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HOW TO PREVENT THE MOST FREQUENT INJURIES OF THE FOOT IN TABLE TENNIS

Abstract

The paper is based upon three decade of personnel experience of the author as the medical doctor of national table tennis team.
This is quite enough period to notice the most often problem related to overuse injuries in the foot region. The attention is based on opening the problem and at the same time closes up with possible prevention measures.
It is clear and that is pointed out the fact that we don't have adequate standards for the table tennis shoes.
Our mutual task should be multidisciplinary approach to this issue to try to solve the problem.

Key words: *table tennis, prevention, foot injuries, foot pain, table tennis shoes*

Introduction

Muscle and tendon injuries occur with increasing frequency in amateur and professional sports.

Apart from diagnosis (overuse injuries, pulled muscles-partial or complete tear or rupture) they also require specific therapy and prophylactic measures, in addition to suitable aftercare to eliminate late sequelae.

Muscle injuries and tendon strains in table tennis are becoming increasingly common in last two three decades particularly in the foot region.

Since these are masked injuries they are often underestimated by players, trainers and even physicians.

There is a general lack of clarity in the terminology of masked muscle injuries, since the differential diagnosis of torn or pulled muscles or tendons is problematic.

Nor is there uniformity in terminology of these lesions.

Inadequate diagnosis, treatment leads to delayed healing, persistent pain and recurrence. Often, sport activity cannot be resuming for several months.

There is also considerable number of cases in which, because of their injuries, players never regain their previous performance or even have to abandon table tennis.

The treatment of both muscle and tendon injuries poses a very interesting but also a very difficult problem, which could be solved only by the close collaboration of players, trainers and doctors. Alongside adequate measure of prevention are urgently needed.

Discussion

The foot (unlike the hand, which is designed essentially for grasping) is fundamentally a weight-bearing structure.

The foot consists of three morphologic functional segments, which develop in proximodistal order in the embryo. However, from the anatomic standpoint, the foot is divided into a hind part, midpart and the forepart or anterior, middle and posterior.

Its accommodation to any surface irregularity, its versatility and speed of movements during running, jumping and walking, and its behavior as if it were a ball-and-socket unit instead of a combination of 28 bones and 57 major articulating surfaces make this structure a biomechanical marvel, which warrants more than just a passing thought.

Injuries of the foot require, therefore, a more than casual knowledge of anatomy and some practical knowledge of biomechanics.

The muscles that act upon the foot are the extrinsic muscles which originate from the lower leg and attach the foot, and intrinsic muscles, which originate and insert within a foot.

The nerve supply of the lower leg and the foot are brunches of the sciatic nerve (L4-L5 and S1, S2 and S3)

According to that the normal foot must confirm the following criteria;

- it must be pain free
- it must have normal muscle balance
- it must have no contractures
- the heel must be central
- the toes must be straight and mobile
- during gait and stance must have three sites of weight bearing

Foot pain, when noted during standing, can be considered static and, when noted during walking, can be considered kinetic.

The majority of painful conditions of the foot originate in the soft tissue; muscles, ligaments, tendons, nerves, blood vessels and tissues of the joint spaces. In most cases of the foot and ankle pain local lesion can be implicated, and it can be result of trauma and stress.

Foot strain may be acute, sub acute or chronic. Here, as in so many painful musculoskeletal states the rule of causes applies:

- abnormal stress upon normal structure
- normal stress upon abnormal structure
- normal stress upon normal structure that is not at that moment prepared to receive the stress.

In table tennis the main problem is the chronic stress. Repeated trauma leads to mechanical effect on all structures which begins with strain and ends with deformation. The first symptom of overuse lesion is related to ligamentous inflammation with resultant pain.

Persistent stress can cause ligamentous elongation and even some degeneration. Support of the joint is lost and the joint undergoes excessive motion or malalignment. The stress inflames the joint capsule, a condition that also causes pain. Persistence of joint irritation causes structural damage to the aerticular surfaces, and degenerative arthritis results. This sequence interrupted early may be reversed but if allowed to proceed may lead to irreversible damage.

Prevention of the following states is essential;

- metatarsalgia is condition in which there is the pain and tenderness of the planar head of the metatarsals. This usually occurs when the anterior transverse arch is depressed and cause excessive weight bearing upon the metatarsal heads. The physiologic response to stress is increased osteoclastic activity associated with increased osteoblastic activity with means increased calcific metabolic turnover.
- March fracture is again stress injury of a metatarsal shaft caused by overused conditions most commonly seen in poorly trained players.

All mentioned states can be avoided by proper shoe wear with insertion of silicone shoe inserts.

- The pain in the region of the heel may arise from the tissue behind and under the calacaneus or within the bones and joints, as well as from referred sites distant to heel.
- Plantar fascitis is most often seen in the player who trains in the soft shoes on hard surfaces. The examination reveals deep tenderness of the anteromedial aspect of the calcaneus which is the site of attachment of plantar fascia. The different sorts of silicone inserts can be of great help but under the supervision of educated medical staff.
- Rupture of the Achilles tendon may occur from overuse, microtraumata, poor foot posture, hard floor, bad footwear, focal infection or previous partial tear.

Tearing occurs usually in the narrowest portion of the tendon approximately two inches above the point of attachment.

The purpose of this paper is to conclude that we still don't have world standards concerning to table tennis shoe wear.

It is of utmost importance to understand that this is the mutual task which can be solved as soon as possible by the wide approach of multidisciplinary team.

References can be obtained from authors upon personnel request.