



# Application of “TRX” and “RIP training” to the development of strength endurance in tennis.

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## ABSTRACT

Periodization in tennis in current training is characterized by a progressive decrease of the preparation periods and a gradual increase of the competition periods. Physical condition is no longer the only priority in the preparation period of a player, it is necessary to aim at a global preparation in order to reach top performance from the very first week of the competition stage. This is a great challenge for trainers and coaches alike, to get an appropriate physical preparation of players so that they can keep a sustained top performance and be free from injury at the same time. Among all the physical conditions necessary for top performance in tennis, strength endurance is one of the most relevant. This article discusses the use of “TRX” and “RIP training” in tennis as endurance development methods.

**Key words:** Physical condition, Training, Strength, TRX, RIP training, Resistance.

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## INTRODUCTION

Taking into account various ATP statistics (Maquirriáin, 2000), the most frequent sources of injury in tennis players are:

**Muscle decompensation:** It is produced by the repetition of identical movements in the same direction. This develops agonist muscles, as opposed to antagonist muscles, which produce injuries and decompensation in the long run.

**Muscle weakness:** It is the lack of specific strength for tennis due to the inappropriate use of strength or the lack of strength training during a long period.

**Fatigue:** It generally occurs at the beginning of the season, when adaptation to load is poor, or at the end of the season, as a result of accumulated effort.

Even though we have certain doubts concerning strength, both during preparation and maintenance of players, we believe that it is always better to give some advice and to do a good strength job than to consider it a risk. Thus, we state the following:

“A strength working programme, even in the case of pre-pubescent, can significantly increase the maximum and explosive strength capacity, as well as the resistance strength,

as long as the stimulus is intense enough” (Thiebauld & Sprumont, 2009).

Today, tennis demands a fast, dynamic and accurate player, powerful in his movements, both to accelerate and decelerate, and able to sustain effort in time (longer points, larger movement areas). Therefore, only a powerful tennis player can be fast, and in order to make him so, we must develop and maintain strength. (Ellenbecker et al., 2009).

This article presents a strength programme applied to tennis. The idea is to maintain the strength while on the tour. This has always been a concern for the trainer, since it is impossible to find appropriate places to work on strength in the different tournament venues (Baiget, 2011). Our programme is carried out by means of strength in suspension with TRX and RIP Training.

## WHAT IS TRX?

TRX is a suspension training programme created by the Navy SEAL of the American Army. Because of their working conditions, they usually found it hard to find the traditional training equipment and the appropriate space for that.

This offers an advantage for the participants, when compared to the simple training protocol for conventional strength

training; each suspension training exercise develops functional strength and improves flexibility, balance and stability of the core to meet the demands of tennis (Sanchis, 2002).

TRX can be easily installed anywhere and an unlimited number of training exercises can be done in suspension to achieve any physical or performance condition. It can be used wherever there is a weight resistant anchorage point above the head. The supports for sit-ups, the bars for the back and biceps, the branches of a tree, beams and posts are all ideal to anchor a TRX.

The system can adapt resistance any time regulating the position of the body, making suspension training safe and effective for tennis players, regardless of their physical condition levels. TRX is portable and affordable. It is more functional than many other expensive devices for physical exercise. Its compact design makes it possible to use anywhere: at the sport facilities, at home, or even in a hotel room when on the tour (see Figure 1).

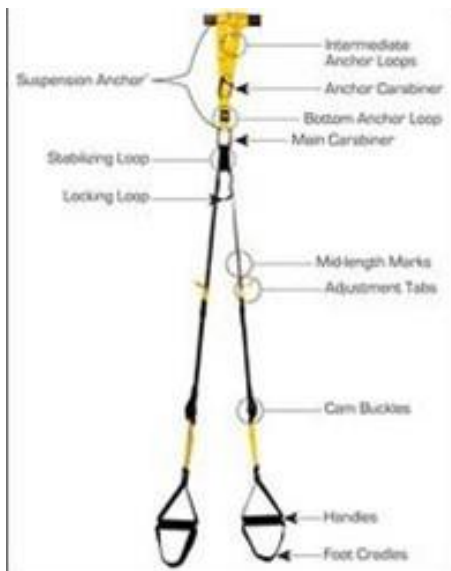


Figure 1. Parts of a TRX

As regards RIP training, it is a special adaptation of TRX, most appropriate for tennis since the player uses a bar attached to an elastic band, to work on some tennis specific movements, fixing it to the net post or to the end of the court fence.



Figure 1b RIP Training.

**BENEFITS OF TRX AND RIP TRAINING**

TRX and RIP Training are some of the most efficient “core training” tools. This training helps to develop all the movements of tennis players in which explosive and endurance actions rotating the hip and the core are dominant. These are fundamental actions in all tennis strokes.

This system is used to work all muscular groups and several joints at the same time, in order to strengthen the body while simultaneously improving cardiovascular endurance and coordination, (intermuscular and intramuscular), strength, power, speed, flexibility and “core” stability in the three movement plans and anatomic axis (transversal, sagittal and frontal), so, it is a tridimensional training.

It is functional training since no part of the body is isolated; the body is an interconnected chain of muscles and each movement involves the whole body. With this kind of work, it is possible to develop great muscular masses, (pectoralis major, latissimus dorsi, quadriceps, hamstrings, etc.) fundamental for tennis (Carbonnier & Martinsson, 2012).

**MODEL TRX AND RIP TRAINING: A PROPOSED APPLICATION TO TENNIS**

TRX and RIP training can be used to train, either by means of repetitions and series or by time. The repetitions and series, as well as the intensity of the work and the training method, will depend on the objective. For this model session we will always work with 20 repetitions and two series of each exercise (González, 2012).

The structure of the training session shall be as follows: A 5 to 10 minute cardiovascular warm-up (on the treadmill, elliptical, rowing machine, rope jumping, etc.). Move all joints. The main part will follow the following structure:

| EXERCICES                                | SÉRIES | RÉPÉTITIONS       | REPOS                             |
|--|--------|-------------------|-----------------------------------|
| RIP Rame à deux mains                    | 2      | 20                | 30 secondes                       |
| TRX Fléchissement des genoux bras tendus | 2      | 15 de chaque côté | 30 secondes                       |
| TRX tirage poitrine avec mouvement avant | 2      | 15 de chaque côté | no                                |
| RIP Chin rowing                          | 2      | 15                | 30 secondes                       |
| TRX épaules en Y                         | 2      | 15                | 30 secondes                       |
| RIP Biceps – Triceps(super séries)       | 2      | 15                | Temps utilisé pour ajuster le TRX |
| TRX Power to one leg                     | 2      | 15                | no                                |
| RIP Revers à deux mains                  | 2      | 15                | no                                |

Tabla 1. Exercices

The exercises are shown in the next figures.



**Figure 2a. Two handed rowing RIP.**



**Figure 2b. Two handed rowing RIP.**



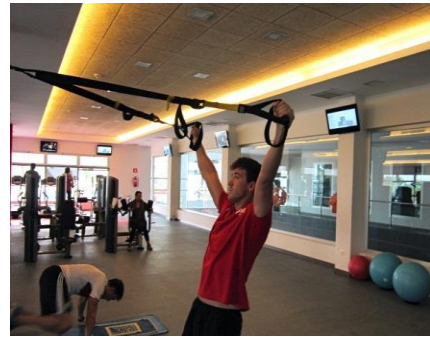
**Figure 3. TRX Squat with stretched arms.**



**Figure 4a. RIP Chest press with front lunge.**



**Figure 5. RIP Chin rowing.**



**Figure 6. TRX shoulders in Y.**



**Figure 7a. RIP biceps and triceps.**



**Figure 7b. RIP biceps and triceps**



**Figure 8. TRX Power to one leg.**



**Figure 9. Two handed backhand RIP**

It will be followed by specific tennis training and the coach will decide on its duration. Recovery will take 5 minutes and will consist of cardiovascular work followed by active and passive stretching.

## CONCLUSIONS

It is key to stress the importance of strength development in our tennis players, both to improve the game and to prevent injuries and decompensation. This system can be used on a tennis court and can be adapted to the level of each player exercising the muscles in all anatomic senses (transversal, sagittal and frontal).

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## REFERENCES

- Baiget, E. (2011). Strength training for improving hitting speed in tennis. *Journal of Sport and Health Research*. 3(3):229-244.
- Carbonnier, A., & Martinsson, N. (2012). Examining muscle activation for Hang Clean and three different TRX Power Exercises: A validation study. Student Thesis. Halmstad University. <http://urn.kb.se/resolve?urn=urn:nbn:se:hh:diva-17754>
- Ellenbecker, T.S.; Pluim, B.; Vivier, S.; & Sniteman, C. (2009). Lesiones Frecuentes en Jugadores de Tenis: Ejercicios para Hacer Frente a los Desequilibrios Musculares y Reducir los Riesgos Lesión. *G-SE Standard*. 01/10/2009. [g-se.com/a/1094/](http://g-se.com/a/1094/)
- González, R. (2012). TRX en tenis. [www.topspainacademy.com](http://www.topspainacademy.com)
- Maquirriain, J. (2000). Lesiones en tenistas profesionales: informe del ATP Tour / Tennis injuries. *Rev. Asoc. Argent. Traumatol. Deporte*; 7(1):37-39.
- Sanchis, J. (2002). Efectos de la competición sobre la fuerza dinámica máxima en el jugador de tenis de élite: estudio de un caso. *Apunts: Educación física y deportes*, N° 67, 2002, págs. 28-44
- Thiebault, C. y Sprumont, P. (2009). El niño y el deporte. *Tratado de Medicina del Deporte Infantil*. Ed. Inde Publ., Zaragoza.

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