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
Bobath Concept


*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

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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 lose balance and fall
- Etc.
Bobath Concept

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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 injury 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

- The movement is much more as a simple muscular contraction.
- Complex activation starts in brain
- Cognitive process.
Perfetti Method
Therapeutic-cognitive Rehabilitation

* Eyes closed

* More attention
Perfetti Method
Therapeutic-cognitive Rehabilitation

★ Eyes closed
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* Eyes closed
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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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