Università degli Studi di Perugia
Facoltà di Medicina
Corso di Laurea Magistrale in Scienze e Tecniche dello Sport
e delle attività motorie preventive e adattate

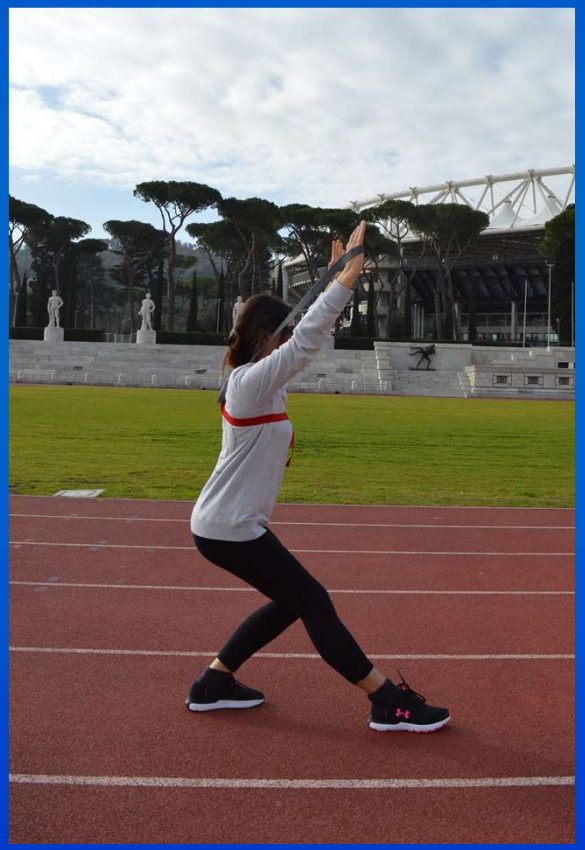
Straight Stability System and aeLASTIC Method® improvement of sport technique and getting easier the riabilitation

Kinesiologist Silvia Porzi

The introduction of Straight Stability System

Straight Stability System is a Kinesiological Technique that promote active motion and is control

Modern studies call attention to the functional movement and training to improve technical and sporting quality and to avoid injuries



The podalic support in equilibrium

After extensive research and study, I focused attention to the foot

- the dynamic action and how this movement influences the body attitude

- a flowing , dynamic, rhythmic and coordinated movement comes from corret foot-action

Measurement mode

On this basis in 2015, in collaboration with the University of Perugia, we performed an instrumental valuation of postural control with and without Straight Stability System

- The methodology is one studied by Gigliotti, Coscia and Porzi in 2014 for a valuation of muscle activity in a static position.

A valuation with Spinal Mouse ® has been made

- on the sagittal plane in a standing and bent position
- with Mathias Test

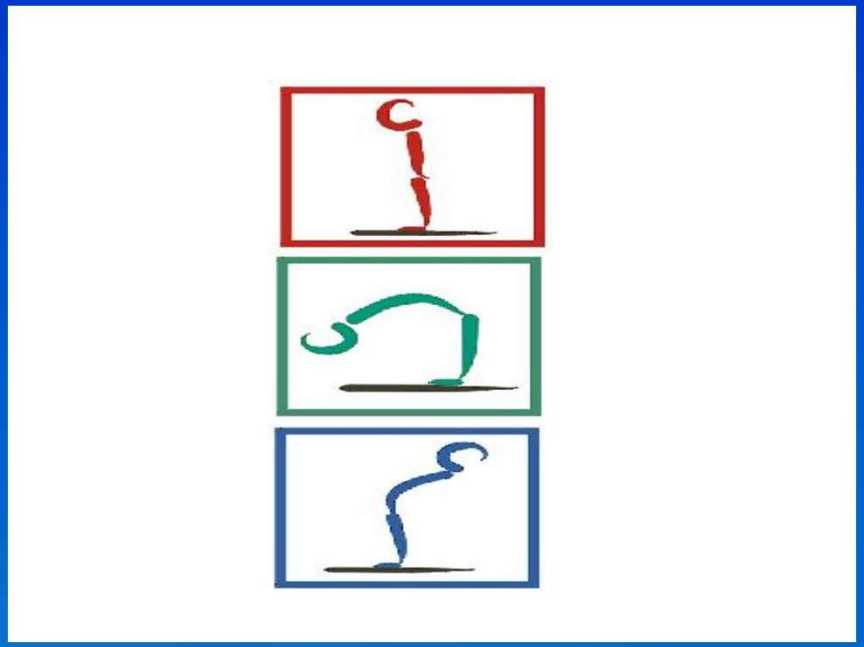
Experience

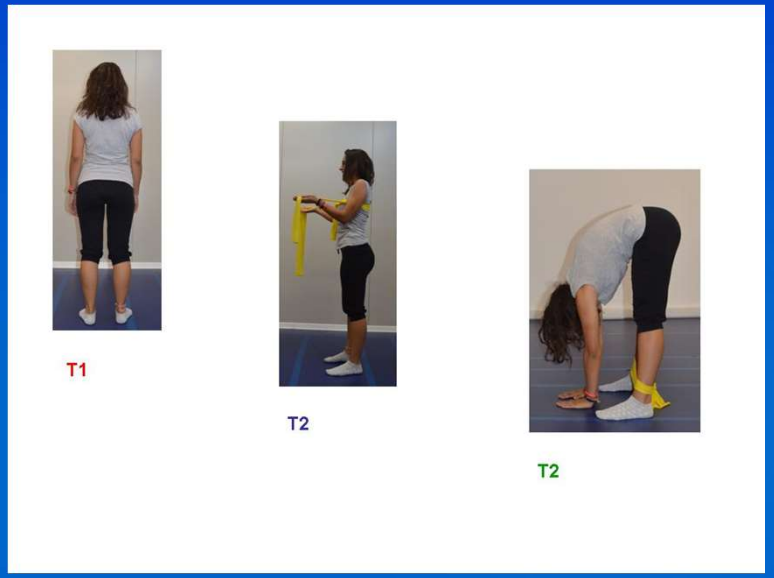
During the performance of every exercise, with and without elastic bands a highly specialised software procedure uses this information to calculate clinical parameters

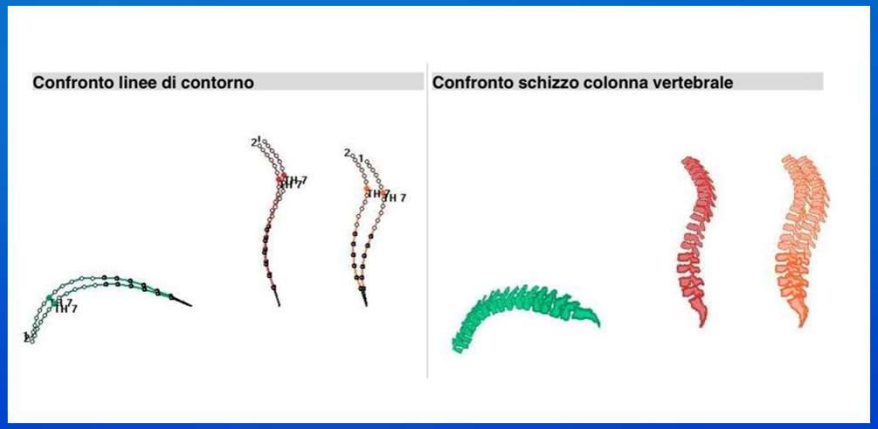
Valutazione strumentale
Straight Stability System
20 Maggio 2015

Prof. Francesco Coscia

Spinal Mouse



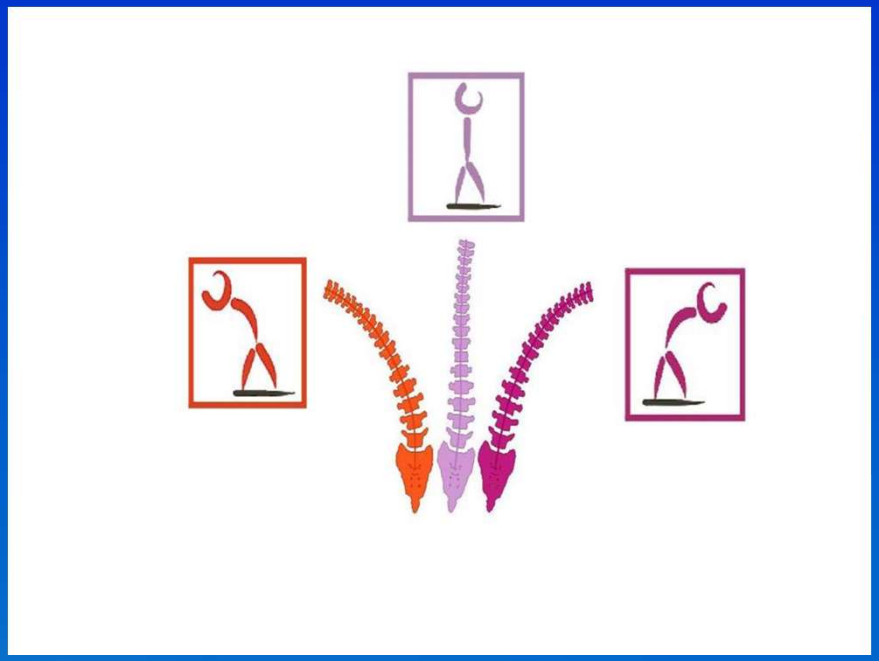


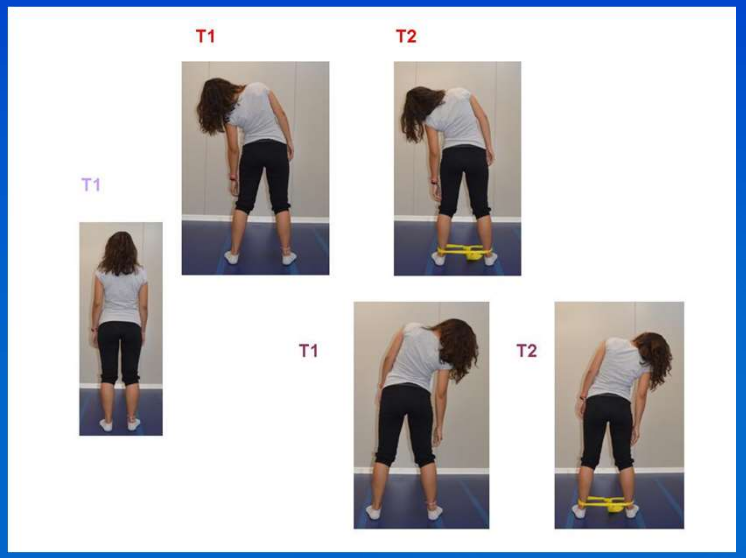


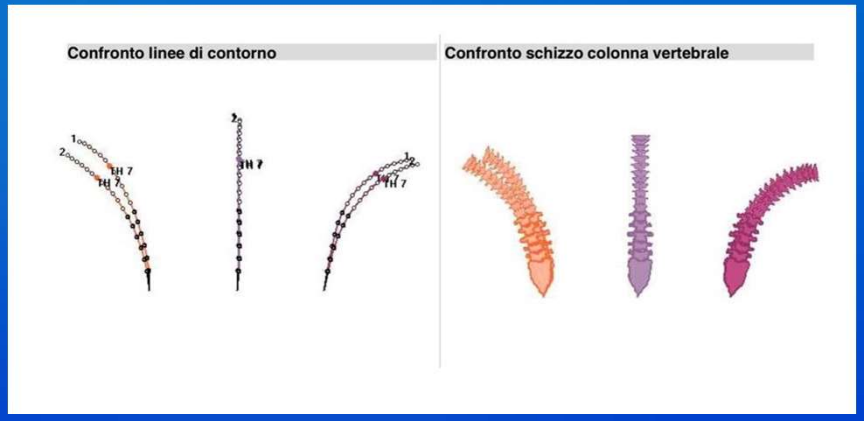
The difference between spinal column before and after aeLASTIC application

In the second measurement is noted an improvemenet

flexure extension abdominal strength







The difference between spinal column before and after aeLASTIC application

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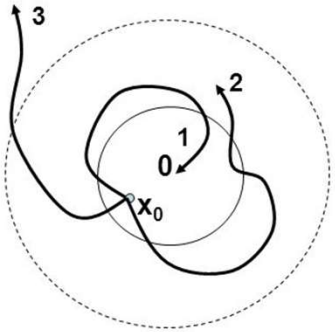
left lateral flexion extension right lateral flexion

The direct metod of Lyapunov Stability

The purpose of this study motion, is to create, in every exercise, a state of perturbation that will lead the person to produce an active work on his balance



Curve 1: asymptotically stable

Curve 2: marginally stable

Curve 3: unstable

Figure 1. Concepts of stability.

POSITIVE DEFINITE FUNCTIONS: The core of the Lyapunov stability theory is the analysis and construction of a class of functions to be defined and its derivative along the trajectories of the system under study. We start with the positive definite functions. In the following definition, D represents an open and connected subset of $\mathbf{R}^n$.

Definition: A function V:D→ **R** is said to be positive semi definite in D if it satisfies the following conditions:

The figure graphically represents the Lyapunov function which explains the stability trend based on the input perturbation

1 regular - Asymtotically stable

2 strong - Marginally Stable

3 too strong - Unstable

At the end of our research,

Straight Stability System has pointed out that

- In every application point of the band we produced a “strong” work that is useful for a particular muscle range.

The aeLASTIC Method

aeLASTIC Method®

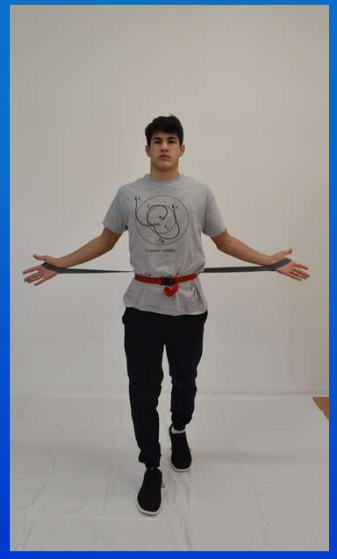
starts with a tool

placed like a ring around the ankles:

from this, I suggest a sequence of exercise to increase awareness about the foot support.

The next position of the aeLASTIC tool are:

On the calf, at the knee level



Around the waistline,
at the pelvis level

Over the chest, under the armpits, at the thorax level

aeLASTIC supports the person, during the whole work:

- it is an help to a proper performance.
- it generates a memory of movement.

Warm up with aeLASTIC tool

Every exercise can be proposed

- both individually,

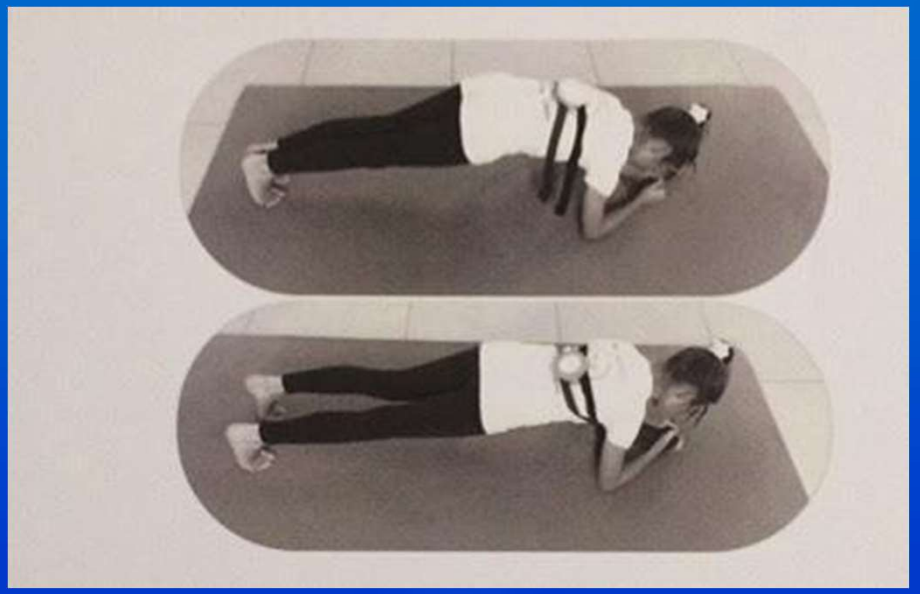
- in a group,

the elastic band support the teacher, and it leads the pupils to a self-correction

Starting for a corrent

foot-support (aeLASTIC®) we obtain a funcional training, which reflects the standards of:

- work on kinetic, muscle chains
- a request of control
- central activity (CORE)
- creating movements which are similar to real mouvements



aeLASTIC applications

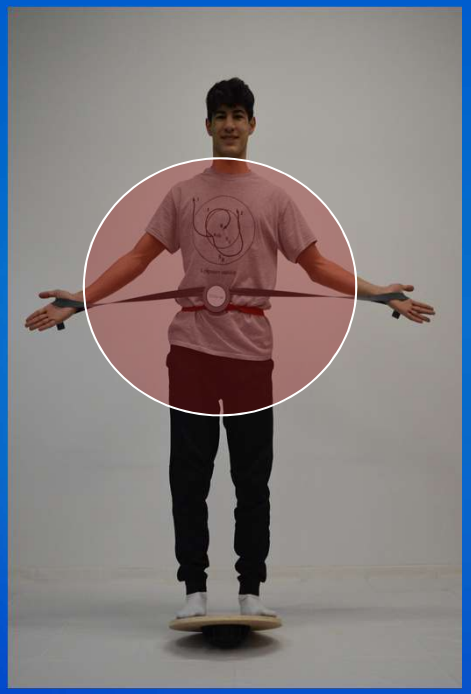
- Corrective
- Antalgic

The two application method despite having some exercises in common, differ in the number of repeats and in the performance time

Corrective application in sportsman who have to refine athletic motions. It makes sure to eliminate associated, anti-economic mouvements that penalize a performance

aeLASTIC getting easier the riabilitation

Funcional recovery after shoulder injury



With aeLASTIC®

We can propose global exercises to verify the shoulder ability in a global work

Thanks for your attenction