

Throwing injuries



The majority of throwing injuries involve the stabilising mechanisms of the shoulder. Less common are tension injuries to the ligaments and muscles attaching to the inside of the elbow and compression injury to the outside of the elbow joint. The key to injury prevention and effective rehabilitation is correct throwing technique.

There are 5 stages of throwing:

1. Wind-up
2. Early-arm cocking
3. Late-arm cocking
4. Acceleration and ball release
5. Follow-through.

Greater than 50% of throwing power should be generated from the legs, pelvis and trunk with ideal throwing technique.



Late-arm cocking and Follow-through stages are the key components associated with injury.

Ideal late-arm cocking relies upon:

- No horizontal movement of the arm behind the plane of the body
- Shoulder external rotation that does not exceed 90°
- Elbow elevated above shoulder height
- Elbow flexion that does not exceed 90°
- Ball between fingers and thumb facing away from the target

Ideal follow-through relies upon:

- Uninterrupted flow of arm movement across trunk to the opposite hip and knee – important to dissipate acceleration energy gradually.

Deviation from the ideal technique significantly increases the stress on shoulder and elbow tissues.

Specifically it can lead to the following injuries:

- Tears of the Biceps tendon anchor or Labrum – important stabilisers of the shoulder
- Tearing or pinching of the Rotator Cuff – tendons of four muscles that blend with the capsule of soft tissue enveloping the shoulder joint that when contract, pull the ball (head of humerus) into the socket (glenoid)
- Traction injury of the medial (inside) ligament of the elbow as well as compression injury to the bony joint surface on the medial and lateral (outside) parts of the elbow joint

Overuse can contribute to the injuries mentioned above. Care must be taken to ensure heavy sessions of throwing training are not undertaken without adequate recovery and early season gradual acclimatisation to throwing. Fatigue leads to an increase in technique faults and increases the chance of injury.

Throwing injuries are more likely to occur if less than 180° of rotation is available at the shoulder.

The sports physiotherapist's role in prevention and rehabilitation of throwing injuries should include:

- Providing specific throwing whole body fitness programs
- Facilitating to coach and athlete the link between technique and injury
- Providing specific preventative stretches and warm-up strategies
- Teaching pacing and recovery
- Accurate assessment and effective management of injuries that do occur
- Stabilising exercises

