



Physical Therapy in Hereditary Spastic Paraplegia

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¿What is Neurological Physiotherapy?

The part of Physiotherapy focused on people with neurological conditions, from newborn to elder patients.

* **Types of treatment:**

* Bobath Concept

* Perfetti Method

* Vojta Therapy



Hereditary Spastic Paraplegia

- * **3 Main problems:**
- * Paresis
- * Spasticity
- * Superficial and deep sensibility



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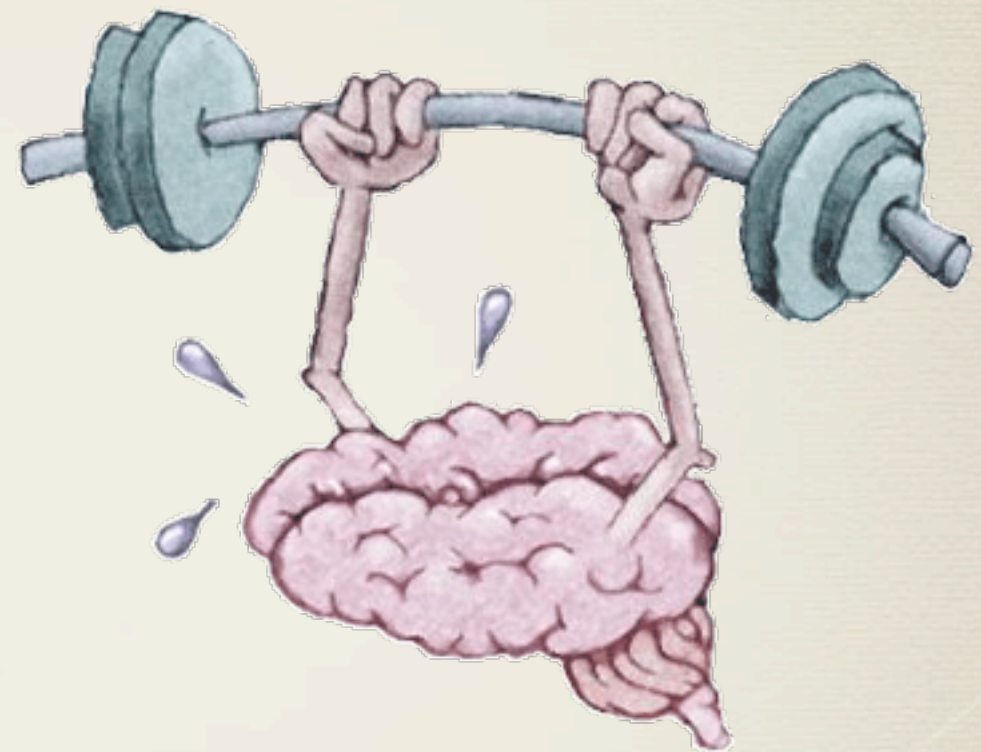
Bobath Concept

- * Karel Bobath. Born 14-03-1906, Berlin. Medical Doctor: Neurology and psychiatry.
- * Berta Bobath. Born 5-12-1907, Berlin. Physiotherapist.
- * Reserved in a first time for Children Palsy, later began adult application.
- * First-based: Neuroscience knowledge of that time.
- * Aim: to get the normal movement.



Bobath Concept

- * Concept: change, adapted to the knowledge of neurophysiology.
- * Years ago CNS was considered as a static structure. Now: neuroplasticity.
- * Bobath proposed that working for normal movement patterns would lead to function



Bobath Concept

- * **What is a normal movement?**
- * Depends on: age, gender, height, weight...
- * Points in common: objective to move, economical, adapted, voluntary, automated and automatic.



Bobath Concept

- * **Balance works:**
- * Balance reactions: small adjustments
- * Straightening reactions
- * Support reactions: protective reactions



Bobath Concept



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Bobath Concept

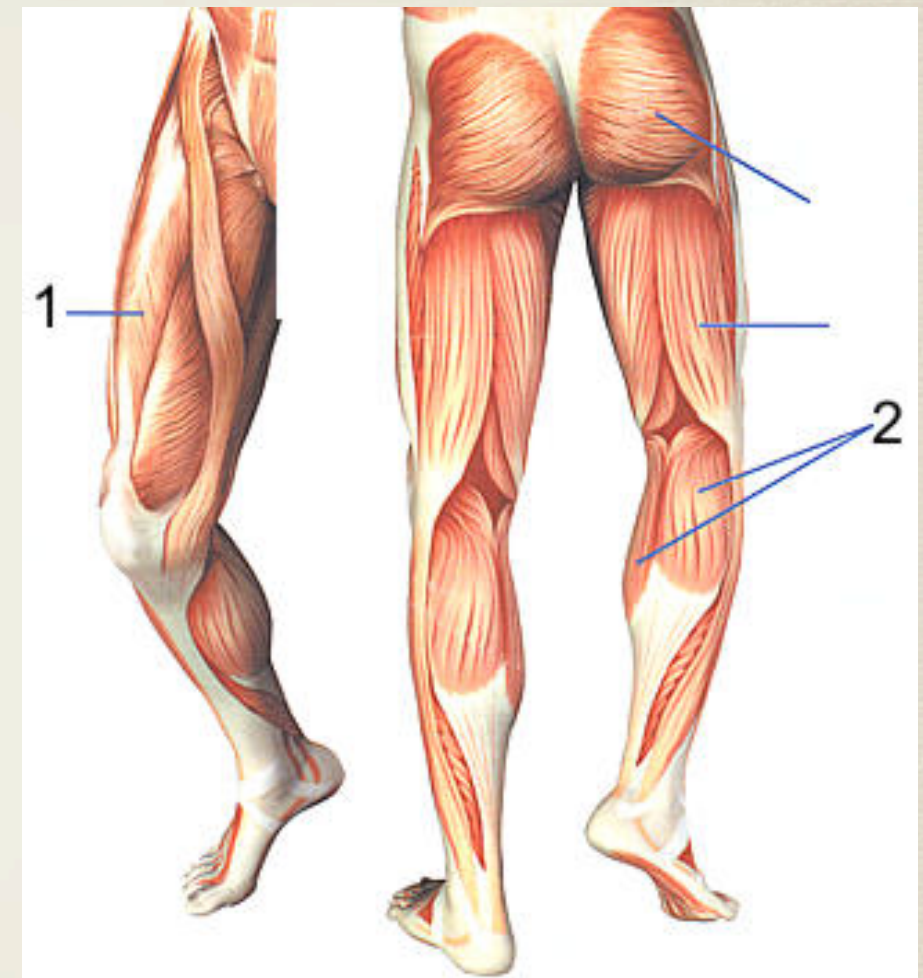


- * **Balance works:**
- * Balance reactions: small adjustments
- * **Straighting reactions**
- * **Support reactions:
protective reactions**



Bobath Concept

- * Physical exam:
- * Spasticity and paresis: posterior tibialis, triceps suralis, hamstrings, abductors.
- * Denervation: tibialis anterior, extensor digitorum, peroneus.
- * Deep and superficial sensibility alteration.



Bobath Concept



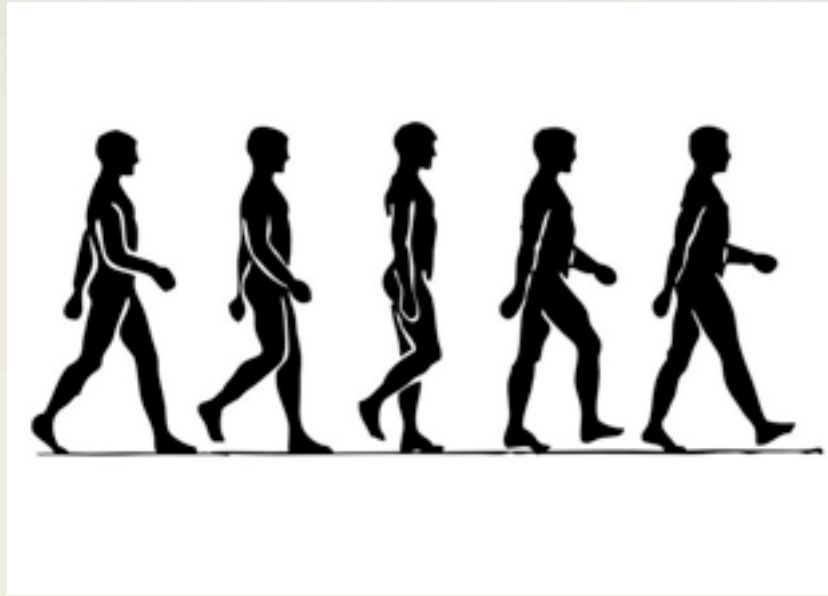
- * **Example:**

- * Low muscular tone: practice in decubitus.

- * Improve sensibility: use a brush (tooth brush or other) to increase sensibility.



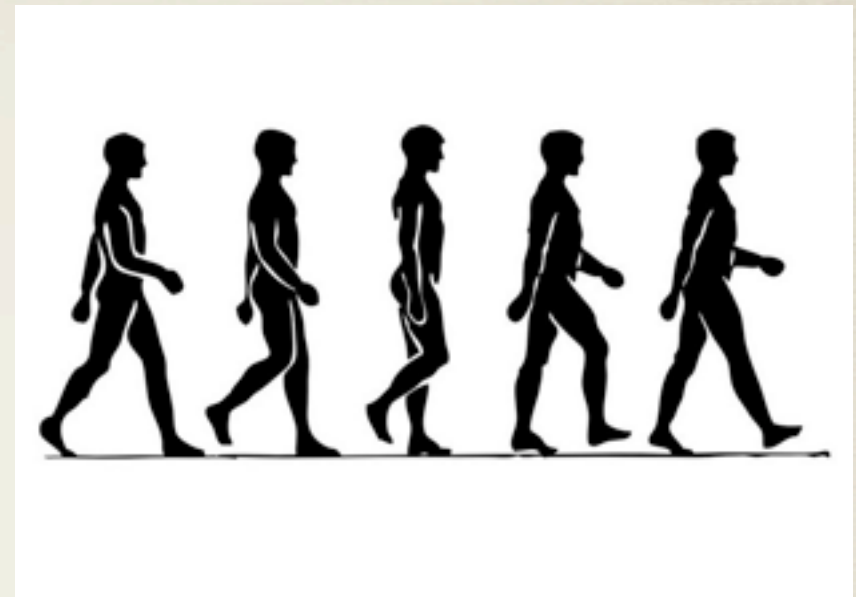
Bobath Concept



- * Improve gait
- * How to stand up and sit down from a chair
- * How to stand up from the floor when we loose balance and fall
- * Etc.



Bobath Concept



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- * How to stand up and sit down from a chair
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- * Etc.



Perfetti Method

Therapeutic-cognitive Rehabilitation

- * Development in Italy by Carlo Perfetti and Co. 1970
- * Neurologist and rehabilitador medical doctor.
- * Therapeutic cognoscitive exercise: recuperate the loss or alteration of movement because a injure or a condition.
- * Based in the neurocognitive theory of Carlo Perfetti: neurophysiology, cognitive psychology, and clinical neuropsychology.
- * Cognitive functions: perception, atención, memory, language... Important for the ability of the movement that we have.



Perfetti Method

Therapeutic-cognitive Rehabilitation

- * The movement is much more as a simple muscular contraction.
- * Complex activation starts in brain
- * Cognitive process.



Perfetti Method

Therapeutic-cognitive Rehabilitation

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Perfetti Method

Therapeutic-cognitive Rehabilitation

*Eyes closed

*more attention



Perfetti Method

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Perfetti Method

Therapeutic-cognitive Rehabilitation

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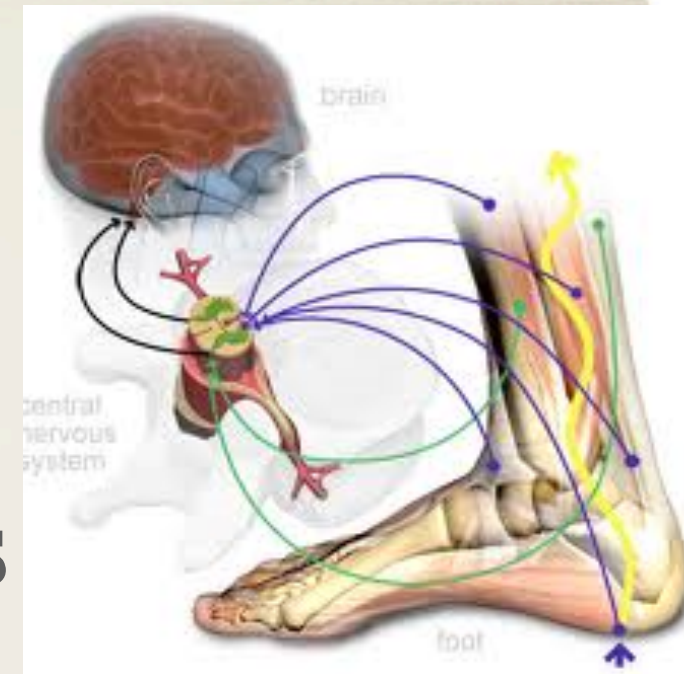
*more attention



Perfetti Method

Therapeutic-cognitive Rehabilitation

- *Basis of Neurocognitive Rehab:
- *Body surface as receptor of impulses
- *Movement as knowledge
- *Recovery as learning (Neuroplasticity)



Perfetti Method

Therapeutic-cognitive Rehabilitation

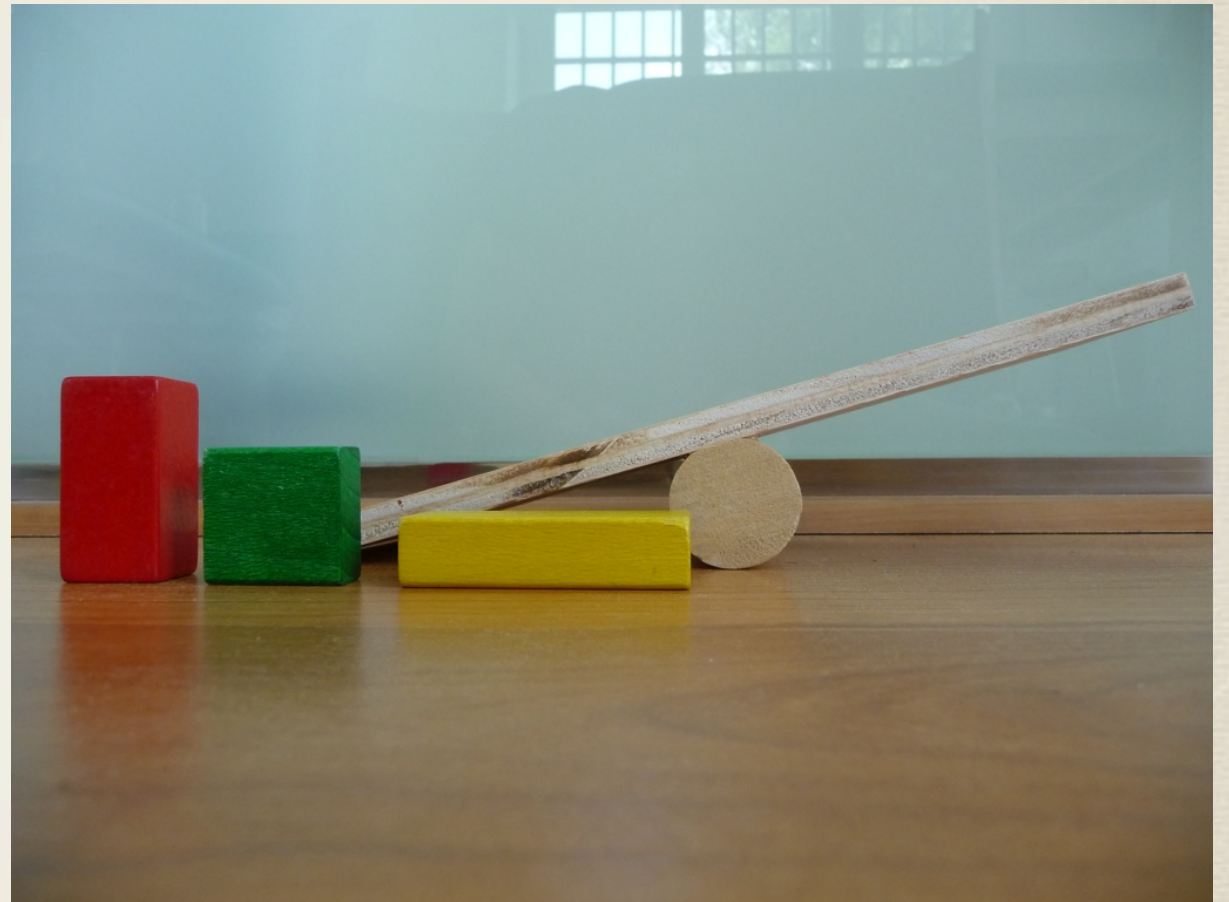
- * Programming exercise: analysis and interpretation of pathology as well as influence on this exercise.



Perfetti Method

Therapeutic-cognitive Rehabilitation

- * Example:
- * Exercise with rocker table:
perception of
different elevations.

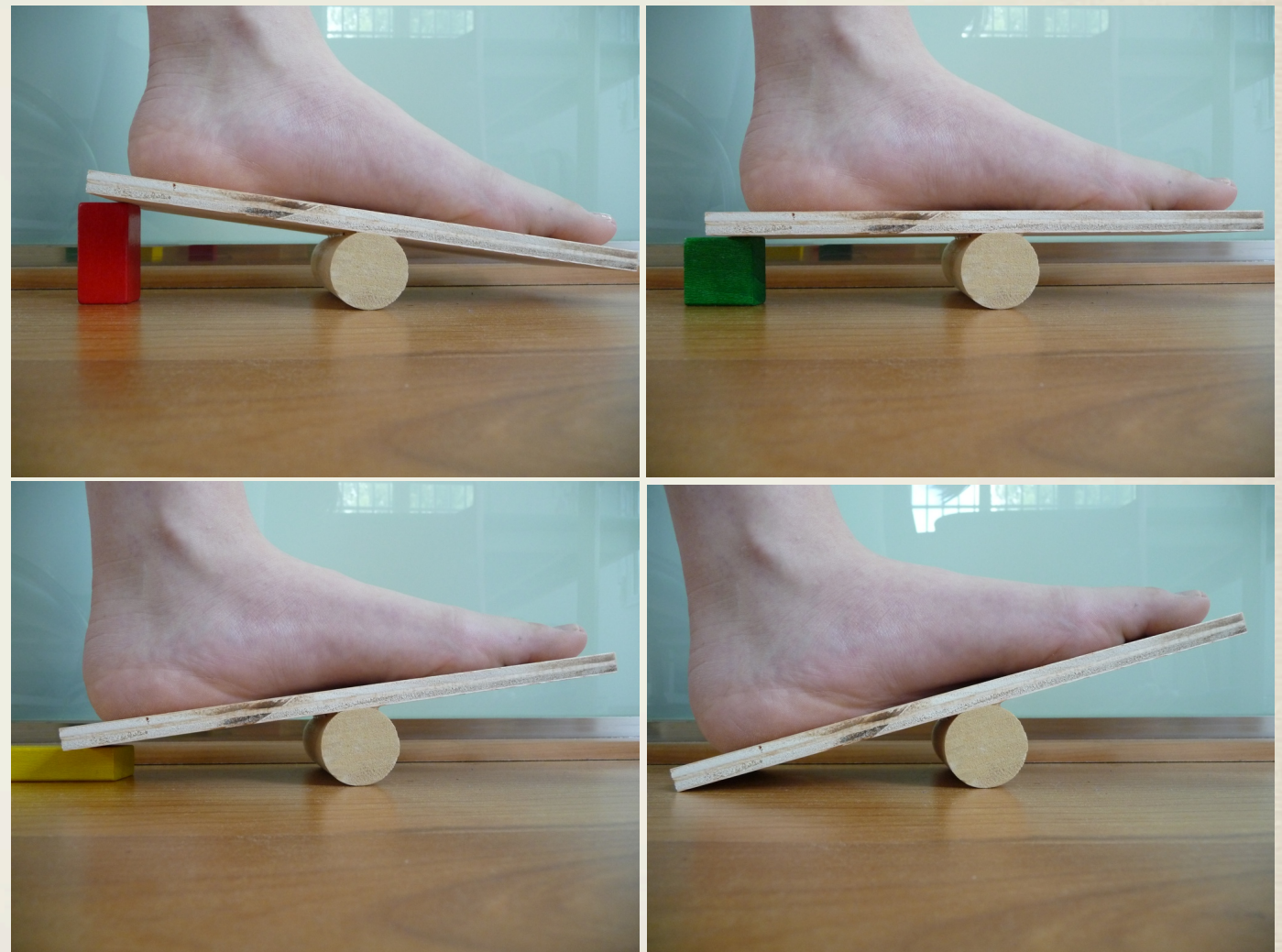


Perfetti Method

Therapeutic-cognitive Rehabilitation

*Proprioception

*Problem:
difference
elevation.



Perfetti Method

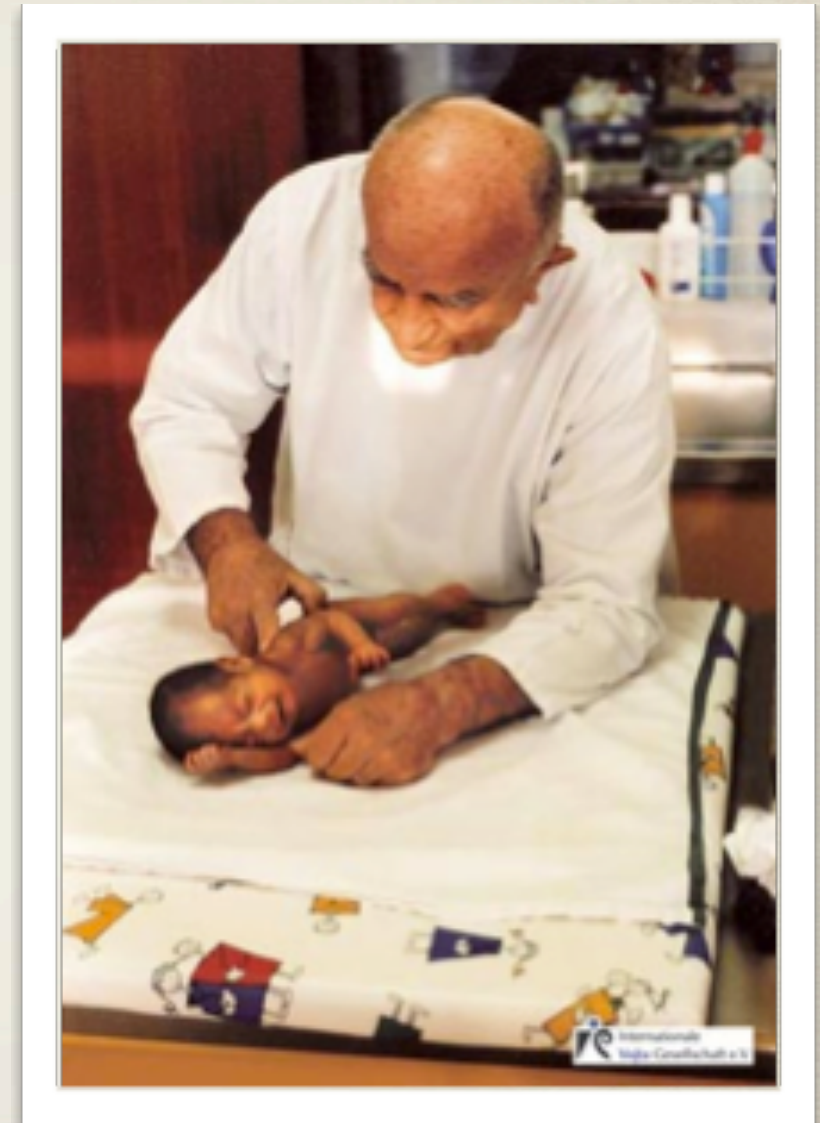
Therapeutic-cognitive Rehabilitation

- * Superficial sensibility
- * Problem: different textures



Vojta Therapy

- * Created by Vaclav Vojta. neurologist (1917-2000)
- * Cerebral palsy
- * Possible to modify central nervous system through postures and movement



Vojta Therapy

- * Stimulating by pressing specific points and
- * Placing the patient in specific postures
- * Activate muscular chains
- * Reflex movement of the patient. It,s not a voluntary movement



Vojta Therapy

* **Reflex Movements:**

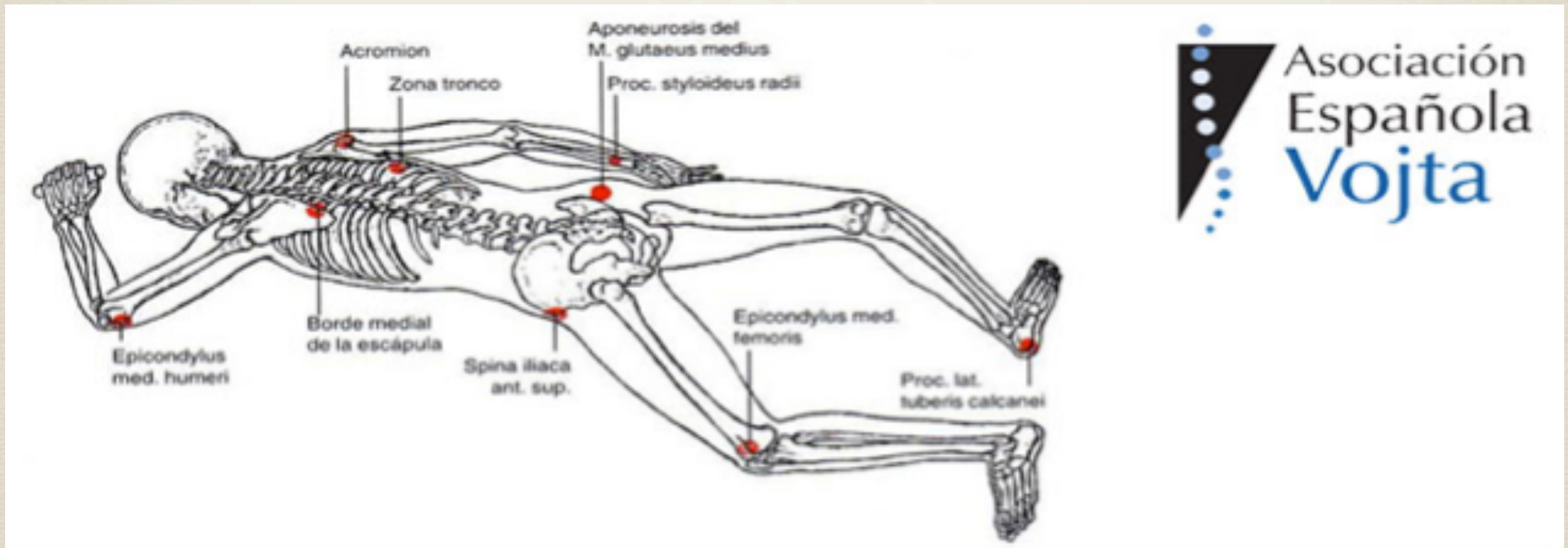
* Reflex crawling

* Reflex rolling



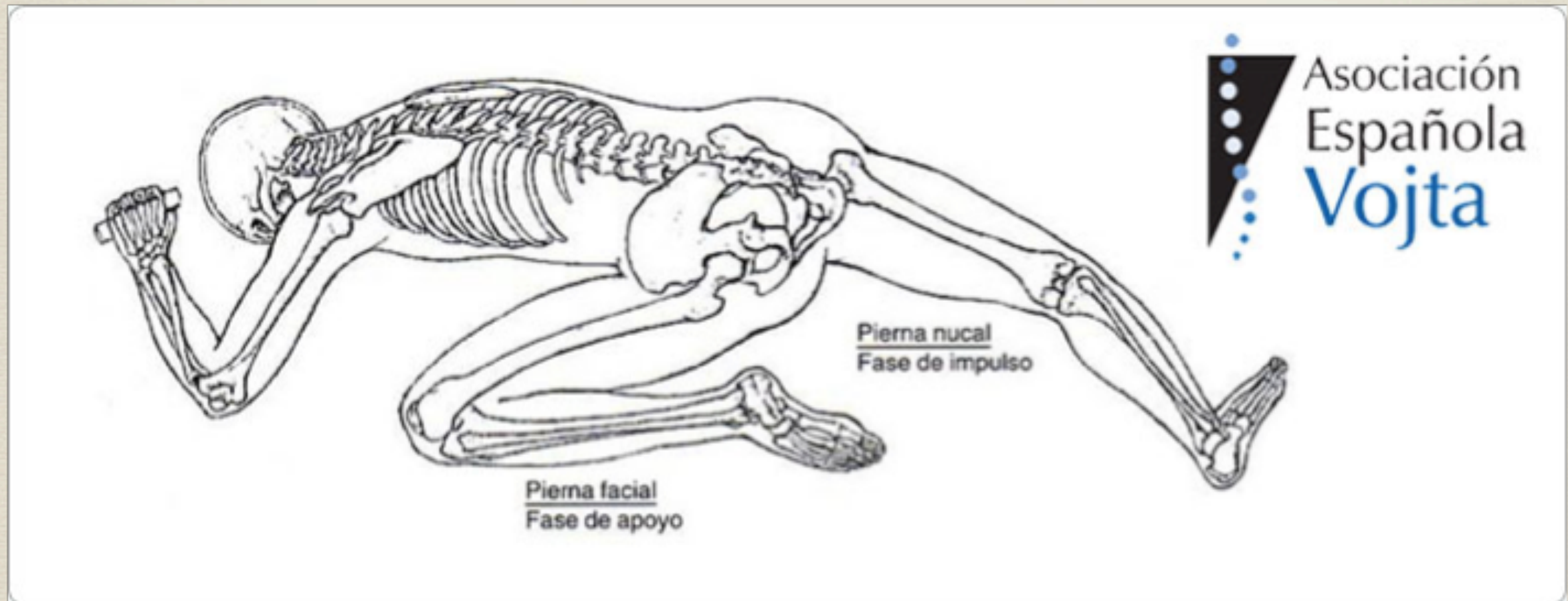
Vojta Therapy

* Reflex crawling



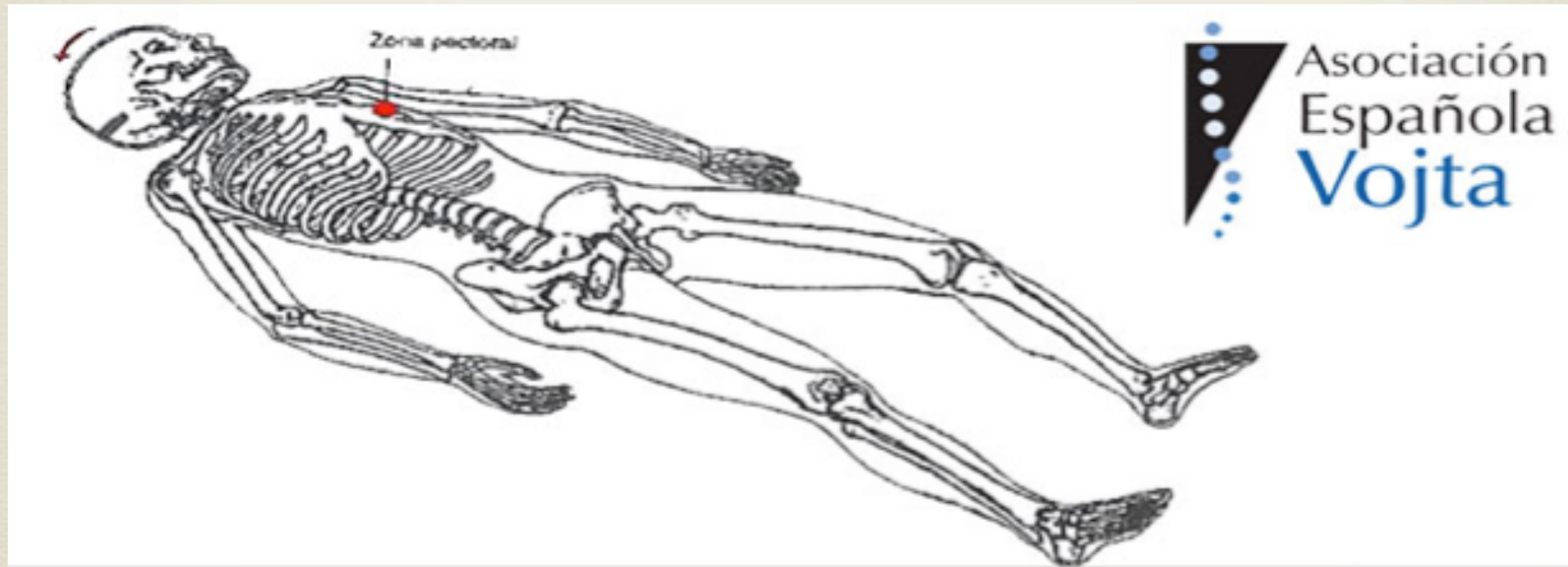
Vojta Therapy

* Reflex crawling



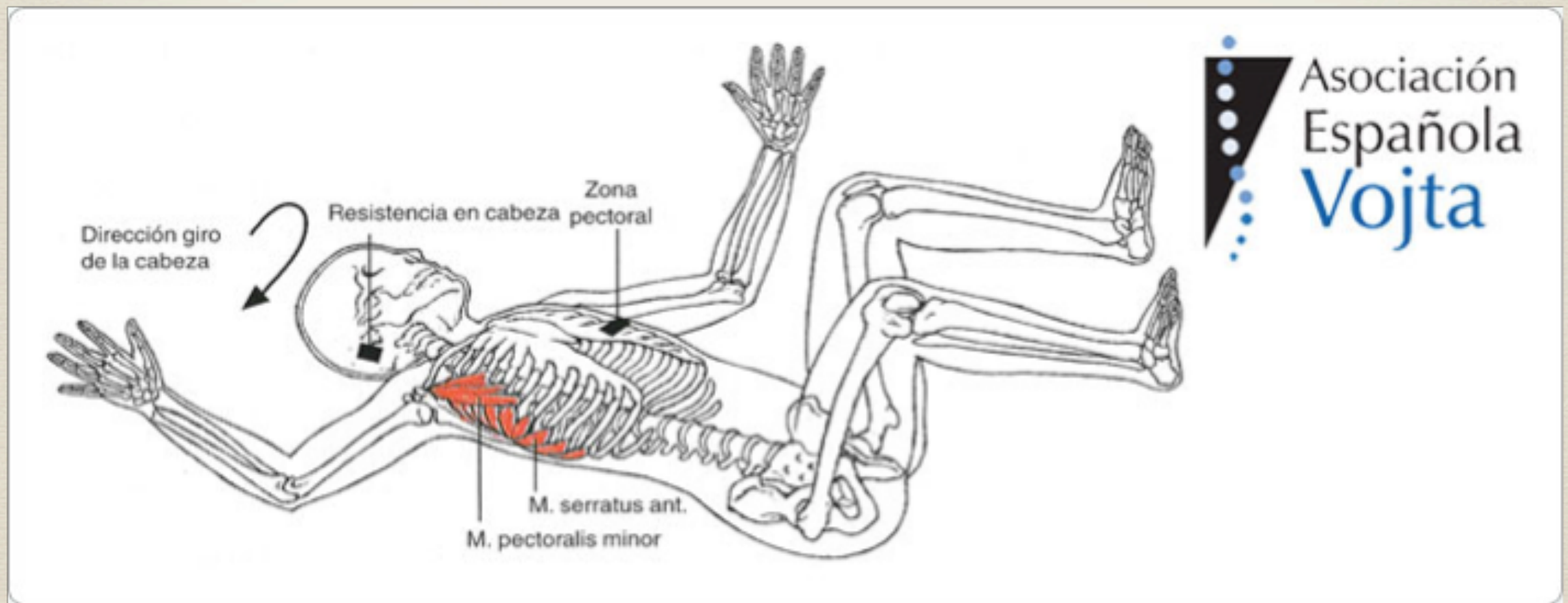
Vojta Therapy

* Reflex rolling (1st part)



Vojta Therapy

* Reflex rolling (1st part)



Other Therapies

* **Hidrotherapy (Beware of temperature)**

* Practice gait exercises.

* Practice one foot stand exercise and other balance exercises



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