Finger Injuries in Football and Rugby

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KEYWORDS

• Rugby finger injuries • Football finger injuries • Jersey finger • Mallet finger • Return to play

KEY POINTS

- Football and rugby athletes are at increased risk of finger injuries owing to the full-contact nature of these sports.
- The timing of return to play is critically important for football and rugby athletes. The physical, emotional, and financial implications of time away from the field must be weighed against the risk of reinjury and the effects on long-term outcomes with an early return.
- Football players are permitted to wear playing casts. For nonskilled players, such as linemen who do not handle the ball, this can facilitate an early return to play. Skilled players, such as wide receivers, typically miss more games while recovering from a finger injury.
- Rugby players are not permitted to wear playing casts for the safety of their teammates and their opponents. Only taping can be used. This often leads to a delayed return to sport following a finger injury.

INTRODUCTION

In the United States, football is the most played sport and rugby is the fastest growing sport.[1] Football and rugby athletes are at increased risk of upper extremity injury because of the full-contact nature of these sports. A recent prospective cohort study found that collegiate rugby players sustained wrist and hand injuries 9.6 times more often than collegiate football players.[1] Hand injuries in rugby players occur most commonly during the tackle, the maul, and when handling the ball.[2] In football, injuries occur most commonly during tackling and in games rather than in practice.[3] Hand and finger injuries represent 12% of all football injuries.[4]

For the safety of a player's teammates and opponents, the only protective equipment that can be used in rugby is taping. Plastics and metals are prohibited. In football, padded playing splints and casts can be worn, facilitating an earlier return to play as the injured player's position permits.

For high school athletes, fracture rates are highest in football compared with other sports (4.37 per 10,000 athlete exposures; ie, 1 athlete participating in 1 practice or game).[5] Football players are the most likely to return to play immediately compared with other sports, in part because playing casts are permitted.[6] Fractures occur most commonly in the hand and fingers in football (36%).[5] Injuries result most commonly from contact with another player (63% of

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fractures).[6] Fractures are most commonly sustained during running plays while being tackled (27%), tackling (22%), or blocking (14%).[6]

A study by Goldfarb and colleagues[3] of hand, thumb, and finger injuries in National Football League (NFL) players over a 10-year period found that 48% of injuries involved the fingers, 30% involved the thumb, and 22% involved the hand. Hand injuries were most common in lineman, whereas wide receivers and defensive secondary players (safeties and cornerbacks) sustained the most finger injuries.[3] The fewest injuries were seen in tight ends for hand, thumb, and finger injuries, followed by quarterbacks.[3] Metacarpal fractures (80% of hand injuries) and proximal interphalangeal (PIP) joint dislocations were the most common injuries.[3] The most days missed from play resulted from hand bursitis (41 days), PIP subluxations (41 days), thumb sprains (35 days), tendon lacerations (30 days), and Bennett fractures (30 days).[3]

For physicians caring for athletes, the most challenging treatment decision is when to permit the athlete to return to play. The risks and benefits should be discussed with the player and his or her family, coach, athletic therapist, trainer, and agent. The risks of reinjury and long-term morbidity with early return to play must be weighed against the professional and financial consequences incurred if return to play is delayed. Factors to consider are the player's hand dominance, stage of career, future playing career, position, and ability to play with a protective splint. The amount of time left in the season, the level of play, and the timing of contract negotiations are also important factors. A young player's potential college and professional careers must be considered because the injury could greatly affect his or her livelihood. A study surveying 37 consultant hand surgeons for teams in the NFL, National Basketball Association, and Major League Baseball demonstrated considerable variability for the initial management and return to protected and unprotected play for professional athletes, highlighting the need for individualized management for each injured athlete.[7]

In football, injuries to the dominant hand are most limiting for quarterbacks and centers.[8] Skilled position players tend to have a delayed return to play compared with nonskilled position players. Skilled players include quarterbacks, running backs, wide receivers, and tight ends. Nonskilled players include offensive and defensive linemen and linebackers who do not require ball-handling skills.

Athletes tend to recover more quickly and more completely than the general population. Their superior baseline health, absence of comorbidities, motivation, and access to physicians and therapists improve their outcomes. Twice daily hand therapy with skilled hand or athletic therapists helps accelerate recovery compared with the general public.

A thorough history and physical examination is important for every injured athlete. Although rare, it is important not to miss a second injury that may be masked by the first due to pain, swelling, or a physical examination that is overly focused. For example, Bhargava and Jennings[9] describe a ulnar collateral ligament (UCL) tear that occurred simultaneously with a carpometacarpal dislocation of the thumb in a football player. The consequences of continued play with a missed injury can have serious long-term effects on rugby and football players. Comparison with the contralateral uninjured hand is particularly important for assessment of ligamentous laxity and tears, as well as rotational deformity of the digits secondary to fractures. Digit or wrist block anesthesia can facilitate a throughout examination.[10]

SOFT TISSUE INJURIES

Mallet Finger

The most common closed tendon injury in athletes is a mallet injury of the finger.[11] Forced flexion during active extension of the distal interphalangeal (DIP) joint or direct strikes of the football or rugby ball to the tip of the finger can result in this injury. The extensor tendon is torn at its insertion on the dorsal base of the distal phalanx. In rugby, back row forwards, full backs, and wingers most frequently sustain a mallet finger injury.[2]

An untreated mallet finger can progress to a swan-neck deformity of the finger with hyperextension of the PIP joint due to tendon imbalances. Early recognition and treatment are important for optimal recovery of DIP joint extension and finger strength.

Isolated tendinous injuries can be treated with extension splinting of the DIP joint or with buried, percutaneously placed Kirschner wires (K-wires) for 6 weeks (**Fig. 1**). The effectiveness of splinting can be confirmed with high-resolution ultrasound (US) but this technology is seldom needed.[12] To be successful, the extension splint must permit the ruptured end of the extensor tendon to be in contact with the bone for secondary healing. If there is a gap between the bone insertion and the terminal tendon despite DIP joint extension, open surgical repair is necessary.[13]

When there is an associated fracture, treatment may require splinting, K-wires, or open reduction and internal fixation, depending on the fracture