Arm injuries can be as disabling to a runner as stress fractures. However, they are much less common than leg injuries. For those runners who have experienced the pain of inflammation around the shoulder, you know what I mean. Elevation, limping, crutches, sitting and lying down are usually effective ways to treat leg injuries. However, it is very difficult to ‘rest’ an arm joint, such as the shoulder. Even standing or sitting requires the shoulder musculature to contract, causing pain. You just can’t ‘get away’ from shoulder pain like you can leg pain.

Most sports injury articles, especially running-related articles, describe conditions affecting the legs and feet, including plantar fascitis, stress fractures, shin splints, and runner’s knee. However, running injuries can effect the arms or upper extremities as well.

One probably assumes that since runners are pounding the pavement so hard and repetitively that injuries are confined to their legs. Runners’ legs do probably take an inordinate amount of the force in running and, as might be expected, account for most of the injuries. Each time a runner’s foot hits the pavement during a run, the leg is absorbing an impact of several times the person’s body weight, hence the frequency of leg injuries. But the force of the impact doesn’t stop at the waist. It is also distributed up the skeleton and muscular system through the back and neck, and may then indirectly cause force absorption in the arms.

Arm injuries are not just confined to the transmission of forces from running and landing on the ground. They also contribute to the running cycle by providing momentum for the runner. This momentum or force generation as opposed to force absorption can be responsible for the production of arm injuries in runners. These injuries are not only unique to runners; the arms are used more often and more specifically in other sports, such as javelin, swimming, ball pitching, and archery.

The part of the arm most affected in running injuries is the shoulder joint. The shoulder is a potentially unstable joint. (Figure 1) Unlike the ball and socket joint of the hip, the shoulder has mainly ligaments and tendons providing the stability. This accounts for the shoulder being the most common major joint in the body that can be dislocated with the least force. Shoulder dislocations usually occur with macro-trauma when a runner falls and uses his arm to break the fall and land on the ground. The force transmission through the arm pushes the shoulder out of its joint and the shoulder dislocates. Unless shoulder dislocations have occurred frequently in the past, the runner will usually require medical attention to put the shoulder back in the joint (reduce it).

The more frequent injury sustained by the shoulder, however is not from major trauma, but rather from inflammation or degeneration. Tendonitis, bursitis, impingement syndromes and rotator cuff tears are all examples of repetitive movements that result in the ‘wear and tear’ of the structures leading to inflammation and subsequent pain and disability. (Figure 2) Various terms such as bicipital tendonitis, sub-acromial bursitis and calcific tendonitis refer to the actual anatomical and pathological entity. These injuries can result in symptoms such as shoulder pain, which may occur with arm swing while running. Just as the legs go through 25-30,000 steps during a marathon, the arm also swings the same number of times. Often, the pain is felt after running has ceased and daily activities are resumed. Movements such as reaching for something overhead can produce a lot of pain around the shoulder if it is inflamed. The runner may have ‘painful arc syndrome,’ where he has to rotate his arm in a peculiar fashion in order to raise or lower it without pain. There may be situations where the rotator cuff is so damaged that it is impossible to raise the arm more than a few degrees from the side of the body.
Figure 2. Rotator cuff with its muscle attachments at the shoulder

Treatment for ‘runners’ arms’ is usually begun by the runner himself. The amount of pain usually dictates what treatment options to pursue. Ensuring his shoulder girdle muscles are strong through arm strengthening exercises such as weightlifting may be all that is required. Relatively minor aches and pains may only require a period of rest and the application of ice to the shoulder several times a day for 15 to 20 minutes each time. When there is more significant pain and limited movement, or when there is a lot of shoulder pain at night, further attention and treatment may be required. A x-ray may reveal a bony injury, which may require surgery. Calcification in the tendons around the shoulder may also be seen on an x-ray. Calcification can be from inflammation or from tissue degeneration. In either case, a steroid injection by your doctor may be beneficial to diminish the inflammation and allow the shoulder to be exercised, stretched and strengthened without as much pain, thereby aborting the cycle of pain: lack of movement, stiffness and pain.

Thoracic outlet syndrome (TOS) occurs from excessive pressure on the nerves and blood vessels as they leave the neck and run over the ribs to descend down the arm. A runner with TOS may complain of numbness in some of the fingers of the hand with a feeling of heaviness or discomfort in one or both of the upper extremities around the base of the neck and shoulder girdles. The symptoms can sometimes be at least temporarily relieved by supporting the arms on a railing or by just resting. To treat TOS, an exercise program to strengthen the shoulder girdle and neck muscles is required. Sometimes, further tests of the nerves and blood vessels are required. (Figure 3)

Figure 3. Thoracic outlet showing sites of compression of the blood vessels and nerves

Carpal tunnel syndrome (CTS) occurs when a nerve to the hand, the median nerve, gets compressed as it passes through an anatomical tunnel at the wrist. A person with CTS may complain of finger numbness. A runner may be especially prone to CTS if running causes his hands and fingers to swell with the arm swing. There may also be pain and finger tingling that awakens the runner at night. A wrist splint may be useful to treat CTS. It supports the hand to avoid excessive compression of the median nerve. Occasionally, surgical release of the tunnel is required. (Figure 4)

Figure 4. Anatomy of the hand showing the carpal tunnel and median nerve.

These examples of arm disorders or injuries can occur in non-runners as well as in runners. Maintaining adequate strength and flexibility is as important for the arms as it is for the legs. As with all injuries, consult your family doctor or a physiotherapist if symptoms don’t improve after a few weeks of self-treatment or rest.

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