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Accelerated Return to Play Following Anatomic Open Reduction Internal Fixation of Adolescent Clavicle Fractures

Nathan H. Varady, MD, MBA[1]; Ruth H. Jones, BS[1]; Mark A. Seeley, MD[2]; Peter D. Fabricant, MD, MPH[1]

1. Department of Pediatric Orthopaedic Surgery, Hospital for Special Surgery, New York, NY
2. Department of Pediatric Orthopedic Surgery, Geisinger Health, Danville, PA

Faculty Disclosure Information

- Our disclosure(s) are:
- PDF:
- BICMD, Inc.: Paid consultant
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Introduction

- ***Background:*** Traditional consensus for return to play (RTP) following open reduction internal fixation (ORIF) of adolescent clavicle fractures athletes is 10-14 weeks.
- ***Problem:*** There is a paucity of data on the safety of an accelerated RTP timeline following these procedures, and whether patients may safely RTP before this time point is unclear.
- ***Goal:*** To assess the safety of an accelerated RTP timeline (<8 weeks) following ORIF of adolescent clavicle fractures.

Methods

- ***Design:*** Multi-institution, retrospective cohort study of consecutive adolescent patients (age 10-18 years) undergoing ORIF of a midshaft or distal third clavicle fracture by two dual-fellowship-trained pediatric sports medicine orthopedic surgeons from 2016 to 2024 with minimum 6-month follow-up.
- ***Cohorts:*** Over the course of the study period, the senior surgeons' practices evolved with respect to their standard of care RTP timelines. As a result, two groups of patients were available for comparison:
  - **Traditional** RTP (**≥8 weeks**, typically 9-13 weeks)
  - **Accelerated** RTP group (**<8 weeks**)
- ***Primary Outcome:*** Refracture/nonunion
- ***Secondary Outcomes:*** Wound complications, infection, and removal of hardware (ROH).
  - As ROH was offered to all our patients regardless of symptoms, it was not considered a complication
- ***Statistics****:* Comparisons made with Student t-tests and Chi-square or Fisher exact tests, as appropriate

Results

- 54 patients - 27 (50.0%) accelerated and 27 (50.0%) traditional RTP timeline
- No differences in any patient, injury, or surgery characteristics, including age (14.4 vs. 14.6 years, p=0.80), sex (74.1% vs. 85.2% male, p=0.31), and proportion planning to return to a contact sport at time of RTP clearance (80.0% vs. 78.3%, p>0.99)
- Accelerated cohort (mean 6.1±1.1 weeks, range 3.1-7.7 weeks) returned to play significantly more quickly than traditional cohort (11.7±3.0 weeks, p<0.001)
- Among the 27 accelerated patients, 3.7% returned by 3-4 weeks, 18.5% by 4-5 weeks, 40.7% by 5-6 weeks, 81.5% by 6-7 weeks, and 100% by 7-8 weeks
- No refractures/nonunions in the accelerated RTP cohort (0%) compared to one (3.7%) in the traditional RTP cohort (p>0.99)
- No instances of infection or wound complications in either group
- Overall incidence of ROH was 24.1% and did not significantly differ between the accelerated (14.8%) and traditional (33.3%) RTP groups (p=0.11)

Discussion / Conclusions

- In this first study to investigate the safety of an accelerated RTP timeline following ORIF of adolescent clavicle fractures, accelerated RTP was not associated with an increased risk of refracture or other complications.
- The mean time to RTP in the accelerated RTP group was 6.1 weeks, with patients being cleared to RTP as quickly as 3.1 weeks postoperatively.
- These data suggest that carefully indicated adolescent patients undergoing anatomic ORIF of clavicle fractures can RTP more quickly than previously thought.
- Replication of these results in additional cohorts would be beneficial before accelerated RTP becomes a relative indication for ORIF.

References

- Mitchell BC, Ellis H, Wilson P, Pennock AT. An Evidence-Based Approach to Managing Adolescent (Ages 10 to 19 Years) Diaphyseal Clavicle Fractures. *J Am Acad Orthop Surg.* 2024;32(4):e156-e165.