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Issues in Cerebral Palsy
Part 3: Physical Handling and Positioning to
Promote Functional Skills
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Learning Outcomes

The Participant Will be able to:

1. Describe the importance of a understanding the foundation for skilled performance.
2. List the major considerations of physical handling to promote functional skill.

Disclaimer

The information in this article is not a substitution for qualified professional training, it is for educational awareness only. Physical handling requires experience and training. Numerous training courses and seminars are available for therapists interested in physical handling techniques. Treatment requires the consultation and prescription of the child's physician or primary care provider.

Preface

Physical handling is a therapeutic approach that essentially matches the clinician's nervous system to that of the client. Through various key points of control the clinician is able to feel and observe the quality of the child's movement and how the child reacts to subtle changes to shifts in the center of gravity. Additionally, the clinician can feel and observe how the child's posture relates to movement. What compensations the child uses to move and most importantly how the child initiates those compensations. Through various handling techniques it is possible to determine what cues and levels of intermittent support are most successful in achieving a more efficient activation of movement that allows the child to actively initiate improved quality and control of his posture and movement.

Part 3 deals with with specific preparation and implementation of techniques to promote efficiency in functional skill performance. Providing the basis for skill aquisition insures success in the child's efforts toward independence.

Physical handling is a process of restoring dynamic balance to posture and movement. The first and most important step is to establish alignment and promote efficient kinesiological selection of muscle groups to achieve dynamic postural maintenance that supports more normal movement components.

Issues in Cerebral Palsy

Part 3: Physical Handling and Positioning to Promote Functional Skills

The ultimate goal of treatment is to promote and achieve better efficiency in functional skills. Children with neuromotor disorders often have the desire to explore and interact with their environment. However they are unable to organize their movements or change positions efficiently and their efforts result in compensations that further embed dysfunctional postural problems and can compromise their musculoskeletal structure. Adapting positioning and providing handling ideas for parents and caregivers insures that gains the child makes through direct physical handling treatment are reinforced throughout the child's daily routine.

The affect of physical handling treatment does not end with the treatment session. Parents and caregivers at all levels can make a valuable contribution to the child's daily life, and ideas for daily handling should come specifically from the treatment experience of the child. Their observation of the treatment process will permit them to get ideas for home handling as well as to understand the concepts that underlie therapeutic physical handling for a child with neuromotor dysfunction. This will assist them in adapting their child's daily care activities. Throughout the treatment process, providing ways to assist parents in the daily routines with their child, is given specific emphasis by the therapist.

In general terms we think of function as independent interactions with the immediate environment. Independent self care is a primary concern and often needs to be modified to meet individual child needs and adapt to their level of disability. Even in situations where complete independence is not a feasible goal, the possibility of assisting in daily care improves the child's self esteem.

For children with significant neuromotor dysfunction, positioning for dressing and bathing is a daily activity that can be adapted to assist both parent and child. Various adaptations using simple equipment, easily available in the home environment, are selected for the individual child. Positioning varies depending on the amount of support needed.



A swim ring allows for support in sitting by assisting the position of the pelvis to support more trunk activation and controlling one arm while assisted dressing is performed.



Using a wedge inhibits backward extension while allowing the parent or therapist to elevate the pelvis during assisted dressing.

Early dressing is a daily process that progressively becomes an important learning experience. Assisted dressing for children with neuromotor disorders can be initially performed in a more passive way to orient the child to the dressing process and control posture and positioning to inhibit unwanted, associated, or compensatory reactions. However, it is also important to transition the dressing experience to more upright and assistive as soon as the child can be maintained in a more upright position.



Supported sitting for children with physical limitations allows for the limbs to be more easily incorporated into the dressing process. Visual space becomes more meaningful and body parts more familiar. Assisting the dressing process by the child, even in minor ways allows the possibility of increasing the potential for more independence in the future.



For children who can more actively assist in dressing, the process requires orientation to the task and assisted postural support and control. Placement of clothing is an important spatial consideration for the positioning of the child and the type of assistance to be offered. Proper support allows the child more opportunity to participate in the required movements required for dressing. Physical handling and positioning provides the postural control necessary to maximize the child's participation while minimizing associated or compensatory reactions that interfere with controlled movement. The therapist controls position and assists in grading the child's weight shifting to free each side for the dressing experience, while the child performs at his own level of skill.



Use of a ring can be used to pass through the child's arm or legs as an experiential preparation, in the same manner as putting on clothes. It is important to assure that assistive movement and positioning is possible before starting a dressing process or making home recommendations.



Using a basin with various adaptations prior to filling with water, assists in determining what adaptations are best used and allows the child to accommodate to the experience.



Toilet training is another critical goal for parents to achieve with their child. Experimenting with various adaptations to help the child maintain a more controlled position and security on the potty is a first step toward potty training.



Primary adaptations should provide for separation of the legs, good pelvic alignment to support trunk control and some form of support for the arms and hands. Obviously modifications will vary in type and amount depending on the needs of the child.

Functional positioning requires a variety of options. A variety of seating options are important to prevent habitual compensations to one sitting position. Uses firm foam and contouring the foam to support various positions of long sitting or upright sitting, provide variety for the child, assist in postural control, and allow different leg positions and trunk reactions.



Seating for long sitting and upright sitting can be fabricated using closed cell or firm foam. These are relatively inexpensive options and can be customized easily for the child. They are easily covered with washable fabric and provide needed variety in seating positions.



Self-feeding is an important achievement for the child with neuromotor disorders. It provides independence and social opportunities for the child, The most successful way to facilitate independent spoon-feeding is to maintain the elbow at a level with the shoulder. This normal postural alignment serves to improve wrist extension and the maintenance of grasp so that the child does not slip into a pattern of wrist flexion that results in dropping of the spoon. Initially supporting the elbow in an elevated position allows functional movement patterns to be reinforced. As the therapist follows a sequence of proximal to distal control, the quality of grasp persists as the elbow alignment drops and self-feeding patterns of movement mature naturally.



Initially the adult places his or her index finger under the spoon handle so that the child is helped to grip the finger together with the spoon.



The adult maintains wrist and forearm control to prevent dropping of the elbow. After the food is on the spoon there is a slight pause to allow the child to orient visually to the spoon and assist in elevating the spoon to the mouth.

The adult places his or her index finger under the spoon handle so that the child is helped to grip the finger together with the spoon. The elbow position is kept high using a small amount of internal rotation at the shoulder to lower the spoon to the plate. Forearm pronation places the spoon in a vertical position as it touches the plate. The contact of the spoon against the plate is another cue that this initial movement is complete. The scooping motion is made as simply and clearly as possible. It is helpful to start with mashed potatoes or other food that clings readily to the spoon. At the end of the scooping motion the spoon is parallel to the table surface.



The elbow position is kept high, using a small amount of internal rotation at the shoulder to lower the spoon to the plate. Forearm pronation places the spoon in a vertical position as it touches the plate.



As the child assists and the spoon reaches the mouth, the adult allows the child independence if the child is able to control the spoon. Support is given to the elbow to maintain elevation as this is critical to maintaining successful orientation of the spoon in the mouth. As the child gains more experience the process is backward chained.

With the food now on the spoon there is a pause. The reason for this is to permit the sight and the smell of the food to motivate the child to pull the spoon toward the mouth. This kinesthetic awareness of the food coming toward the mouth assists some children to anticipate the opening of the mouth and the response

seems to increase in smoothness. A slight pause after each of the described steps is also designed to allow the child to initiate a move to take over the feeding. The adult maintains the correct position of each step so that the task is very structured for initial learning. As the child maintains the grasp of the spoon the adult moves physical assistance to the elbow. If the grasp begins to be unsteady the forearm is given some contact for more security, and the hand may be steadied briefly to increase the necessary wrist extension. Intermittent support is given based on the active responses of the child. The adult is attempting to turn over responsibility to child starting with the last step of the process. This learning sequence is known as “reverse chaining” so that each additional part of the process is linked to the accomplishment of the last step, which is the insertion of the spoon into the mouth.

This learning process has been applied successfully to adolescents and adults who have not previously been prepared physically to eat independently. The freedom to eat without physical assistance is especially valuable for persons who must live in a protective environment and receive personal care assistance. Moving to this level of independence allows the individual control over the choice of food taken as well the rhythm of the task, rather than depending on an assisting adult. It is an important step in improving the quality of life.



Hand function is an essential consideration. The structure of the hand and the stability of the wrist, arm and shoulder are critical components of hand use and therefore functional activities of all kinds. Without proximal stability there is no adaptive and varied use of the hand.

Before fine motor activities can be successful, the hand requires the stability of the wrist, forearm, and shoulder girdle to be able to develop the arches of the hand, the ability to separate both sides of the hand and the precision of the fingers. Practicing hand use without establishing stability for structural development of the hand will result in compensatory hand function and the embedding of dysfunctional hand use into attempts at fine motor function.



In summary, the process of improving functional performance for individuals with neuromotor difficulties, is dependent on careful analysis and assessment, application of specific treatment preparation, and implementation of practice from a more organized postural base of support.

As described in parts 1 and 2 of this series, careful analysis of the quality of the child's movement patterns, postural alignment, and specific compensatory movement patterns is critical to understanding what type of physical handling,

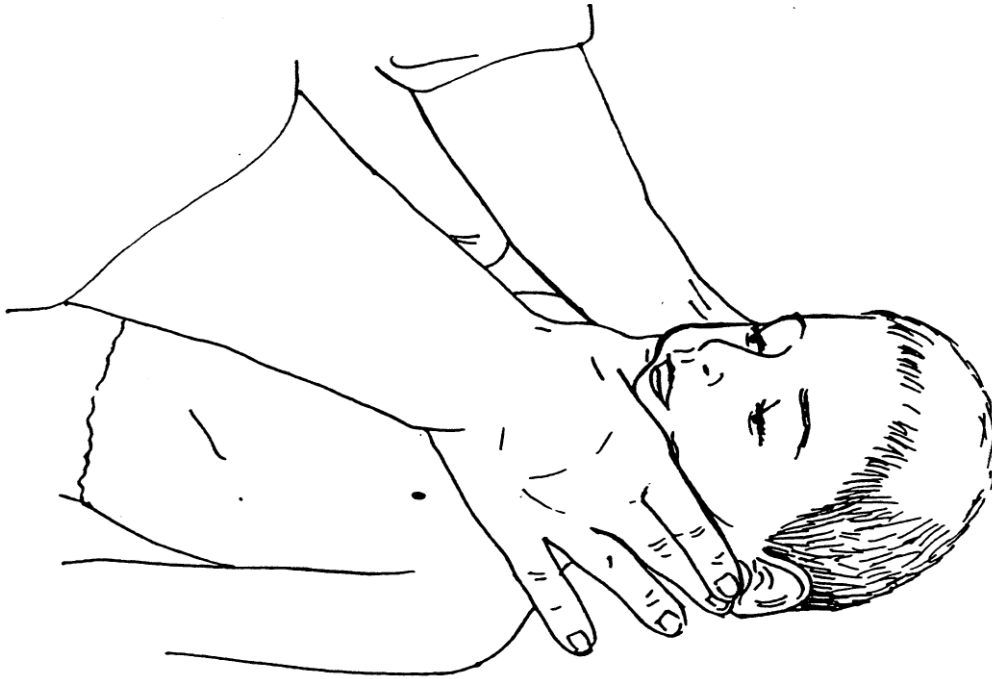
APPENDIX A

EXTRA-ORAL STIMULATION TECHNIQUES; PREPARATION FOR FEEDING

One of the earliest indications of cerebral palsy and oral motor disorders is the inability of the infant to feed. Feeding problems are diverse and individual to each disabled child. General feeding difficulties include poor extra-oral musculoskeletal control and stability, specific swallowing disorders, poor tongue mobility and structural deformities.

There are three major feeding approaches; 1) feeding through a medically prescribed apparatus such as a feeding tube, 2) therapeutic feeding through handler control and positioning, and 3) self-feeding training for the child with some independent control.

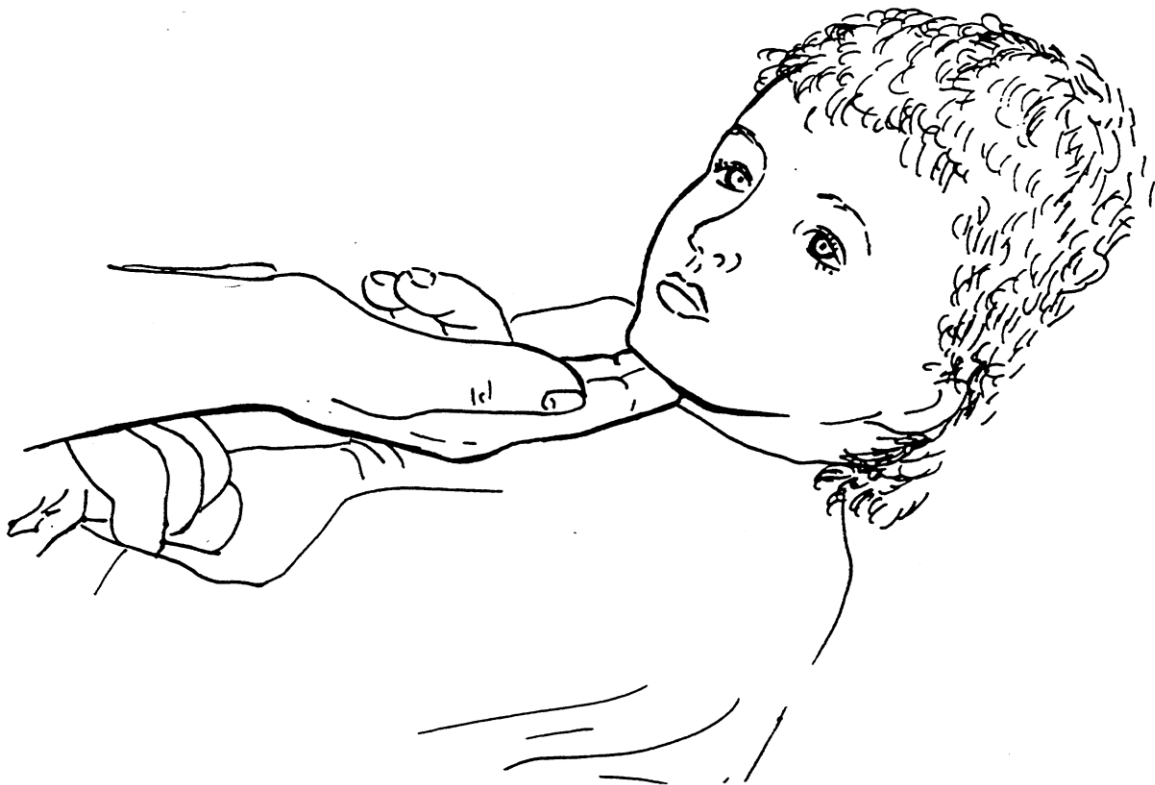
Because of the complexities of feeding therapy, this appendices will deal only with some basic extra-oral techniques to normalize external oral tone and stability prior to therapeutic feeding.



Jaw control with neck elongation and chin tuck. Apply slight vibration to increase stability of the jaw for support of lip closure, tongue mobility, chewing and swallowing.



Jaw control in supported sitting, allows the handler to control movement of the head and neck to promote the motor patterns necessary for organized acceptance of food from a utensil.



Tapping under the chin to influence tone at the base of the tongue. Deep pressure with slight vibration reduces tone in the retracted tongue, while quick tapping increases tone in a low tone tongue.



Stimulation to the cheek with deep pressure reduces extra-oral tightness. Sweeping of the cheek toward the chin reduces retraction of the musculature and quick tapping increases tone.



Firm pressure to the upper lip and spreading of the soft tissue laterally and down toward the lower lip, reduces lip retraction and assists in sensory awareness of lip closure.



Bunching of the tissue below the lower lip and applying oscillation, reduces tightness and mobilizes the lower lip and tongue for better swallowing and control of drooling.



Presentation of a cut out cup with upper and lower jaw control for lip closure and swallowing.

preparation techniques, and intervention strategies will be the most effective in establishing more efficiency in musculoskeletal control.

Skilled physical handling can quickly detect areas of most concern and how the child responds to different sensory input and variations in postural positioning during facilitated movement. Without this understanding intervention cannot be the most effective. Establishing alignment, normalizing weight shift and weight distribution over a stable base of support provides the foundation for organizing all movement and improving efficiency of function skills.

Practice "does" make perfect. The problem is that practice "does" make perfect. Practicing any functional skill or movement sequence without establishing postural control and alignment first, will result in embedding the dysfunctional patterns and diminishing over time the child's ability to function. Re-enforcing compensatory and abnormal movement patterns and therefore inefficient or abnormal kinesiological selectivity, through practicing within the range of the child's dysfunction, assures that the abnormal use of the child's body will be strengthened.

Be careful what you ask the child to practice and how you ask the child to practice. Expand the postural foundation for organized movement and the efficiency of functional movement for performance will continue to improve.

These are the verification exam questions to be answered when you click on Take Exam. For ease of completion select your answers prior to clicking on Take Exam.

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Part 3: Physical Handling and Positioning to Promote Functional Skills

Verification Exam

1. Physical handling provides the postural control necessary to maximize the child's participation while minimizing associated or compensatory reactions.
 - a. True
 - b. False

2. Graded weight shift is required to free each side to participate in functional activities.
 - a. True
 - b. False

3. It is not important to assure that assistive movement and positioning is possible before asking the child to self initiate.
 - a. True
 - b. False

4. The danger of using only one seating option is that the child may develop habitual compensations.
 - a. True
 - b. False

5. Initially supporting the elbow in an elevated position while working on self-feeding, allows functional movement patterns to be reinforced.
 - a. True
 - b. False

6. Encouraging hand use in any way the child can manage establishes structural support of the hand and proximal stability without the need for preparing the hand and upper body.

- a. True
- b. False

7. Without proximal stability there is no adaptive and varied use of the hand.

- a. True
- b. False

8. Skilled physical handling can quickly detect areas of most concern and how the child responds to different sensory input and variations in postural positioning.

- a. True
- b. False

9. Normalizing weight shift and weight distribution over a stable base of support provides the foundation for organizing all movement.

- a. True
- b. False

10. Practicing any functional skill or movement sequence without establishing postural control and alignment first, will result in embedding the dysfunctional patterns.

- a. True
- b. False