CORE STABILITY TRAINING AND PHYSICAL PERFORMANCE IN FEMALE FOOTBALL PLAYERS COMPETING IN A NATIONAL LEAGUE: A LONGITUDINAL STUDY

Gollin$^1$ M PhD, Beratto$^2$ L PhDc, Abate Daga$^3$, F. Fornea S$^3$, Plescja A$^3$

$^1$ Department of Clinical and Biological Sciences; Motor Science Research Center, University School of Motor & Sport Sciences, University of Turin, Italy
$^2$ PhDc in Experimental Medicine and Therapy, University of Turin, Italy
$^3$University School of Motor & Sport Sciences Graduate, University of Turin, Italy

Introduction

Nowadays structural and deep muscles are usually involved in sport training schedules with specific exercises because of their essential role played in lots of sport key movement (Montfort-Panego et al. 2009). The core acts as a functional center of kinetic chains in many technical and physical action characterizing various sports. (Kibler et al. 2006), so a good functionality and training level of this body part is important to prevent injuries, to assess musculoskeletal disorders of lumbar region and to maximize athletic skills (Colado et al. 2010). For this reason, core stability and strength training session are usually performed by athletes (Nesser et al. 2010). However, it hard to find out information about the effects directly provoked by a core stability training program on an open skill discipline performance. So, the aim of this study consist in try to verify whether core stability training with two different physical training methods might improve body balance in an upright position, lower limbs explosive strength and stiffness.

Methods

Fifteen national-level female footballers were studied over a period of ten weeks. They were divided into two groups: the Unstable Surface Group (USG: 8 athletes aged 20±3 years old, weight 57±7 kg, height 163±7 cm) and the Elastic Band Group (EBG: 7 athletes aged 18±2 years old, weight 58±7 kg, height 168±4 cm). The USG performed a protocol of exercises on unstable surfaces, while the EBG did exercises with elastic bands. Both groups followed their respective programmes twice a week. Girls were tested at the beginning of the study, after 5 weeks and finally after 10 weeks from the starting period, using the following devices:

- A Libra® proprioceptive platform (Easytech, Italy) in two-footed (bipodalic) and one-footed (monopodalic) positions in order to evaluate the ability to manage imbalance.
- An OptoGait® (Microgate, Italy) for the evaluation of vertical jumps (squat jump, SJ; countermovement jump, CMJ; CMJ with arms free).

Results

Results highlight that both groups improved balance. However, in the USG this improvement was detected after 5 weeks in reference to the two-footed (bipodalic) position (T0 vs T1, Anova p<0.05; Post hoc p<0.05, -16%), while in the EBG after 10 weeks in reference to the two-footed (bipodalic) position (T0 vs T2, Anova ps0.05; Post hoc p<0.05, -18%). Moreover, in the EBG, an improvement in the squat jump was also detected (T0 vs T2, Anova ps0.05; Post hoc p<0.05, +7%).

Conclusions

This study shows that a 5 weeks core stability training protocol on unstable surfaces performed twice a week can improve balance ability. In addition, it has been demonstrated that a 10 weeks resistance training schedule, performed twice a week with elastic bands, improves balance and explosive strength in the lower limbs of football female athletes.

References

- Kibler W.B., Press J, Sasia A. The Role Of Core Stability In Athletic Function Sports Medicine. 36 (3): 189-98, 2006