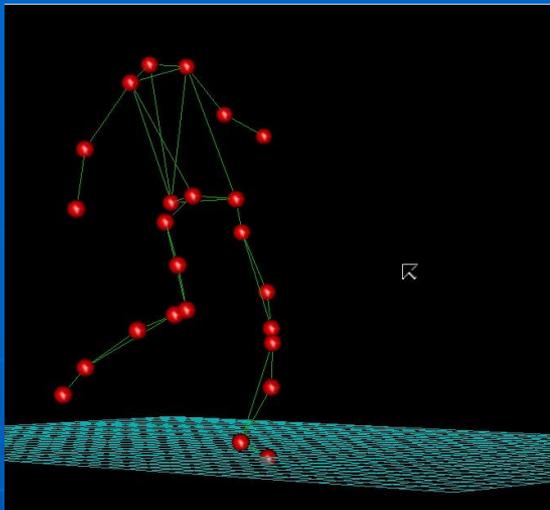




# Hellas Verona Lab

**Perchè proporre questo  
progetto ad una squadra  
di calcio di serie B?**



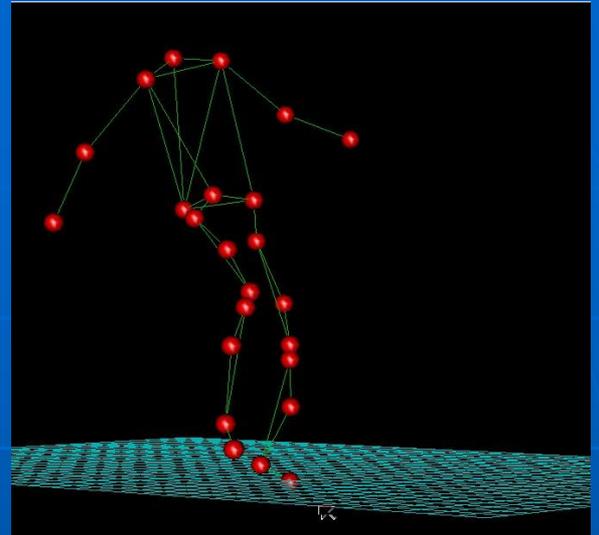
PARCO TERMALE  
DEL GARDA



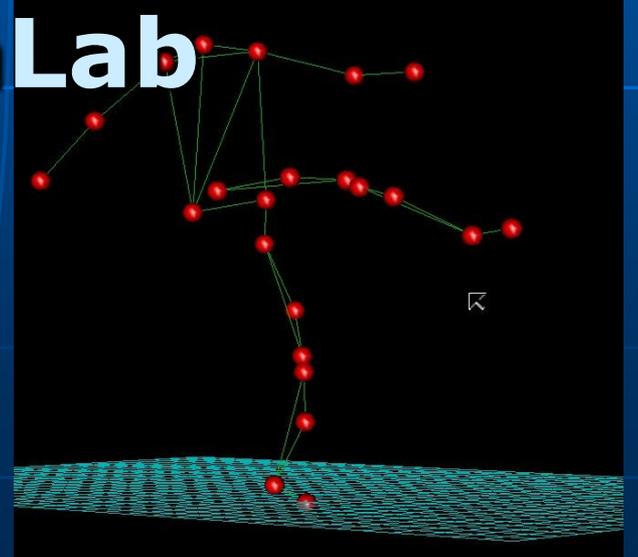
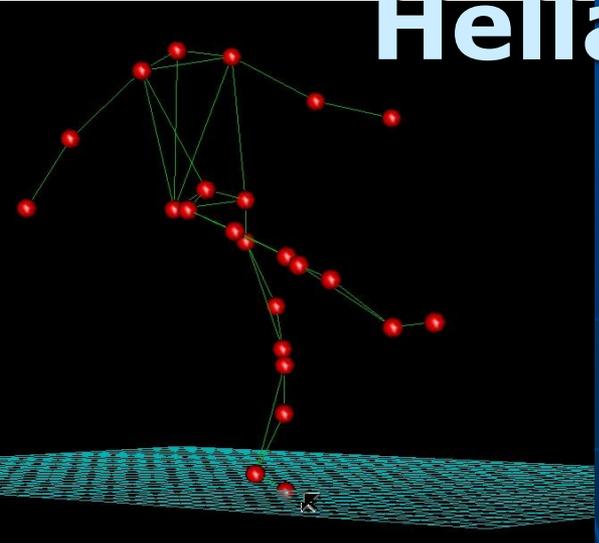
VILLA DEI CEDRI



[www.hellasverona.it](http://www.hellasverona.it)



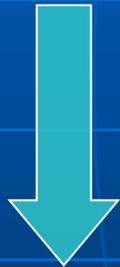
# HellasVeronaLab



# LA NOSTRA STRATEGIA

- **STABILOMETRIA, TEST ISOCINETICO, SQUAT JUMP** in laboratorio con Ingegnere biomeccanico

**VALUTAZIONI BIOMECCANICHE FUNZIONALI** (di ogni singolo atleta) con dott. Pasetto (fisioterapista, chinesologo, osteopata)



- **NORMALIZZAZIONI BIOMECCANICHE FUNZIONALI**
- **PREPARAZIONE ATLETICA MIRATA**

# **EVIDENZE SCIENTIFICHE SULL'EFFICACIA DEI PROGRAMMI PREVENTIVI**

**In letteratura scientifica vi è una netta concordanza su come le misure e strategie di prevenzione 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 stability) e propriocettiva;**
- Influenza delle superfici di gioco e delle scarpe;**
- Influenza delle condizioni climatiche (idratazione, termoregolazione, integrazione alimentare).**

**(Ekstrand 1983, Heidt 2000, Junge 2002, Tropp1985, Surve1994, Södermann2000, Caraffa1996, Hewett1999, Askling2003, Mandelbaum 2005, Arnason2007, Gilchrist2008, Soligard2008, Di Salvo2006)**

# EZIOLOGIA DELLE LESIONI MUSCOLARI

## fattori predisponenti

Letteratura scientifica concorde nell'indicare come potenziali fattori di rischio delle lesioni muscolari i seguenti motivi:

- Inadeguato riscaldamento;
- Scarsa mobilità articolare e flessibilità muscolare;
- Asimmetrie e squilibri muscolari tra estensori e flessori;
- Scarsa coordinazione inter e intra muscolare e squilibri posturali;
- Stile di vita non adeguato;
- Scorretta alimentazione;

Ecc..

(Ekstrand 1983, Heidt 2000, Junge 2002, Tropp1985, Surve1994, Södermann2000, Caraffa1996, Hewett1999, Askling2003, Mandelbaum 2005, Arnason2007, Gilchrist2008, Soligard2008)

## TEST ISOCINETICO

### ANALISI ED ELABORAZIONE DATI

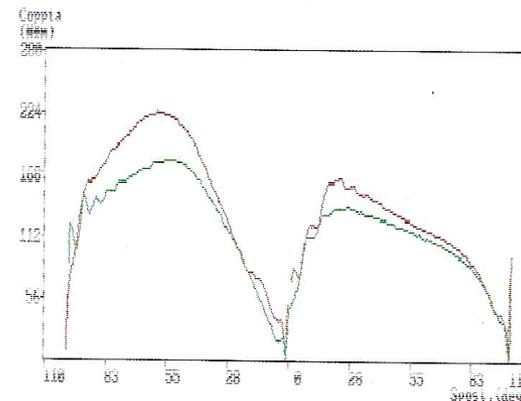
1. PICCO DEL MOMENTO DI FORZA (NEWTON mt)
2. LAVORO (JOULE)
3. POTENZA (WATT)
4. INDICE DI FATICA (solo test di resistenza)
5. MORFOLOGIA DELLA CURVA
6. DIFFERENZA MUSCOLARE DX Vs SX
7. RAPPORTO FLESSO ESTENSORI (omolaterale)

CENTRO SCIENZE MOTORIE BERNSTEIN  
L.ge Attiraglio n°34 cap 37124 - Verona  
tel. 045-8300454

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

|               |   |   |
|---------------|---|---|
| <b>Test 1</b> | Cognome : Adalton<br>Nome : Martin<br>Lato : dx | Tipologia : M<br>Articolazione : FE.ginoc.<br>Data esecuzione : 04/10/03 13:13:00 |
| <b>Test 2</b> | Cognome : Adalton<br>Nome : Martin<br>Lato : sx | Tipologia : F<br>Articolazione : FE.ginoc.<br>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    |      |

# TEST ISOCINETICI e PROGRAMMI DI RECUPERO al Centro Bernstein di Verona e al Parco Termale di Colà di Lazise (tutto l'anno)



U.S. National Library of Medicine  
National Institutes of Health

Display Settings: Abstract

Am J Sports Med. 2008 Aug;36(8):1469-75. Epub 2008 Apr 30.

## Strength imbalances and prevention of hamstring injury in professional soccer players: a prospective study.

Croisier JL, Ganteaume S, Binet J, Genty M, Ferret JM.

Department of Motricity Sciences and Rehabilitation, University and CHU of Liege, Liege, Belgium. jlcroisier@ulg.ac.be

### Abstract

**BACKGROUND:** The relationship between muscle injury and strength disorders remains a matter of controversy.

**PURPOSE:** Professional soccer players performed a preseason isokinetic testing aimed at determining whether (1) strength variables could be predictors of subsequent hamstring strain and (2) normalization of strength imbalances could reduce the incidence of hamstring injury.

**STUDY DESIGN:** Cohort study (prognosis); Level of evidence, 1.

**METHODS:** A standardized concentric and eccentric isokinetic assessment was used to identify soccer players with strength imbalances. Subjects were classified among 4 subsets according to the imbalance management content. Recording subsequent hamstring injuries allowed us to define injury frequencies and relative risks between groups.

**RESULTS:** Of 687 players isokinetically tested in preseason, a complete follow-up was obtained in 462 players, for whom 35 hamstring injuries were recorded. The rate of muscle injury was significantly increased in subjects with untreated strength imbalances in comparison with players showing no imbalance in preseason (relative risk = 4.66; 95% confidence interval: 2.01-10.8). The risk of injury remained significantly higher in players with strength imbalances who had subsequent compensating training but no final isokinetic control test than in players without imbalances (relative risk = 2.89; 95% confidence interval: 1.00-8.32). Conversely, normalizing the isokinetic parameters reduced the risk factor for injury to that observed in players without imbalances (relative risk = 1.43; 95% confidence interval: 0.44-4.71).

**CONCLUSION:** The outcomes showed that isokinetic intervention gives rise to the preseason detection of strength imbalances, a factor that increases the risk of hamstring injury. Restoring a normal strength profile decreases the muscle injury incidence.

PMID: 18448578 [PubMed - indexed for MEDLINE]

MeSH Terms

LinkOut - more resources

PubMed

U.S. National Library of Medicine  
National Institutes of Health

## TEST ISOCINETICO

Display Settings: Abstract

[Scand J Med Sci Sports. 2009 Apr;19\(2\):243-51. Epub 2008 Mar 31.](#)**Muscular strength, functional performances and injury risk in professional and junior elite soccer players.**

Lehance C, Binet J, Bury T, Croisier JL.

Department of Sports Physiology, University of Liege, Liege, Belgium. clehance@ulg.ac.be

**Abstract**

Muscle strength and anaerobic power of the lower extremities are neuromuscular variables that influence performance in many sports activities, including soccer. Despite frequent contradictions in the literature, it may be assumed that muscle strength and balance play a key role in targeted acute muscle injuries. The purpose of the present study was to provide and compare pre-season muscular strength and power profiles in professional and junior elite soccer players throughout the developmental years of 15-21. One original aspect of our study was that isokinetic data were considered alongside the past history of injury in these players. Fifty-seven elite and junior elite male soccer players were assigned to three groups: PRO, n=19; U-21, n=20 and U-17, n=18. Players benefited from knee flexor and extensor isokinetic testing consisting of concentric and eccentric exercises. A context of lingering muscle disorder was defined using statistically selected cut-offs. Functional performance was evaluated throughout a squat jump and 10 m sprint. The PRO group ran faster and jumped higher than the U-17 group ( $P<0.05$ ). No significant difference in isokinetic muscle strength performance was observed between the three groups when considering normalized body mass parameters. Individual isokinetic profiles enabled the identification of 32/57 (56%) subjects presenting lower limb muscular imbalance. Thirty-six out of 57 players were identified as having sustained a previous major lower limb injury. Of these 36 players, 23 still showed significant muscular imbalance (64%). New trends in rational training could focus more on the risk of imbalance and implement antagonist strengthening aimed at injury prevention. Such an intervention would benefit not only athletes recovering from injury, but also uninjured players. An interdisciplinary approach involving trainers, a physical coach, and medical staff would be of interest to consider in implementing a prevention programme.

PMID: 18384493 [PubMed - indexed for MEDLINE]

Publication Types, MeSH Terms

LinkOut - more resources

## STABILOMETRIA

### *definizione*

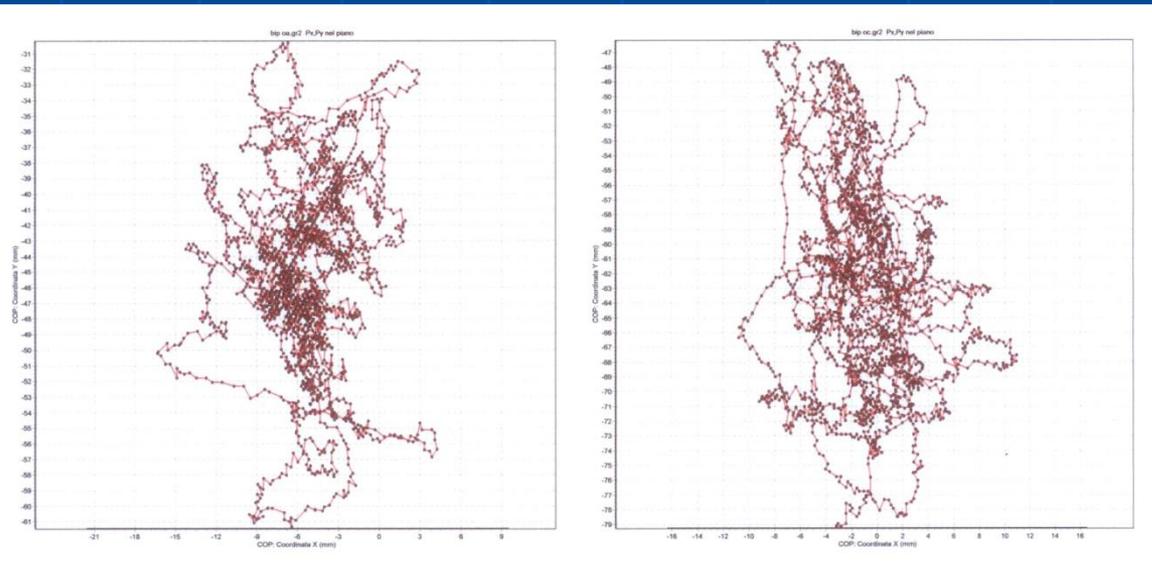
**La stabilometria valuta le capacità di controllo posturale di un soggetto immobile in stazione retta, attraverso la quantificazione delle oscillazioni posturali e del contributo relativo apportato dalle varie componenti del sistema posturale (visiva, propriocettiva e labirintica)**

*(G. Guidetti, Stabilometria clinica)*

## TEST STABILOMETRICO

*Valuta:*

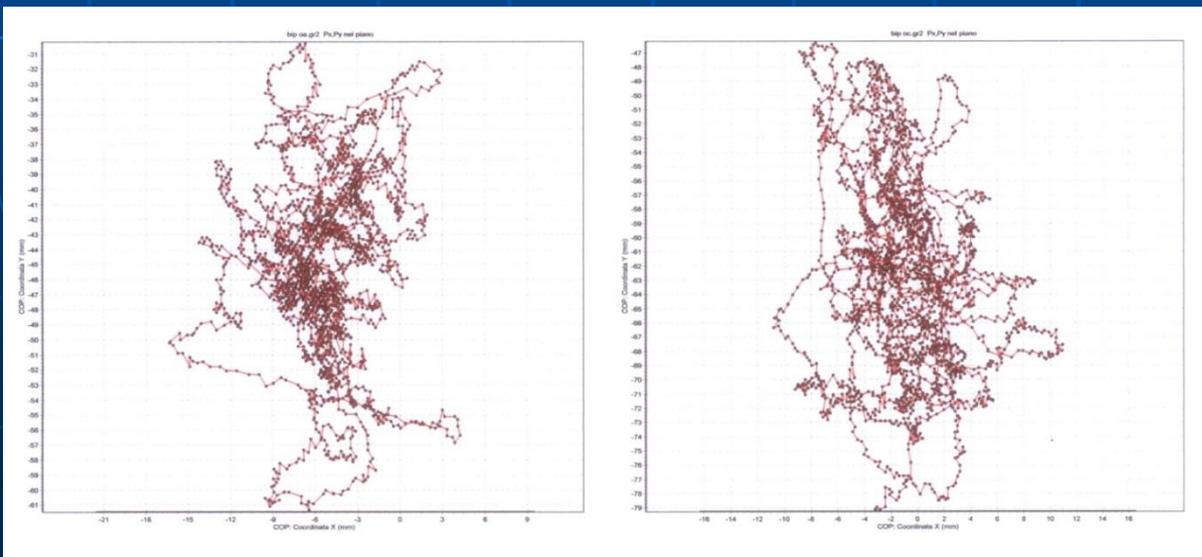
- coordinate del centro di pressione sull'asse frontale e longitudinale;
- la superficie dell'ellisse (area del gomitolo) espressa in  $\text{mm}^2$ ;
- la lunghezza delle oscillazioni (lunghezza del gomitolo);



## 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).



# PubMed

U.S. National Library of Medicine  
National Institutes of Health

Display Settings: Abstract

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.

Department of Sports Medicine, Goethe-University Frankfurt, Frankfurt, Germany. m.huebscher@sport.uni-frankfurt.de

### 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.

## PubMed

U.S. National Library of Medicine  
National Institutes of Health

Full Text  
Online

Display Settings: Abstract

Scand J Med Sci Sports. 2006 Oct;16(5):345-8.

### **Effect of expertise and visual contribution on postural control in soccer.**

Paillard T, Noé F.

Laboratoire d'Analyse de la Performance Sportive, Département STAPS, Université de Pau et des Pays de l'adour, Tarbes, France. thierry.paillard@univ-pau.fr

#### **Abstract**

This work analyzes the postural performance and the use of visual information in soccer players according to their level of competition. Two groups of healthy soccer players were investigated at the mid-competition season: an amateur (AM) (n=15) group composed of regional-level players and a professional group at a national level (PRO) (n=15). Posture was assessed by measuring the center of foot pressure (COP) with a force platform during a test (51.2 s) of bipedal quiet standing posture. The test was completed with eyes open (the subjects looked at a fixed-level target at a distance of 2 m) and closed (they kept their gaze in a straight-ahead direction). The statistical analysis showed that PRO soccer players were more stable than AM soccer players. Moreover, the contribution of vision in postural maintenance was less important in the PRO players than in the AM players. The present study suggests that intense training allows PRO soccer players to become less dependent on vision to control their posture such that vision can be dedicated to treating the information, that emanates from the game.

- 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.

## DMSO TECHNIQUE - NORMALIZZAZIONI BIOMECCANICHE



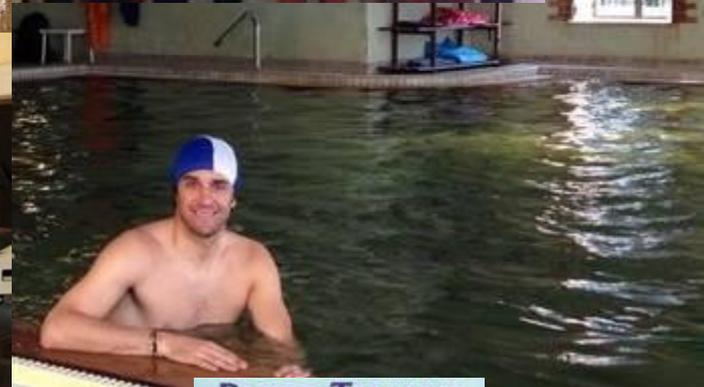
# IL TRATTAMENTO DELLA SINDROME MIOFASCIALE CON LE ONDE D'URTO



Giorgio Pasetto  
DSM, OST, FT



# PARCO TERMAL DEL GARDA VILLA DEI CERDI



Francesco Griqolini - Fotoexpress



# PROTOCOLLO DEFATICANTE IN ACQUA TERMMALE



# PROTOCOLLO DEFATICANTE + PALESTRA + CRIOTERAPIA a Villa dei Cedri (tutto l'anno)



# SITUAZIONE ATTUALE



# 13 ettari di Parco



Image © 2014 DigitalGlobe

Google earth

# Con possibilità di avere una area riservata con 22 camere da due atleti ciascuna, ristorante dedicato con sale relax

## Dotazione impiantistica sportiva

- Campo da calcio a 11 erba
- Campo da calcio a 7 erba naturale
- Campo da a 5 erba naturale
- n.4 spogliatoi
- Percorso running nel parco
- Piscine
- Palestra
- Crioterapia e centro benessere
- Onde d'urto Tecarterapia, Laserterapia e ipertermia



