

Table 2. Aguiló A, et al. Mean distances (m) of the athletes of the Q1 compared to the athletes of the other groups.

Groups	10m	20m	30m
Q2	0.39	0.65	0.95
Q3	0.71	1.18	1.56
Q4	1.10	1.87	2.57

Conclusions: The fastest players at the 30m sprinting test showed the fastest as well in all other distances and this may be advantage when performing short distances during the game.

Key words: Soccer. Sprint test. Sports performance.

Control of the tennis stroke and metabolic responses through a new specific tennis field test

Caballero P¹, Domínguez G¹, De Teresa C², Feriche B¹

¹Facultad de Ciencias del Deporte, Universidad de Granada P;

²Centro Andaluz de Medicina del Deporte, Junta de Andalucía. Granada

The endurance and success of stroke are some of the key point factors of tennis performance. There is a lack of specific field tennis tests to prescribe and control training performance; therefore it is necessary to investigate on new field test that allows relating the physiological parameters to the technical.

Aim: The aim of this preliminary study was to apply a new specific tennis field test to know the relationship between the workload in metabolic zones and success or efficiency of stroke (ES) and determine a model of response.

Methods: The study was realized by 5 tennis players (age $23 \pm 1,9$ years; height 174.9 ± 5.7 cm; weight 68.1 ± 5.7 kg; training per week 8.2 ± 2 hours). All subjects performed two incremental protocols to exhaustion: laboratory test (treadmill test) and a tennis specific field test. The field test consisted of repeated strokes (forehand and backhand) during 1 min, with 20 sec of rest. In both tests, heart rate (HR) and rating of perceived exertion (RPE) was monitored; the ventilatory thresholds were determined in the laboratory test.

Results: The relationship between the metabolic zones by workload and ES was kept constant ($> 60\%$ ES) up to work near anaerobic threshold, where it started to decrease ($> 10\%$ ES per workload).

We have obtained three different types of response: a) Type 1: better ES in mixed zone, b) Type 2: better ES in aerobic zone, c) Type 3: ES stable in the 3 zones.

Conclusion: The new specific tennis field test is a practical tool that allows an objective control of the training performance. The efficiency of stroke is better in aerobic zone (before VT1), maintain a regular response in mixed zone (between VT1-VT2) and decrease near anaerobic threshold (VT2).

We find three types of response: Type 1 mixed, Type 2 aerobic and Type 3 stable.

Key words: Field test. Tennis performance. Success of stroke.

Balance and postural control assess in elite ice skaters

López-Illscas A¹, Hernández Martín I¹, López Román A², Caraça Valente JP³

¹High Sports Council (Spain); ²“Alfonso X El Sabio” University (Madrid, Spain); ³Universidad Politécnica (Madrid, Spain)

Regarding biomechanics, ice skating requires dynamic and static postural control of neuromuscular balance and coordination features as well as skills which are far more important than those essential for other sports or every day life activities. Especially within elite ice skating, mainly in technical gestures such as “take off” and “landing” of jumps.

The Neurocom Balance Master device provides basic technology to assess such features.

Objectives:

- Determine whether Neurocom Balance Master allows to assess and discriminative balance, coordination and postural control skills within ice skating.
- Determine which parameters are more suitable and discriminative to assess ice skaters` balance and coordination.
- Obtain data to increase the normative database within Spanish elite sportsmen and provide knowledge to improve training systems and performance.

Materials and methods:

Subjects: 45 healthy elite ice skaters, 20 men and 20 women (age range, 12 – 17 years).

Control Group: 60 students (who didn't practice any sport, age range, 15 – 20 years)

Instruments: Neurocom Balance Master Posturographer.

Protocol: 1. Specific warm up; 2. Three repetitions of each of the following tests (Table 1); 3. Description of variables. The “t of Student” was used to analyse independent samples. (Statistics pack SPSS. 15.00)

Results and conclusions:

1. Posturography assess using Neurocom Balance Master allows a suitable discrimination of balance and coordination features in elite ice skaters.
2. The most discriminative parameter was the sway of Centre of Gravity (COG)'s shift in the test CTSIB (modified), when the sportman is on a foam surface with closed eyes.
3. Several parameters show a significant difference if compared to the control group.
4. Men data regarding RWS test were higher than such data in women, showing a better velocity of reaction.

Data will be shown within graphs and tables.

In this trial, the results belong to data obtained along the development of the project: “ViiP: Intelligent System for Isokinetic and Posturographical Gravity-sensing, Integration and Assess of the Spine” Financed by the Ministry of Science and Innovation. Research Head Office Science and Technology I + D. Projects: africa.lopez@csd.mec.es

Key words: Balance master. Posturography. Skating. Balance. Medicine. Biomechanic. Sport.

TRAINING AND PERFORMANCE IMPROVEMENT-IV

Assess of isokinetic trunk strength in elite basketball players

López-Illscas A^{1,2}, Pérez Toledano JJ¹, De Campos Gutiérrez de Calderón A¹, Caraça Valente JP³

¹High Sports Council (Spain); ²“Alfonso X El Sabio” University (Madrid, Spain); ³Universidad Politécnica (Madrid, Spain)

Table 1. López-Illscas A, et al.

TESTS	PARAMETERS				
Clinical Test of Sensory Interaction on Balance (modified CTSIB)	Mean Center of Gravity Sway Velocity				
Limits of Stability (LOS)	Reaction Time	Movement Velocity	Endpoint excursion	Maximum Excursion	Directional Control
Rhythmic Weight Shift	On-Axis Velocity	Directional Control			
Step/Quick Turn	Mean Turn Time	Mean Turn Sway			
Step Up/Over	Mean Lift-Up Index	Mean Movement Time	Mean Impact Index		
Forward Lunge	Mean Distance	Mean Impact Index	Mean Contact Time	Mean Force Impulse	