



Introduction

During many years as a pediatric physical therapist, I realized the importance of balance training for children with cerebral palsy (CP). Improvement of movement and posture is not complete and does not lead to functional independence unless balance control is acquired.

Historically, it has been difficult to work on balance control with children with CP because muscle or joint contractures and spasticity did not allow for positioning in which balance training was effective. But because of many advances made in treatment and management of children with CP over the past three decades, this has changed.

Early intervention, parent involvement, neurodevelopmental treatment-based physical and occupational therapy, improved seating, positioning, and orthotics all contribute to ensuring that children with cerebral palsy maintain good joint and muscle range. Treatment and medical management of spasticity has advanced. Selective dorsal rhizotomy surgery, Botox injection, or baclofen pump implant all diminish hypertonicity permanently or temporarily. Consequently, balance exercises that were previously used only with children with mild cerebral palsy became effective for children with greater neurological involvement.

Traditionally, balance training is considered after stretching, strengthening, neuromuscular reeducation, and coordination exercises have been used. By experience, I have noted that balance training may be interwoven successfully with other treatment strategies. Balance training emphasizes unassisted, guarded activities. It establishes the foundation for independent functional activities. Consequently, early balance training promotes the earliest possible independence in various functional positions.

Balance is needed in any position where the trunk is raised off the supporting surface. Therefore, this balance program is not limited to standing balance exercises. Sitting balance with arm support is the first skill to be mastered. This manual guides you in how to increase balance demands slowly and train the child from one level to the next.

Although designed for children with cerebral palsy, the exercises and activities in this book are useful in treating children with other conditions, such as myelomeningocele and Down syndrome, as well.

HOW TO USE THE PEDIATRIC BALANCE PROGRAM

This manual is for physical or occupational therapists working with children who have cerebral palsy or balance deficits for other reasons. The exercises and activities should help pediatric therapists integrate balance training with treatment goals, strategies, service delivery, or delegation to paraprofessionals, teachers, parents, or caregivers.

The balance exercises are presented in ascending order of difficulty, with mastery of one skill being the building block for the following one. Sitting balance is addressed first. It is divided into sitting balance training with arm support, without arm support, and advanced sitting balance training. Recommendations for optimal positioning precede these chapters. Next follows balance training in four-point, kneeling, standing, squatting, and during transitions to and from standing. Crutch walking, beginning walking, as well as sidestepping and back stepping are included, with emphasis of the balance aspect of these skills. The last chapter addresses advanced balance training in terms of half standing, single leg standing, and standing on unstable ground.

The systematic presentations, clear descriptions, and illustrations should help you employ balance training effectively for all aspects of service delivery. The exercises are grouped in sets of two to six activities, which may be reproduced for therapy purposes. The illustrated exercises should be handy treatment samples when communicating treatment goals and strategies to a physical or occupational assistant. With specific instructions, they will be appropriate for a classroom or home program. For this purpose a reproducible cover sheet, "Guidelines for Balance Training," is provided. It reminds parents or teachers of basic rules to be followed and also allows space for a therapist's notes.

Each set of exercises has a common theme. Directions for positioning and preparation as well as a statement of purpose are given. Exercises have specific goals and are arranged in order of difficulty with the easiest one first. The last exercise demonstrates acquisition of the new skill. While each exercise or activity may be effectively practiced by itself, the sequential presentation will help parents or teachers. With the final goal in view, they will better understand the intent of a particular instruction and, consequently, will implement it more effectively. As the broader goal is broken down into subgoals, lay people become aware of the complexity of a seemingly easy task. This in turn, will make them more patient during practice and more appreciative of the child's efforts.

The term "activity" frequently is used instead of exercise. This is done intentionally. Its use emphasizes that treatment is merged with a simple play activity. Often, the best results are produced if the child fully concentrates on the play and not the treatment aspect of the activity.

The work of adults is subtle. They are allowed a hands-on approach only during preparation and initial practice. Balance training starts after all external support is withdrawn. Without touch, the most challenging part for child and adult begins. You, the therapist or caregiver, concentrate on and are involved in all the child's movements. You should anticipate any danger of balance loss and quickly and calmly prevent it. With vigilant eyes and ready hands to assist briefly as needed, you or another adult create a safe space in which the child experiments and learns.

Instructions for verbal guidance are given throughout the book. Supplement them as appropriate and helpful. Most of the time you will want to tell teachers or parents to direct the child verbally as little as possible and instead be responsive play partners while quietly monitoring the child's posture and movements. Play and fun are powerful self-motivators and bring better results than superfluous directions or promised rewards. When a situation does not allow play, use personal attention or an incentive (which may even be food).

Repetitions are important for new skill development. Parents and teachers should be made aware of this. Even when an activity becomes easy, additional practice will be beneficial. Overlearning ensures that a skill becomes a permanent part of the child's balance repertoire. As soon as a child uses a new skill spontaneously during activities, it is established well enough to discontinue its training.

All exercises and activities should be used only under the specific direction of an occupational or physical therapist. It is at the therapist's discretion and judgment when or how to delegate them to other adults.

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GUIDELINES FOR BALANCE TRAINING

1. Safety is most important. You want to make sure that your child does not get hurt during practice. Sit, kneel, or stand very close to your child and watch him or her at all times. Observe your child's posture and movement, anticipate any danger of balance loss, and quickly and calmly prevent it.
2. Guard the child with extended arms from the side or the front. Do not stand behind your child unless specified.
3. Be patient. Balance activities are much more difficult than they look. A child with poor balance has very good reasons to be afraid of falling. You want to build confidence and not frustrate the child.
4. Be calm. Create a pleasant, quiet work environment. Turn off the TV, send the dog outside, put the telephone on automatic answering, etc. You may praise your child as she does well, yet avoid boisterous cheering. Quiet, relaxed concentration helps your child to balance and gain confidence.
5. Talk to your therapist before progressing to more difficult activities. Always follow your therapist's directions.

Specific instructions for:

Name: _____

Date: _____

Therapist: _____

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