


سوره حمد



# نقش کاردرمانی در تکامل کودکان (کاردرمانی جسمی)

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# Child development

- In general, the five stages of early childhood development are as follows:
- Newborn.
- Infant.
- Toddler.
- Preschooler.
- School-age child.

# Ages & Stages Questionnaires:ASQ

حیطه برقراری ارتباط

حیطه حرکات درشت

حیطه حرکات ظریف

حیطه حل مسئله

# Cerebral palsy

- **Introduction:**
- (CP) is **a group of disorders that affect a person's ability to move and maintain balance and posture**. CP is the most common motor disability in childhood. Cerebral means having to do with the brain. Palsy means weakness or problems with using the muscles.
- The term *cerebral palsy* (CP) is an umbrella term for a group of permanent disorders of the development of movement and posture that cause activity limitations attributed to nonprogressive disturbances in the developing fetal or immature infant brain.
- The motor disorders of cerebral palsy are often accompanied by disturbances of sensation, perception, cognition, communication, and behavior, caused by epilepsy and by secondary musculoskeletal problems



- CP can result from the interaction of multiple factors, and in many cases, a single cause cannot be identified (Bax et al., 2005). Prenatal maternal infection, premature birth, low birth weight, and multiple pregnancies have been associated with cerebral palsy.
- stress, malnutrition, exposure to damaging drugs, and pregnancy-induced hypertension. Some gestational conditions of the mother, such as diabetes, may cause perinatal risks to the developing infant; prematurity and low birth weight significantly increase an infant's chance of acquiring a cerebral palsy diagnosis

# Impairments

- Abnormal muscle tone affects posture, postural control and movement, and hand and upper extremity function. Secondary impairments develop over time and interfere with a child's performance in everyday activities. Children with CP may have difficulties with cognition and language, sensory functions, and eating, and swallowing

- Associated damage to one of more areas of the brain may lead to paralysis, spasticity, or abnormal control of movement or posture.
- Although the injury to the brain is considered static, the pattern of motor impairment changes over time, often affecting development in all daily occupations of childhood.



# Sensorimotor Problems in Children With Cerebral Palsy

## 1. Abnormal muscle tone

- Hypertonicity: increase in resting state of muscle
- Spasticity: velocity-dependent increase in muscle tone (occurs with active or passive movement)
- Hypotonicity: decrease in resting state of muscle
- Fluctuating: muscle tone changes between hypertonic and hypotonic

- ❑ Persistence of atypical and abnormal primitive reflexes
- ❑ Atypical righting, equilibrium, and protective responses
- ❑ Poor sensory processing
- ❑ Decreased processing of vestibular, visual, and proprioceptive information
- ❑ Limited body awareness and body scheme

- ❑ Joint hypermobility or joint stiffness
- ❑ Reduced limb stability and poor cocontraction across joints
- ❑ Reduced joint movement
- ❑ Muscle weakness and poor muscle coactivation
- ❑ Delays in typical progressing of motor movement and motor skills affecting adaptive function

# hypersensitivities

- ▶ overreacting to touch, textures, and changes in head position
- ▶ causing some children to become visibly upset when handled or moved by others.
- ▶ Oral tactile sensitivity may be associated with abnormal oral movement patterns. Children may have an aversion to certain food textures, causing disorganized oral motor control and problems coordinating chewing, sucking, and swallowing.

# کاردرمانی

- Occupational therapy is a global healthcare profession. It involves the use of assessment and intervention to develop, recover, or maintain the meaningful activities, or occupations, of individuals, groups, or communities.
- Occupational therapy (OT) is an allied health profession that involves the therapeutic use of everyday activities, or occupations, **to treat the physical, mental, developmental, and emotional ailments that impact a patient's ability to perform day-to-day tasks.**

# نوروپلاستیسته

- Neuroplasticity, also known as neural plasticity, or brain plasticity, is the ability of neural networks in the brain to change through growth and reorganization. It is when the brain is rewired to function in some way that differs from how it previously functioned.
- Neuroplasticity primarily occurs through processes called **sprouting and rerouting**. Sprouting is the creation of new connections between neurons, or nerve cells. Rerouting involves creating an alternative neural pathway by deleting damaged neurons and forming a new pathway between active neurons.



# Secondary Impairments in CP

- Three in four will experience **chronic pain**
- One in two will have an **intellectual impairment**
- One in three will be **unable to walk**
- One in three will experience **hip displacement**
- One in four will be unable to **talk**
- One in four will have **epilepsy**
- One in four will have a **behavior disorder**
- One in four will have **bladder incontinence**
- One in five will have a **sleep disorder**
- One in 10 will have a **vision impairment**
- One in 15 will be unable to **eat orally**
- One in 25 will have a **hearing impairment**

# مداخلات کاردرمانی

- **problems with movement and posture:**
- **Pain**
- **Tone**
- **Contracture**
- **Muscles**
- **Movement and posture**
- **independence**

# Positioning, Handling, and Neurodevelopmental Treatment

- Neuro-developmental treatment (NDT) is a hands-on therapy that looks to improve the mobility and function of individuals – including children and adults – who struggle with movement due to neurological issues such as strokes, head trauma or cerebral palsy.



# massage therapy

- Cerebral palsy massage therapy is **a complementary treatment that involves massage and manipulation of muscles and connective tissues by a trained therapist**. Potential benefits for someone with cerebral palsy include reduced pain, improved motor function, better sleep, improved digestive health, and more.
- Reduces muscle tightness
- Improves circulation
- Relieves pain
- Increases body awareness
- Low risk
- Reduces stress







# Suit therapy

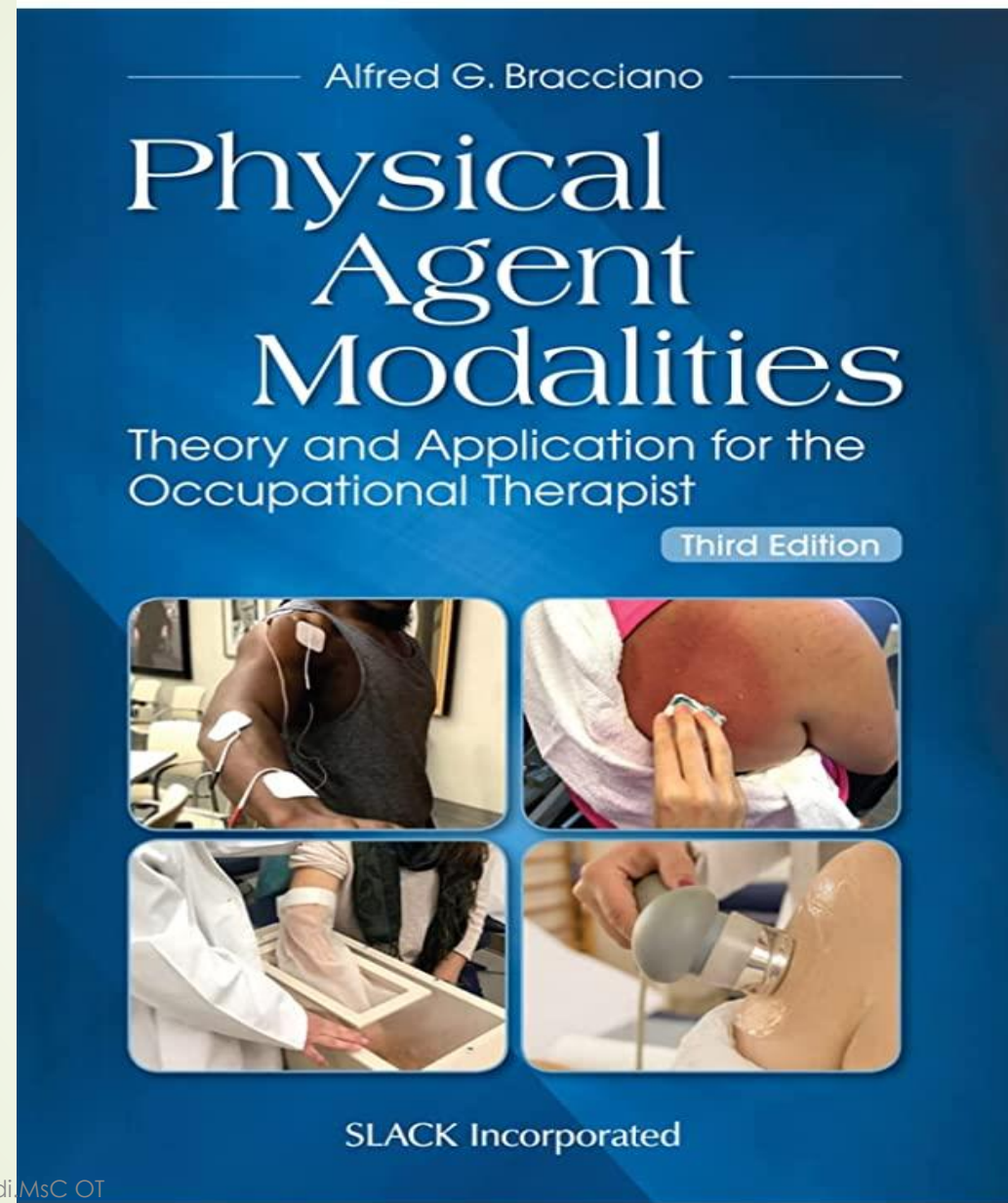
- Intensive suit therapy **provides a child proper posture, muscle tone and patterns of movement impaired by disability**. It's a complex intervention made of an orthotic suit that has strategically-placed bungee cords adjusted in a manner to affect typical flexor and extensor muscle groups.



# Physical Agent Modalities

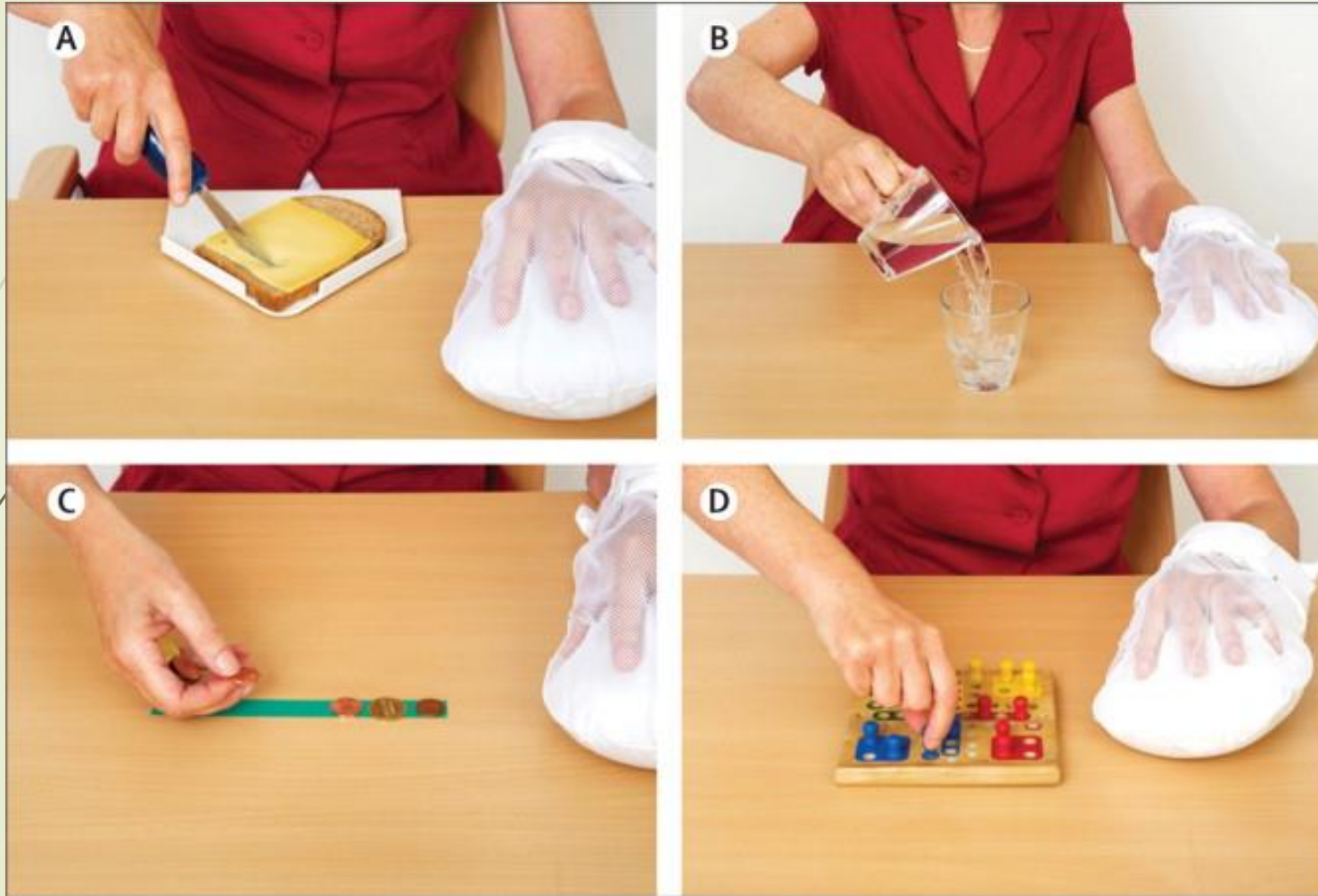
- Physical agent modalities are those procedures and interventions that are systematically applied to modify specific client factors when neurological, musculoskeletal, or skin conditions are present that may be limiting occupational performance.
- Modalities are physical agents that are used to produce a therapeutic response in tissue. They include **heat, cold, water, sound, electricity, and electromagnetic waves** (including infrared, visible, or ultraviolet light; shortwaves; and microwaves)
- PAMs use various forms of energy to **modulate pain, modify tissue healing, increase tissue extensibility, modify skin and scar tissue, and decrease edema or inflammation**. PAMs are used in preparation for or concurrently with purposeful and occupation-based activities (Bracciano, 2008).





# Constraint-Induced Movement Therapy

- Constraint Induced Movement Therapy (CIMT) is **a new treatment technique that claims to improve the arm motor ability and the functional use of a paretic arm - hand**. CIMT forces the use of the affected side by restraining the unaffected side.
- The results of functional MRI showed that constraint-induced movement therapy alleviates the reduction in cerebral functional activation in patients, which indicates **activation of functional brain regions and a significant increase in cerebral blood perfusion**.





# Orthotics or Casting

- **Orthoses are used to manage the secondary musculoskeletal problems of muscle contracture and bony deformity.** Without appropriate orthotic intervention, detrimental changes to the gait and function of the child with Cerebral Palsy will occur over less than two years.
- **Ankle-foot orthosis (AFO)** is the most frequently used type of orthosis in children with cerebral palsy (CP). AFOs are designed either to improve function or to prevent or treat muscle contractures.



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# Therapeutic Taping and Strapping

- (1) support
- a weakened muscle, (2) improve circulation, (3) reduce pain, and
- (4) improve joint alignment
  
- Strapping is **used when the desired effect is to provide immobilization or restriction of movement**. Strapping refers to the application of overlapping strips of tape or adhesive plaster to a body part to exert pressure on it and serve as a splint to hold a structure in place and reduce motion.





# hydrotherapy in cerebral palsy

- ▶ Hydrotherapy program was found to have **positive effects on the body function and structure of children and teenagers with cerebral palsy**. It can also strengthen the function of heart, vessels and muscles and reduce energy consumption during walking.



# Adaptive Equipment

- Adaptive equipment is **any tool, device, or machine that is used to help with any task associated with daily living**. Adaptive devices are generally used by people who have a short or long-term disability.
- Examples of adaptive equipment include **crutches, walkers, wheelchairs and braces for splinting or posture**. Adaptive equipment helps provide children with cerebral palsy with greater autonomy and self-confidence as they learn to perform tasks on their own.







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A spiral-bound notebook with a white cover and a black metal spiral binding is open on a light-colored wooden surface. The notebook is positioned diagonally. A blue pen with a silver clip and a blue cap lies across the left side of the notebook. A pair of black-rimmed glasses is placed above the notebook. The text "Thank You For Your Attention" is written in a cursive script on the right page of the notebook. The background is a light-colored wooden surface with visible grain.

Thank You  
For Your  
Attention