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**Causes and Management of Hamstring Injuries in Young Athletes  
(Literature Review in Perspectives of Emerging Sprinters)**



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**Abstract:** *Sprinting is known as the fastest activity in athletics and during the execution of this type of activity the role of hamstring muscles is vital. The possible investigation of the existence hamstring injuries of emerging sprinters are common and the recurrence and incidence rates have not decrease in recent times. With reference to the causes, management and prevention of the hamstring injuries, location and site of the injury, correct diagnosis of muscle and tissue based upon history of the accident, time of occurrence and adequate knowledge about muscle anatomy are equally important. The study tends to determine the causes and management of hamstring injuries in emerging sprinters. On the basis of literature, the researchers have endorsed that the reason for growing and consistent feelings of hamstring tightness and pain was unknown. Additionally, the study has confirmed that as common indicator the athletes generally presume that the sensation of increasing tightness and pain in hamstring was a certified sign of the injury.*

**Keywords:** Hamstring Injuries, Sprinters, Causes, Management

## Introduction

In sprinting, runner uses more than 100 percent of their capacity resulting in higher extension of major muscles (Derave, et al 2007). One of the major muscles at stake is the hamstring muscle which makes hamstring injury most common in the world of Athletics (Haff, and Triplett 2015). Injuries to hamstring muscles can considerably affect sprinter's mobility, stride length and range of motion (Heiderscheit, et al 2010). The anatomy of the hamstring group are consists of three muscles (Rudy, et al 1999) location at the lower back of the thigh (Orchard, et al 1997). The muscles originate from lower part of the pelvis and lower leg (tibia and fibula) which assist to control motion in the hip and knee joints (Howse, and McCormack 2009). The hamstring primary features in athletics are hip extension and knee flexion (Sutton, 1984). Additionally the characteristic these muscles is to stabilize

knee and decelerate thigh (Claiborne, et al 2006).

## Causes

Athletics is known as mother of all sports (Stokvis, 2000) which require endurance, muscular strength, speed, flexibility, and explosive power at its peak to maintain performance and motor coordination (Bompa & Buzzichelli, 2015). Sprinters put vigorous force on physique which puts these muscles on risk in higher degree of overlapping (Valle, et al 2015). In competitive athletics hamstring are the most regularly occurring time-loss injuries for sprinters (Redler, et al 2013). With the reference to (Hanley et al., 2013) in sprinting the injuries mostly occurrence pace cycle without conditioning of muscles. In spite the misunderstanding of athletes between balance quadriceps and hamstring muscles, conditioning of muscles and small part of injured origin cause

to hamstring incidence (Lempainen & Banke, 2015). According to relative literature hamstring accidents, in some critical condition of injuries required prolonged rehabilitation which helps to return on track (Taylor & Stone, 2003). According to (Heiderscheit 2010) that lack of muscle conditioning is the prime cause of the pain that almost sprinters have faced. Power imbalances between the quadriceps and hamstrings, fatigue, lack of flexibility, hamstrings strength, intensity (resistance, speed) inadequate warm-up, lack of core balance, overtraining, lack of neuromuscular coordination, trauma, nutritional deficiency, structural abnormality (flat feet, leg length discrepancy) may have all been linked to hamstring damage. It's far stimulating to word that the hamstrings aren't very active with regular every day activities like strolling, walking or standing (Wallden, 2013) but the intensity of activities of every individual with weak, inflexible, deconditioned hamstrings choose to be very vigorous physical activities may lead to muscle damage (Agre, 1985). In addition researcher has observed that Pakistani athletes does not plan off season training and usually do nothing during that period of time and steeping directly to the track when the competition seasons start.

### **Management of Hamstring Injuries**

Researcher feels that here is a lack of rehabilitation and clinical research centers for the effective recovery training for hamstring strains. Although the primary management is rest, ice, compression, elevation and referral should be used for management of muscle strains (Bleakley, et al 2007). During the research, researchers observe that Pakistani athletes and coaches have only one prospective that is applying ice on the affected area for the treatment of acute hamstring strains. In general, the major aim is the recovery of muscle in a short period of time. According to literature the focus on muscle condition in earlier healing phase make a great deal to injury recovery (Järvinen, et al 2007) but commonly in said period when sprinters doesn't concentrate on muscle conditioning and constantly effort on skill preparation is to make superb deal to the damage

of muscles. (George, 2005). The management of hamstring injuries is a lengthy and irritating process (Croisier, 2004). Prevention is the ultimate objective however there's no consensus or well-known as to how this is pleasant performed (Gold, 1996). Numerous research has proven that pre-participation warm up, repetitive stretching, adequate physique, nutrition, muscle knowledge, training sessions and proper technique can decrease the ratio of injuries in sprinting (Cress, 2008). The primary objective in management phase is to reduce pain, to function the muscle for running, facilitate strain through legal impediments and rehabilitation (Petersen & Hölmich, 2005), (Sherry, 2015). In the said injuries only small amount of athletes required (Paluska, 2005).

### **FITNESS COMPONENTS EXERCISE**

Warm up Running, Dynamic movement, athletics coordination exercise, moderate intensity speed work Strength Hamstring curls, crescent lunges, frog jumps, Vertical jumps, bounding ladder drills, barrier jumps, core workout Aerobics Low intensity treadmill, cycling, speed work, interval training Flexibility stretch hip flexors, hamstring, calf stretch Cool down Light jogging, static stretching, walk.

### **Conclusion**

After critical review of literature, the researchers have concluded that majority of the young sprinters are ignorant regarding the conditioning of muscle strengthening and having no idea in perspectives of muscle strengthen, proper warm up and cool down techniques. Literature endorsed that muscle strengthen, proper warm up and cool down techniques play imperative role in preventing and minimizing the incidences of muscle injuries.

### **Recommendations**

- Coaches compile balance training program of antagonist and agonist for reducing muscle injuries.
- It is recommended that adequate conditioning training may be ensured among sprinters which may help to reduce muscle injuries.

- It is also suggested that coaches must comply proper strength session and implement upon athletes.
- Additionally, it is recommended that proper nutrition must be provided among sprinters particularly during training sessions.

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