University of Georgia Sports Medicine
Orthopedic Injury Protocol
Revised June 2005

Initial Evaluation

The primary goals of the initial orthopedic evaluation are to 1) determine whether or not a true orthopedic emergency is present, 2) begin appropriate treatment, and 3) determine the mode of transport for emergencies or routine extremity trauma.

Evaluation of neurovascular status is the first step in the initial evaluation. Distal pulse, motor, sensation, and capillary refill (PMSC) should be assessed with any deficiencies and/or changes noted. Visual inspection for deformity and palpation for deformity and point tenderness should be performed, followed by evaluation for gross joint instability. Clinical tests for suspected long bone fractures such as torque, compression and percussion may be utilized as appropriate by the athletic trainer. Application of Initial Evaluation splints for fracture or gross joint instability is the final step prior to transport. If splints are applied to an extremity injury, PMSC should be evaluated both before and after placement of splints.

Never allow an obvious orthopedic injury to distract from an underlying injury or illness which may be life-threatening.

Orthopedic Emergencies

The increased incidence of bleeding, neurovascular compromise, and treatment complications resulting from infection classify *open fractures and/or dislocations* as a true orthopedic emergency. Open fractures and dislocations should have a sterile compressive dressing applied as rapidly as possible. As with any open wound, direct pressure should be used to control major bleeding. If direct pressure does not stanch the flow of blood, arterial pressure points should be used. Tourniquets should **not** be applied to control bleeding. Treatment should then be identical to that of a closed fracture with immediate transport to the closest appropriate emergency facility by ambulance.

The athletic trainer must also be aware of *internal hemorrhage*. Occult hemorrhage into the *pelvis or femur fracture* can account for significant blood loss.

Large joint dislocations (shoulder, elbow, hip, knee and ankle) constitute an orthopedic emergency. Special attention should be given to knee and elbow dislocations as well as dislocations of the sternoclavicular joint. These most commonly result in neurovascular complications, necessitating emergency management.

Delay in treatment of fractures and dislocations with *neurovascular compromise* may lead to disastrous consequences including loss of limb and even death. Immediate reduction or realignment by a physician should be performed. If a physician or an emergency facility is not readily available, the athletic trainer may attempt these maneuvers to restore circulation as a part of emergency medical care in a potentially life- or limb-threatening situation. This procedure may be performed by athletic training staff who:

1. are emergency medical technician-intermediates (EMT-I) and have large joint dislocation reduction training;

2. who have **verbal orders from the team physician or physician assistant** in regards to joint reduction after consulting regarding patient's current signs and symptoms and medical history. If, however, in the clinical opinion of the ATC/EMT-I, the athlete is in a life-or limb-threatening situation that would benefit from joint reduction and a MD verbal order is not immediately available then the ATC/EMT-I should call 911 and may attempt to reduce the dislocation. If unable to reduce, the athletic trainer should immobilize the joint in the position found, continue to monitor PMSC, and immediate transport to the closest appropriate emergency facility by ambulance.

Any emergency situations where there is neurovascular compromise should be considered a "***load and go***" situation and emphasis placed on rapid evaluation, treatment and transportation. In order to provide the best possible care for Georgia Athletics, transportation to one of the utilized medical facilities is based upon the strengths of each facility. All vascular emergencies are to be transported to Athens Regional Medical Center, and all other types of orthopedic injuries are to be transported to St. Mary's Hospital.

Splinting Guidelines

General rules to follow during the application of a splint include:

- Splinting is useful in emergency situations, for decreased pain, and to allow for easier transport.
- Deformity, gross instability, or crepitus is an indication for immediate splinting, and prompt referral of an unstable joint to an orthopedic surgeon is necessary.
- Assess neurovascular status (PMSC) prior to and after the application of a splint;
- Cover all wounds with sterile compressive dressings prior to the application of a splint;
- Pad the splint to prevent local pressure;
- Immobilization of the joint above and below a fracture or dislocation will decrease movement at the injury site;
- Splinting can be performed in the position of deformity but with experience limb alignment may be helpful
- "When in doubt, splint".

Splinting of Orthopedic Injuries

Splints are used to decrease pain, increase ease of transportation, to prevent closed fracture from becoming open, to minimize damage to nerves, muscles and blood vessels, and to prevent movement at fracture sites or in the presence of gross instability. The basic rule of splinting is to splint in the position of function. With experience or in the presence of a physician, limb realignment before the application of a splint is acceptable. There are three basic types of splint: 1) rigid, 2) vacuum, and 3) traction. **Rigid splints** are useful with non-aligned fractures or in the presence of gross instabilities of joints. **Vacuum splints** consist of a fabric or vinyl splint containing small styrofoam beads. The splint is placed on the extremity and secured with straps. A pump is attached and the air is drawn from the splint, compressing the beads together and creating a hard splint conformed to the extremity. Vacuum splints are versatile because of their adaptability to the position of the injured extremity. **Traction splints** are most frequently used to treat lower extremity femoral fractures. They exert a steady longitudinal pull

on the extremity. Traction splints are not suitable for the upper extremity because of potential damage to neurovascular structures in the axilla.

Procedures for Training in Orthopedic Evaluation and Splinting/Immobilization:

Personnel must complete a training session each year with review of signs and symptoms of orthopedic injury, evaluation techniques, and splinting/immobilization applications.

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