

Dance continues to be a very popular recreational activity, source of competition and career choice for many boys and girls, teenagers and adults alike. People are pursuing jazz, tap, ballet, modern, hip hop, ballroom, Irish, Highland and many, many other forms of dance. Dancing is a wonderful form of activity since it requires movement, flexibility and strength and it encourages coordination and balance. One can participate as an individual and/or in a group and regardless of the form or nature of the dance, socialization is inherent.

As with any activity (whether recreational, highly competitive or a career choice), dancers are susceptible to injury. Many of these injuries are related to trauma, which is referred to as an "acute" injury. Some examples of acute injuries are ankle sprains, fractures and ligament sprains and cartilage tears in the knee. A consult by a physician to determine whether an injury needs immediate attention (such as fractures and ligament tears) is recommended. In these situations, the acute injury management protocol is encouraged. One acronym that is used to remind people of this protocol is RICE: rest, ice, compression and elevation. Studies indicate that immediate treatment following these types of injuries lead to accelerated recovery times. Acute injuries that are not managed properly may become a chronic problem.

Injuries that are not so obvious are often more difficult to manage in the long run. These injuries are said to be "insidious" in onset. This means there may be no significant trauma directly related to the injury onset and the injured person often claims the injury "came out of nowhere". These are the injuries that are prone to becoming chronic. Examples of such injuries are "clicking hip" syndrome, patello-femoral pain syndrome (pain under and/or around the kneecap), tendonitis (of the hip, knee, foot/ankle), and foot dysfunction.

Injuries that are insidious in onset are often a result of a combination of factors such as muscle imbalances, compensations for lack of movement and/or strength, overtraining, poor technique, too much flexibility, and/or too little flexibility. To prevent such chronic injuries it is important to remember to introduce a proper warm-up and cool-down, stretch muscles that are stiff, and strengthen muscles that are weak in order to gain better control over the adjacent joints. Appropriately strengthening and/or stretching a particular joint(s) may be the best form of injury prevention. If it is difficult to perform a particular move or position, due to pain, decreased range of motion in the joint or decreased strength, consult with your dance teacher for guidance. An assessment with a sports medicine physician, registered physiotherapist or athletic therapist will provide additional treatment options.

The following is a case study which will illustrate appropriate management of an injury.

A 16 year-old dancer named "Michelle" presents to a physiotherapist with complaints of pain under and to the inside of her left kneecap, after consulting with her dance teacher. She is a ballet dancer and reports pain with a plié, when landing from a jump, while walking downstairs, with deep squats and with running. She has strong leg muscles and very good balance. She reports that her dance teacher is always reminding her to not to arch her low back when she is going into turn-out on the left. She is able to maintain the appropriate technique on her right.

The physical exam revealed strong superficial abdominals, strong hip flexors (muscles at the front of the hip), strong quadriceps and hamstrings (muscles at the front and back of the thigh respectively), weak deep abdominals, weak gluteus medius and piriformis (muscles at the side of the

buttocks) on the left and reduced external rotation (turn-out) on the left.

Following a detailed history and physical assessment it is determined that Michelle's kneecap is not moving or "tracking" well on the left. The kneecap glides in a groove at the end of the thigh bone. In order for it to glide well, the muscles around the knee, hip and ankle/foot need to be in balance and these joints need to have optimal movement. In Michelle's case her hip on the left was stiff, which made it difficult for her to "turn-out". The muscles that were supposed to be used for the turn out were weak (gluteus medius etc.) and her deep abdominals which were supposed to help to keep her low back from arching were weak.

The kneecap tracking problem resulted from the fact that Michelle's lower leg and foot would turn-out, but her hip would not, which resulted in the lower leg twisting on the upper leg, which caused the kneecap to slide in and out of its groove, resulting in pain.

Michelle ultimately did very well in physiotherapy. She diligently strengthened her weak muscle groups creating better muscle balance and focused on stretching the joints which were "tight" (specifically around the left hip joint). She created improved alignment at the knee joint which eliminated her knee pain.

Dance injuries can vary from individual to individual and are often dictated by the type of dance being performed. Persistent symptoms deserve prompt attention in order to minimize the long term harm. In summary, it is most important to warm-up and cool-down thoroughly, to maintain muscle strength and balance, and to keep each joint flexible. Allowing the appropriate time for recovery following an injury, as well as a graduated return to activity will go a long way in preventing future dance injuries.