PREVENZIONE DEGLI INFORTUNI NEL CALCIO

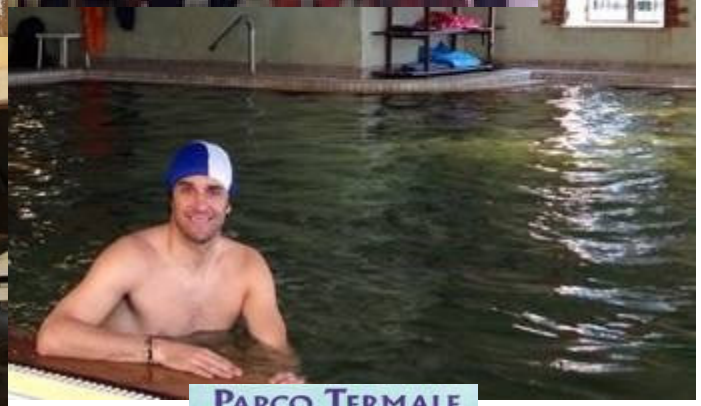
Giorgio Pasetto

Riablo Biofeedback Lab

by Bernstein

CENTRO SCIENZE MOTORIE BERNSTEIN

PARCO TERMALE DEL GARDA
VILLA DEI CERDI

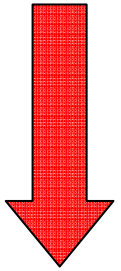


CENTRO SCIENZE MOTORIE BERNSTEIN

PARCO TERMALE DEL GARDA

STRATEGIA

- STABILOMETRIA
- TEST ISOCINETICO
- TEST FUNZIONALI
- VALUTAZIONI OSTEO-CHINESIOLOGICHE



- NORMALIZZAZIONI OSTEO-CHINESIOLOGICHE (DMSO Technique)
- PREPARAZIONE ATLETICA MIRATA
- ACQUA TERMALE E CRIOTERAPIA (per facilitare il recupero)

EVIDENZE SCIENTIFICHE SULL'EFFICACIA DEI PROGRAMMI PREVENTIVI

In letteratura scientifica vi è una netta concordanza su come le misure preventive possano ridurre gli infortuni (*):

- **Importanza del riscaldamento, meglio se effettuato con elementi sport specifici;**
- **Favorire l'estensibilità muscolare contro squilibri;**
- **Allenamento eccentrico contro lesioni muscolari;**
- **Corretto rapporto di forza estensori-flessori;**
- **Corretto rapporto carico-recupero;**
- **Allenamento stabilizzatori tronco (core training) e propriocettiva;**
- **Influenza delle superfici di gioco e delle scarpe;**
- **Influenza delle condizioni climatiche (idratazione, termoregolazione, integrazione alimentare).**

(Ekstrand 1983, Heidt 2000, Junge 2002, Tropp 1985, Surve 1994, Södermann 2000, Caraffa 1996, Hewett 1999, Askling 2003, Mandelbaum 2005, Arnason 2007, Gilchrist 2008, Soligard 2008)

TEST ISOCINETICO

ANALISI ED ELABORAZIONE DATI

1. PICCO DEL MOMENTO DI FORZA (NEWTON x METRO)
2. LAVORO (JOULE)
3. POTENZA (WATT)
4. INDICE DI FATICA (solo test di resistenza)
5. MORFOLOGIA DELLA CURVA
6. DIFFERENZA MUSCOLARE DX Vs SX
7. RAPPORTO FLESSO ESTENSORI (omolaterale)

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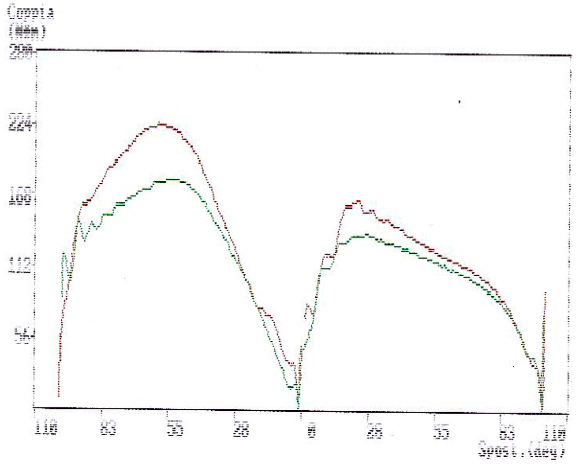
R I S U L T A T O T E S T R E V by TECHNOGYM - Italy ver. 3.0

Test 1	Cognome : Adailton	Tipologia : N
	Nome : Martin	Articolazione : FE.ginoc.
	Lato : dx	Data esecuzione : 04/10/03 13:12:08
Test 2	Cognome : Adailton	Tipologia : P
	Nome : Martin	Articolazione : FE.ginoc.
	Lato : sx	Data esecuzione : 04/10/03 13:21:58

FE.ginoc.: ISOCINETICA CC V = 90 deg/sec. - Serie n. 1



AGONISTA	Test 1	Test 2	Diff
Coppia max. (N*m)	224	179	-20%
Lavoro (J)	292	254	-13%
Potenza (W)	207	192	-7%
Indice di fatica	98	105	

ANTAGONISTA	Test 1	Test 2	Diff
Coppia max. (N*m)	163	137	-15%
Lavoro (J)	215	197	-8%
Potenza (W)	156	138	-11%
Indice di fatica	95	104	

STABILOMETRIA

definizione

La stabilometria valuta le capacità di controllo posturale di un soggetto in stazione retta, attraverso la quantificazione delle oscillazioni posturali e del contributo relativo apportato dalle varie componenti del sistema posturale (visiva, propriocettiva e labirintica)

(G. Guidetti, *Stabilometria clinica*)

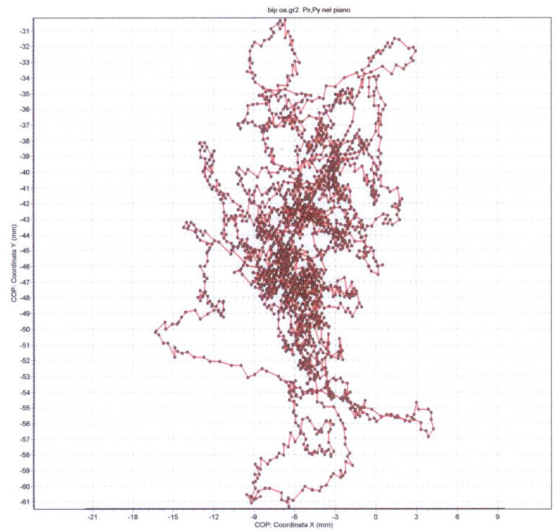
TEST STABILOMETRICO

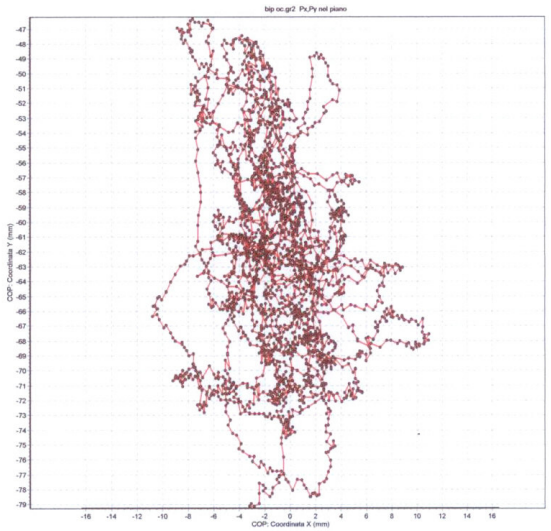
Valuta:

- **coordinate del centro di pressione sull'asse frontale e longitudinale;**

- **la superficie dell'ellisse (area del gomitolo) espressa in mm^2;**

- **la lunghezza delle oscillazioni (lunghezza del gomitolo);**





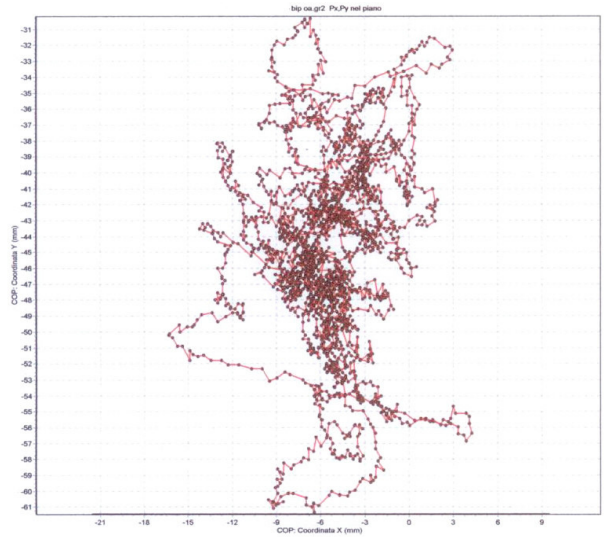
TEST STABILOMETRICO

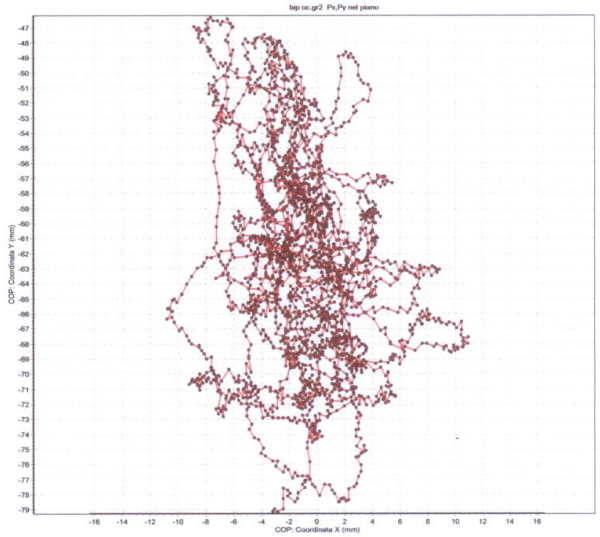
Valuta:

- **velocità media degli spostamenti espressa in mm/sec;**

- **varianza della velocità (rapporto tra accelerazioni e decelerazioni durante l'oscillazione);**

- **quoziente di Romberg (QR) (rapporto tra area del gomitolo ad occhi chiusi ed aperti).**





TEST FUNZIONALE BACK IN ACTION

Valuta:

- **velocità, agilità, forza e stabilità dell'arto inferiore**

- **confronto arto destro e sinistro per evidenziare differenze funzionali.**

- **confronto con database di oltre 500 dati normali che permette una valutazione oggettiva**

Phys Med Rehabil Clin N Am. 2000 May;11(2):323-40, vi.

Proprioception.

Laskowski ER, Newcomer-Aney K, Smith J.

Department of Physical Medicine and Rehabilitation, Mayo Sports Medicine Center, Rochester, Minnesota, USA.

Abstract

Although definitions of proprioception may vary, its importance in preventing and rehabilitating athletic injuries remains constant. Proprioception plays a significant role in the afferent-efferent neuromuscular control arc. This control arc is disrupted with joint and soft tissue injury. Restoring proprioception after injury allows the body to maintain stability and orientation during static and dynamic activities. By focusing on aspects of neuromuscular function, such as dynamic joint stability, practitioners can design and study interventions to maximize sport and daily life neuromuscular function. Further research is necessary to elucidate how proprioceptive deficits can be remedied or compensated to improve function and prevent reinjury.

Med Sci Sports Exerc. 2010 Mar;42(3):413-21.

Neuromuscular training for sports injury prevention: a systematic review.

Hübscher M, Zech A, Pfeifer K, Hänsel F, Vogt L, Banzer W.

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Abstract

PURPOSE: The aim of this systematic review was to assess the effectiveness of proprioceptive/neuromuscular training in preventing sports injuries by using the best available evidence from methodologically well-conducted randomized controlled trials and controlled clinical trials without randomization.

METHODS: Two independent researchers performed a literature search in various electronic databases and reference lists. The reviewers independently assessed trials for inclusion criteria and methodological quality and extracted the data. Focusing on studies of high methodological quality, relative risks (RR) and 95% confidence intervals (CI) were used to estimate treatment effects.

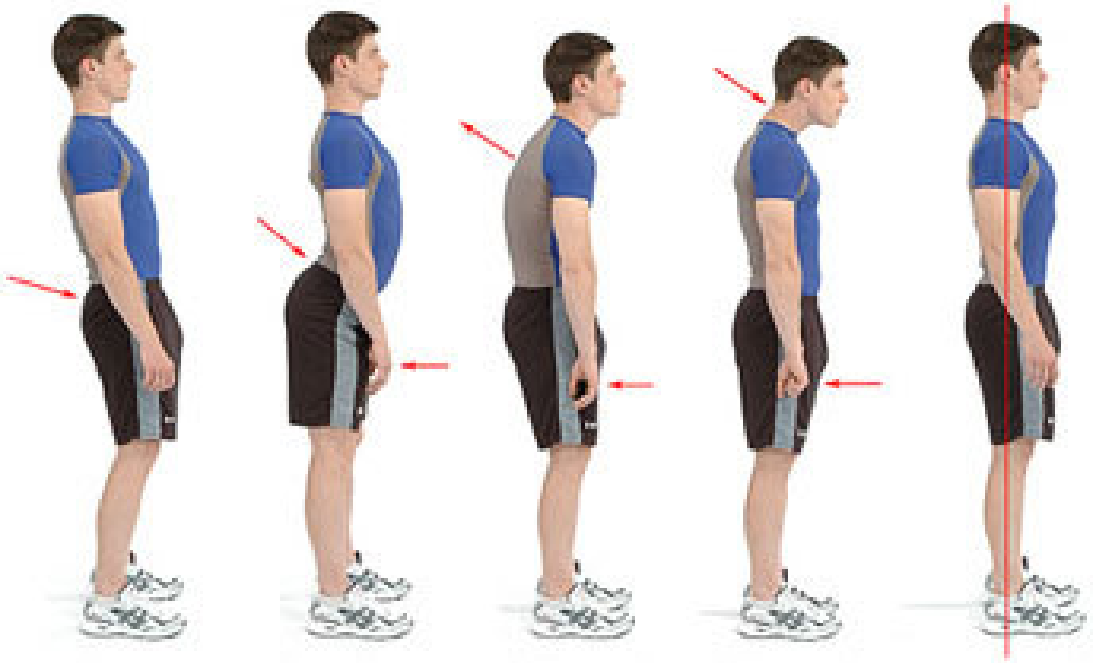
RESULTS: From a total of 32 relevant studies, 7 methodologically well-conducted studies were considered for this review. Pooled analysis revealed that multi-intervention training was effective in reducing the risk of lower limb injuries (RR = 0.61, 95% CI = 0.49-0.77, P < 0.01), acute knee injuries (RR = 0.46, 95% CI = 0.28-0.76, P < 0.01), and ankle sprain injuries (RR = 0.50, 95% CI = 0.31-0.79, P < 0.01). Balance training alone resulted in a significant risk reduction of ankle sprain injuries (RR = 0.64, 95% CI = 0.46-0.9, P < 0.01) and a nonsignificant risk reduction for injuries overall (RR = 0.49, 95% CI = 0.13-1.8, P = 0.28). Exercise interventions were more effective in athletes with a history of sports injury than in those without.

CONCLUSION: On the basis of the results of seven high-quality studies, this review showed evidence for the effectiveness of proprioceptive/neuromuscular training in reducing the incidence of certain types of sports injuries among adolescent and young adult athletes during pivoting sports. Future research should focus on the conduct of comparative trials to identify the most appropriate and effective training components for preventing injuries in specific sports and populations.

- **Una scorretta postura conduce ad un fisiologico dispendio energetico che implica clinicamente affaticamento muscolare**

- **Una difficoltà a mantenere un corretto equilibrio ed ad eseguire corretti movimenti favorisce l'insorgenza di patologie da sovraccarico dell'apparato locomotore**

(Fukuda T., *Statokinetic Reflexes in Equilibrium and Movement.* University of Tokio Press, 1981)



Eur Spine J. 2010 Aug 19. [Epub ahead of print]

Center of pressure excursion as a measure of balance performance in patients with non-specific low back pain compared to healthy controls: a systematic review of the literature.

Ruhe A, Fejer R, Walker B.

Praxis fuer Chiropraktik Wolfsburg, Porschestrasse 1, 38440, Wolfsburg, Germany, info@chiropraktik-wolfsburg.de.

Abstract

Over the past 20 years, the center of pressure (COP) has been commonly used as an index of postural stability in standing. While many studies investigated COP excursions in low back pain patients and healthy individuals, no comprehensive analysis of the reported differences in postural sway pattern exists. Six online databases were systematically searched followed by a manual search of the retrieved papers. The selection criteria comprised papers comparing COP measures derived from bipedal static task conditions on a force-plate of non-specific low back pain (NSLBP) sufferers to those of healthy controls. Sixteen papers met the inclusion criteria. Heterogeneity in study designs prevented pooling of the data so only a qualitative data analysis was conducted. The majority of the papers (14/16, 88%) concluded that NSLBP patients have increased COP mean velocity and overall excursion as compared to healthy individuals. This was statistically significant in the majority of studies (11/14, 79%). An increased sway in anteroposterior direction was also observed in NSLBP patients. Patients with NSLBP exhibit greater postural instability than healthy controls, signified by greater COP excursions and a higher mean velocity. While the decreased postural stability in NSLBP sufferers further appears to be associated with the presence of pain, it seems unrelated to the exact location and pain duration. No correlation between the pain intensity and the magnitude of COP excursions could be identified.

GRAZIE