

## FOOTBALL AND PILATES: POSTURE CONTROL AND ENHANCING MUSCLE

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### Abstract

The study was conducted on a sample of 20 elderly athletes practicing football in order to verify the effectiveness of the method Pilates, unconventional, to improve the competitive performance. The athletes were subject to a screening to verify their posture with the SIAS measurement, carried out with the subject supine, calculating the distance between the anterior superior iliac spine and tibial malleolus. The measurement showed also differences of few millimeters between the two lower limbs despite the natural compensatory mechanism of adaptation of the postural system has determined that the quadriceps muscle hypertrophy limb longer, because of the higher load, and the resulting hypotonia limb shorter. The staff chose to use the unconventional Pilates method to propose just one sample of 10 athletes because it can be practiced both outdoors and inside the gym.

### Method

The research was conducted with an observational, detection with manual and computerized method, from October 2013 to May 2014, with the speed test and diversified technical tests. The athletes were divided into group A and group B, and participated in all the training provided by the technical staff. Only the group B, consisting of 10 athletes, was given 30 additional sessions of Pilates workout that helped improve postural control, occurred with the speed test performed with and without the ball on a slalom course of 20 meters, and the strengthening muscle, occurred with the increase in the percentage of accuracy of shots on goal.

### Results and Conclusions

The final results verified at the end vintage racing, have denoted a performance improvement with particular reference to the percentage of accuracy of shots on goal, estimated at about 2.5-3%. Athletes of group B, who claimed to have received benefits after participating in extra sessions with the Pilates method, as they have found a uniform muscle toning and improved control of breathing, have denoted the greatest percentage increase, but also some athletes of group A, motivated to perform workouts with greater concentration, showed an improvement in the performance of a few percentage points. The study has demonstrated the effectiveness of using unconventional methods to improve sports performance.

**KEYWORDS** Postural control. Football. Pilates.

## 1. INTRODUCTION

The study of sports performance (Fox, Bowers, Foss, 2005), in senior athletes, practicing soccer at a recreational competitive level, showed that one of the significant factors that affects the quality of the performance is related to postural imbalances (Shumway-Cook & Woollacott, 2001). The sample of twenty athletes, participating in a competitive recreational league football at 11, which took place from October 2013 to May 2014, highlighted the diversity of postures assumed by both parties during the normal daily routine both during the development of football activities, training and racing.

Research has shown that posture is one of the important variables that affects sports performance together with other factors such as the characteristics, physical and mental abilities and motor skills of the individual and the team, the training methodology, the regulations of the specific disciplines. The athlete involved is at a professional level and in recreational competitions, performing complex actions planned and developed in the training sessions, which often does not repeat in competitive environments due to the effects of uncontrolled variables. The efficiency of the motor gesture is therefore subject not only to the intensity of the performance, but also to age, physical and mental health of the athlete.

After evaluating the results of initial tests (table 1) and focusing on a varied performance, and the number of accidents of a muscle, the medical staff and technical society required the intervention of the consultant orthopedic identified among the many postural variables, the incidence of limb-length discrepancy. The measurement, performed with the subject lying supine, calculating the distance between the anterior superior iliac spine (SIAS) and the tibial malleolus, has provided results but also differences of few millimeters between the two limbs in spite of the natural mechanism of compensatory adaptation of the postural system that highlighted hypertrophy of the quadriceps muscle of the limb longer, issues for the increased load, and the consequent shorter limb hypotonia. In the overall assessment, it was considered the interaction of the musculature relating to the various parts of the body, the cervical-spine, low back and abdomen, and it was suggested an intervention aimed at relaxation of contracted areas and strengthening the muscles of the lower limb not ignoring the importance of movement in relation to the axes and anatomical planes. It has been speculated to use, with additional training sessions (Bompa, 1999), the Pilates method to help improve both the posture (Bernardo, 2007) that the performances.

## 2. MATERIAL AND METHODS

### Addressee and Objectives

The recipients are twenty senior athletes participating in recreational football competitions over forty (Platonov, 2004). The athletes were eligible to visit medical-type sports racing and practicing football for many years (Vatta, 2006). The aim is to improve the posture (Kloubec, 2010), sports performance and the percentages of balance and accuracy by using unconventional methods of training such as Pilates.

The choice of using the unconventional Pilates method, sprang from your active and outdoor gym. The team was divided into two groups of ten athletes each and just one group (group B) was given thirty additional sessions in the gym, about four sessions per month, in addition to the normal frequency of training sessions conducted by the athletic-programming technique, defined at the beginning of the season. The Pilates method (Korte, 2009) is based on the development and refinement of the principles on health and muscle tone, with the application of Contrology exercises and the use of rehabilitative equipment for replacing activities in motion and aimed to enhance the capacity for muscular endurance and activate the deep muscles to work in opposition (Lee, 2000). The supplementary training have the Pilates exercise (Miessner, 2012) with The Hundred, Roll Up, Roll Over, Leg Circles, Rolling Like a Ball, Single Leg Strech, Double Leg Strech, Open Leg Rocher, Corkscrew, The Saw.

The research was conducted with observational method and manual and computerized survey, from October 2013 to May 2014, with the speed test and diversified technical tests (Marella, Risaliti, 2007). The results of initial recognition have allowed the division of the athletes in the control group, formed by athletes who achieved the best results referred to as "group A", and in the group of route, composed by athletes having lower indexes called "group B".

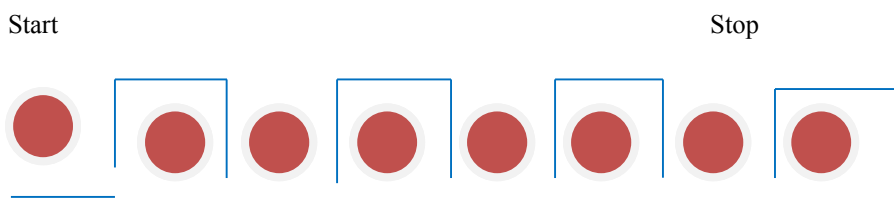
The two groups during the vintage racing, followed the normal training (Hocking et. al. 2013) methodology prepared by the technical staff consisting of one training session per week, marked by athletic exercises, techniques and tactics, as well as after completion of training and racing official competitions.

During the month of January were detected interim results for the "group B" (table 2). The final results were recorded at the end of the research in the month of May 2014 (tables 3,4 and graphics 1,2).

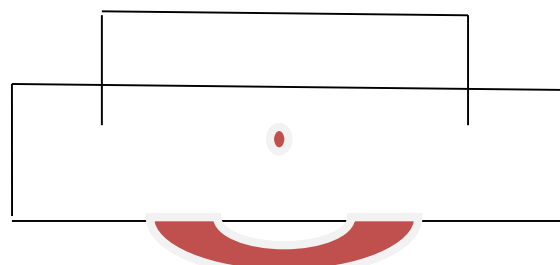
### Tests and Contents of additional sittings Pilates

Athletes (Weineck, 2001) were prepared to face the tests with an athletic session (Bosco, Luthanen, 1992) consisting of an initial general activational, with slow running for about 15 minutes interspersed with one-minute active recovery every five minutes of running, exercises and joint mobilization and stretching to a total preparation time for testing for about thirty minutes. They were then administered the first test, detection of execution speed with and without the ball following the path along twenty meters, and timing the travel time, and the second test for detecting precision by performing n. 15 shots from the edge of the penalty area reporting (see tables) the number of shots on goal concluded.

### Test 1 – Detecting the speed of execution of the slalom with and without the ball



### Test 2 – Detection of the precision of the number of shots on goal



1-2-3-4-5-6-7-8-9-10-11-12-13-14-15

### Additional Pilates training

The Hundred, Roll Up, Roll Over, Leg Circles, Rolling Like a Ball, Single Leg Strech, Double Leg Strech, Open Leg Rocher, Corkscrew, The Saw.

## Materials and equipment

Footballs n.5

Stadium

Cones

Small tools Pilates: Mat, Ring Toner, Fitband, Roller, Ball.

Great tools Pilates: Reformer with "foot platform", Barrel.

## 3. RESULTS

After the initial recognition (table 1) were then made two group. Group A composed of 10 athletes with the best results (athletes 2,3,5,11,12,13,16,17,19,20) and the group b with the other 10 athletes with the results most deficient (athletes 1,4,6,7,8,9,10,14,15,18) . After four months of research (table 2) all athletes of the group b improved performances. The final results (tables 3,4 and graphics 1,2) taken at the end of vintage racing, denoted an improving of the performance, particularly as concerns the percentage of accuracy of shots on target, estimated at about 3 – 3.5 %.

## 4. CONCLUSIONS

The choice of using the Pilates method has allowed improved performance particularly B group. Athletes of B group have denoted the greatest percentage increase but also some athletes of group A, motivated to perform workouts with greater concentration, showed an improvement in the performance of a few percentage points.

Athletes of B group reported that they had received benefits after participating in extra sessions with Pilates because they have found a uniform muscle toning and a better control of breathing during the exercise. They also found a reduction in postural defects, limiting contractures and muscle atrophy, with the mobilization of the shoulder blades and the cervical, thoracic and lumbar detension. The study has demonstrated the effectiveness of using non-conventional methods to improve sports performance.

## 5. Tables and Graphics

**Table 1: Detection times tests of speed and number accurate shots**

Athletes	Fast Slalom (sec)	Slalom with the ball guide (sec)	Total number of precise shoots
1	4	8	8
2	4	7	12
3	5	6.5	14
4	3,5	7	11
5	4	9	13
6	5	6	10
7	6	9.5	9
8	4	6	11
9	5	8	7
10	6.5	8	8
11	3	6	14
12	2,5	7	15
13	4	9	12
14	5	10	9
15	3	8	10
16	4,5	9	15
17	5,5	11	13
18	4	11	8
19	3	8	11
20	4	9	15

### Intermediate Recognition

**Table 2 : Group B - Detection intermediate times speed tests and number accurate shots**

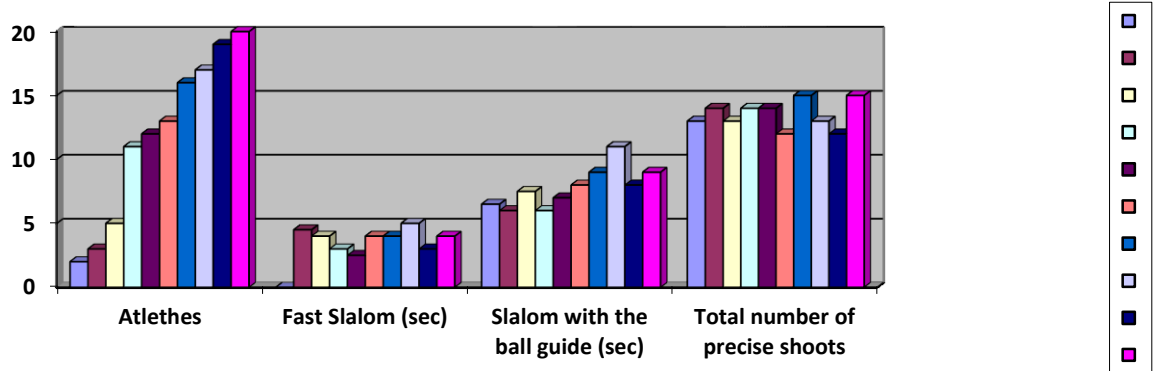
Athletes	Fast Slalom (sec)	Slalom with the ball guide (sec)	Total number of precise shoots
1	3,5	7	9
4	3,5	6	13
6	4,5	5	12
7	5	8	10
8	4	5,5	13
9	4,5	8	11
10	5.5	8	10

14	4	7	13
15	3	6	11
18	4	7	13

**Final Recognition**

**Table 3 : Group A Detection final times speed tests and number accurate shots**

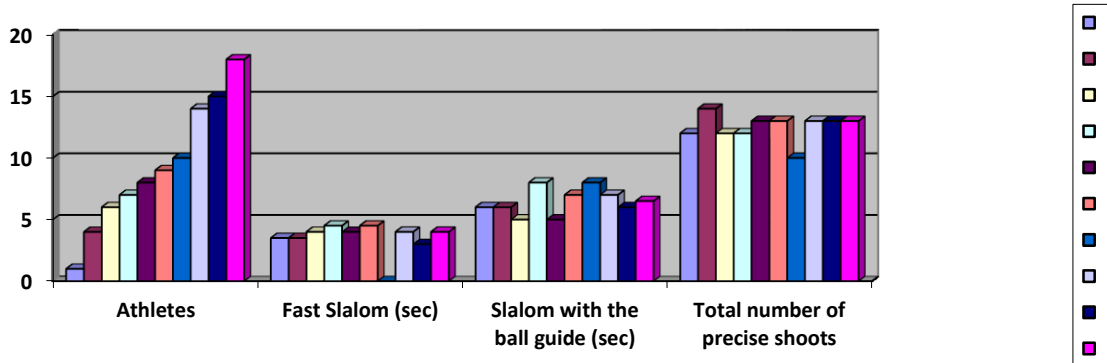
Alethes	Fast Slalom (sec)	Slalom with the ball guide (sec)	Total number of precise shoots
2	3,5	6,5	13
3	4,5	6	14
5	4	7,5	13
11	3	6	14
12	2,5	7	14
13	4	8	12
16	4	9	15
17	5	11	13
19	3	8	12
20	4	9	15



**Graphic 1 - Group A Detection final times speed tests and the number accurate shots**

**Table 4 :Group B Detection final times speed tests and number accurate shots**

Athletes	Fast Slalom (sec)	Slalom with the ball guide (sec)	Total number of precise shoots
1	3,5	6	12
4	3,5	6	14
6	4	5	12
7	4,5	8	12
8	4	5	13
9	4,5	7	13
10	5,5	8	10
14	4	7	13
15	3	6	13
18	4	6,5	13



**2 - Group B Detection final times speed tests and the number accurate shots**

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