

Hand and Wrist Fractures

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Hand and wrist fractures are very common in sports such as lacrosse and field hockey. In fact, studies have identified hand and wrist fractures as the third most common injury among high school lacrosse and field hockey players. Injury rates in these athletes are 2.89 per 1,000 athletic exposures for boys and 2.54 per 1,000 athletic exposures for girls. Of these injuries, 26% involve the wrist and hand and 17% are fractures. The most common mechanisms of injury are contact with another player, (30.5%), stick (27.2%), and fall (18.0%). (Hinton, et.al).

The wrist and hand are composed of 27 bones and many ligaments, tendons, and muscles. There are 8 carpal bones that serve as a link between the bones of the forearm and the hand, and allow for wrist motion. The various muscles and ligaments of the hand and forearm guide the motions that occur across the wrist and hand. Because the bones of the wrist and hand are rather exposed, they are susceptible to injury by the mechanisms noted above.

Most commonly, injury to the long bones of the finger and hand, or phalanges and metacarpals, is due to a direct blow from a stick, or collision with another player. Injury to the carpal bones, or wrist bones, tends to occur as a result of falling. Signs and symptoms of hand or wrist fracture can include some or all of the following: tenderness, swelling, discoloration, decreased range of motion, numbness, weakness, and bleeding. As a general rule of thumb, any hand or finger injury that does not improve in one week, should be evaluated by a physician trained in fracture care.

On-site evaluation of hand injuries includes visual inspection to determine if there is deformity to the area involved, which may indicate an unstable fracture. Visual inspection also allows the on-site practitioner to assess for swelling, bruising, bleeding, or discoloration, which also lends insight as to the extent of damage. Sensory and vascular examinations are important to rule out any nerve or vascular compromise as a result of the injury. Evaluation of the range of joint motion, and palpation of the part in question are the next stages of evaluation. If suspicion of fracture arises as a result of the on-site evaluation, x-ray of the hand and wrist will allow the practitioner to determine if indeed a fracture has occurred and to what extent. The findings of both the clinical examination and radiographic testing will determine the course of treatment.

Assuming that the fracture is relatively minor and stable, buddy taping, splinting and protection from re-injury is the normal course of action. If the fracture involves the finger joints, the two pieces of the fracture are significantly separated, or the fracture site is open, evaluation by a hand surgeon is indicated and surgical intervention may be required to stabilize the fracture site.

Fractures that occur at the wrist will typically require casting. This is due to the fact that many of the wrist or carpal bones have limited blood supply and require greater stabilization for healing to occur.

Most hand and finger fractures do not require rehabilitation after healing of the fracture site. If however, the fracture involved the joint, or required surgical intervention to repair, rehabilitation may be required to regain strength and range of motion. In any case, if range of motion and strength fail to return to appropriate levels within a reasonable amount of time after fracture healing, physical therapy intervention may be indicated to restore function.

Prevention of hand and wrist injuries includes wearing protective equipment to reduce the likelihood of injury and maintaining good joint range of motion and strength through regular weight training and exercise.

Brett Clark is a Maryland-licensed Physical Therapist with extensive training and experience in manual therapy techniques. He has a special interest in treatment and rehabilitation of sports-related injuries. He can be reached at Lifestrength Physical Therapy, in Towson, MD.