shooting volume, traffic, contact
Ice 2	Wrist shots, controlled passing, basic turns	Slap shots, board contact
Ice 3	Snap shots, faster puck handling, non-contact drills	Checking, stick battles
Ice 4	Controlled slap shots, small-area movement without contact	Unplanned collisions

PHASE 5 | Weeks 16-24 | Contact Progression and RTP Testing

Clinical Intent	Rebuild contact confidence and shoulder robustness through progressive exposure to the specific collision demands of hockey.
Practice Progression	• Individual skating and skill work • Non-contact team practice • Controlled contact drills • Board contact and pin-and-seal drills • Full-contact practice before games
Contact Progression	• Shoulder-to-shoulder lean-ins • Controlled wall contact • Light board pins • Progressive stick battles • Controlled checking mechanics • Unpredictable contact last
Performance Preparation	• Repeat sprint skating • Small-area game conditioning • Upper-body power under fatigue • Reactive balance and fall mechanics • Protective pad fit and direct ACJ compression check
Psychological Readiness	Assess willingness to engage at the boards, receive contact, shoot through traffic, and fall safely. Fear or avoidance should trigger graded exposure rather than immediate full clearance.

Avoid / Defer
- Contact before pain-free cross-body loading
- Return to games before full-contact practice tolerance
- Unprotected direct ACJ impact
- Ignoring apprehension or avoidance behavior

Criteria to Progress
- Full pain-free ROM
- Strength at least 90% of uninvolved side
- No pain/apprehension with shooting and stick battles
- Full-contact practice tolerated without next-day flare
- Medical team clearance

Functional Testing Battery for Clearance

Domain	Suggested Test	Target Before Full Contact
Strength	Handgrip, handheld dynamometry, IR/ER isometric or isokinetic testing	At least 90% limb symmetry; acceptable ER/IR balance
Dynamic Stability	Upper Quarter Y-Balance Test	Symmetry and no apprehension
Closed Chain	CKCUEST and wall hop test	Pain-free, repeatable, good scapular control
Power	Unilateral seated shot put or med-ball throw	At least 90% limb symmetry when available
Patient Report	QuickDASH, sport scale, confidence/readiness screen	Low disability, high confidence, no contact fear

PHASE 6 | 6+ Months | Full Competition and Late Remodeling

Clinical Intent	Return to unrestricted games only after the athlete demonstrates repeated tolerance to practice, contact, skill execution, and fatigue without ACJ pain or instability symptoms.
Requirements	• Surgeon/medical clearance when indicated • Full practice completed • Contact drills tolerated • No swelling or next-day ACJ pain • No apprehension with board play, checking, shooting, or falls
Maintenance	• Rotator cuff and scapular endurance • Closed-chain shoulder capacity • Thoracic mobility • Horizontal pulling volume • Pushing/pressing progressions that remain symptom-free
Monitoring	Late remodeling continues for months. Monitor ACJ tenderness, cross-body pain, loss of reduction in surgical cases, shoulder pad irritation, and reduced willingness to engage contact.

Avoid / Defer
- Game clearance after only one pain-free skate
- Skipping full-contact practice exposure
- Returning with pad compression pain
- Relying on time alone

Criteria to Progress
- Full-contact practice tolerance
- Objective strength and performance benchmarks met
- No pain with pads, contact, and shooting
- Athlete and medical team agree readiness is adequate

Expected Return-to-Sport Timelines

Scenario	Typical Timeframe	Clinical Interpretation
Nonoperative Type I-II	3-6+ weeks	Often fastest pathway when pain-free ROM, strength, and contact tolerance return.
Nonoperative mixed grades	Around 7-8 weeks in pooled RTS data	Use as an estimate, not a clearance rule. Higher grades may take longer.
Surgical ACJ treatment	Around 4-6 months	Surgical systematic reviews show high RTP rates, but criteria are inconsistent.
Collision athlete after surgery	Approximately 5-6 months	Full-contact hockey should require functional testing, contact progression, and team clearance.
Late tissue maturation	6-24 months	The athlete may be playing while remodeling continues; maintain strength and monitor symptoms.

6. Hockey-Specific Clinical Pearls

Practical rules for return to hockey

1. Skating is not contact hockey. An athlete may tolerate skating weeks before they can safely tolerate shooting, stick battles, board play, or checking.
2. Cross-body loading matters. ACJ symptoms are often provoked by horizontal adduction, stick battles, bench press patterns, and shoulder-to-shoulder contact.
3. Scapular control is a return-to-contact variable. Persistent scapular dyskinesis after ACJ separation can alter force transfer and should delay contact progression.
4. Pads can be a treatment variable. Shoulder pad fit, ACJ padding, and direct compression over the distal clavicle should be assessed before practice and games.
5. Do not confuse deformity with dysfunction. Visible prominence may persist, especially after nonoperative high-grade injuries. Decisions should emphasize pain, function, stability, and athlete tolerance.
6. Type III requires shared decision-making. The decision between early return and surgical stabilization depends on position, season timing, instability, symptoms, aesthetics, and long-term goals.

Return-to-Play Clearance Checklist

Clearance Area	Minimum Standard Before Full Hockey Contact
Pain / Symptoms	No ACJ pain at rest, with pads, after shooting, or the day after practice
ROM	Full, pain-free ROM including cross-body adduction or sport-equivalent tolerance
Strength	Shoulder/scapular strength at least 90% of uninvolved side where measurable
Function	CKCUEST, Upper Quarter Y-Balance, wall hop, and power tests completed without symptoms
Hockey Skills	Stick handling, passing, wrist/snap/slap shots, and small-area drills tolerated
Contact	Board play, controlled checking, and full-contact practice tolerated without flare
Readiness	Athlete demonstrates confidence receiving contact and engaging along the boards

7. Key References

Evidence base

#	Reference
1	Elliott WC et al. Return to Sport After Acromioclavicular Injury: A Systematic Review of Modifiable Factors. Journal of Clinical Medicine. 2025;14(21):7656.
2	Cleary BP et al. Return to Play After Surgical Treatment for Acromioclavicular Joint Dislocation: A Systematic Review. American Journal of Sports Medicine. 2024;52(5):1350-1356.
3	Olsen B, Gregory B. Diagnosis and Nonoperative Treatment of Acromioclavicular Joint Injuries in Athletes and Guide for Return to Play. Clinics in Sports Medicine. 2023;42(4):573-587.
4	Wen L et al. Surgical Versus Conservative Treatment of Acute Rockwood Type III-V Acromioclavicular Joint Dislocation: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Injury. 2026;57(4):113125.
5	Melvin PR et al. Epidemiology of Upper Extremity Injuries in NCAA Men's and Women's Ice Hockey. American Journal of Sports Medicine. 2018;46(10):2521-2529.
6	Knapik DM et al. The Epidemiology of Professional Ice Hockey Injuries in the National Hockey League: A Retrospective Analysis From 2012 to 2023. American Journal of Sports Medicine. 2026;54(5):1193-1205.
7	Hibberd EE et al. Epidemiology of Acromioclavicular Joint Sprains in 25 NCAA Sports: 2009-2010 to 2014-2015 Academic Years. American Journal of Sports Medicine. 2016;44(10):2667-2674.
8	Pallis M et al. Epidemiology of Acromioclavicular Joint Injury in Young Athletes. American Journal of Sports Medicine. 2012;40(9):2072-2077.
9	Maier D et al. The Acromioclavicular Ligament Shows an Early and Dynamic Healing Response Following Acute Traumatic Rupture. BMC Musculoskeletal Disorders. 2020;21(1):593.
10	Li X et al. Management of Acromioclavicular Joint Injuries. Journal of Bone and Joint Surgery American. 2014;96(1):73-84.
11	Tamaoki MJ et al. Surgical Versus Conservative Interventions for Treating Acromioclavicular Dislocation of the Shoulder in Adults. Cochrane Database of Systematic Reviews. 2019;10:CD007429.
12	Sciascia A et al. Nonoperative Management of Traumatic Acromioclavicular Joint Injury: A Clinical Commentary With Clinical Practice Considerations. International Journal of Sports Physical Therapy. 2022.
13	Kurz E et al. Assessment of Return to Play After an Acute Shoulder Injury: Protocol for an Explorative Prospective Observational German Multicentre Study. BMJ Open. 2023;13(2):e067073.
14	Schwank A et al. 2022 Bern Consensus Statement on Shoulder Injury Prevention, Rehabilitation, and Return to Sport for Athletes at All Participation Levels. JOSPT. 2022;52(1):11-28.

Clinical use reminder

This guideline is a framework. High-grade injuries, persistent deformity, horizontal instability, neurovascular symptoms, or postoperative cases should follow physician-specific restrictions and multidisciplinary clearance.