

Using the Balance Board in Therapy

Practical applications for linking somato-sensory and vestibular systems to the collaboration between the eyes and brain.

Vision Therapy establishes and supports visual function that will remain stable and comfortable under a variety of conditions. Ideally, this function should be linked to comfortably stable posture, balance, and whole body function.

Patients are supervised during Vision Therapy to ensure that proper visual-motor responses are embedded. When adding a balance board or other labile surface to a vision therapy program, care must be taken to ensure that efficient global motor patterns are embedded with visual function.

Balance board application involves “active” care, designed to retrain motor patterns and neurological links.

The goals include embedding ideal cortical motor programs as well as stabilizing local dysfunction.

The application of balance therapy utilizes the interrelationship between end sensory organs, the nervous system, and the motor system.

Rehabilitation Principles - a model

when addressing a local “weak link”:

- start with an environment that supports the weak link
- start at a level where the patient can experience success
- peel away supports in the environment
- introduce new challenges to the environment

Functional stability is coordinated on several levels

- local
- spinal / subcortical
- cortical

Local and global stabilization are interrelated:
Global stabilization is required for effective local function.
Local dysfunction alters global muscle tone and movement patterns.

What are the consequences of embedding a poor compensatory motor pattern?

Why are balance devices used in neuro-musculoskeletal rehabilitation?

“loading”
extremity injury rehabilitation
 ankle sprains, knee injuries, etc
spinal and disc stabilization
posture enhancement
stimulate automatic postural reactions
enhancing core stability
efficient and safe global movement patterns
increase joint ranges of motion
enhance coordination
heighten arousal
>>> cortical motor programming

Principles of Training -- this is central nervous system training

control
speed to contraction
endurance
reflex stimulation

Assessing the patient on a labile surface: aside from visual skills, what should I monitor?

posture
movement
motor recruitment
autonomic responses

What are the dangers with balance therapy?

falling > injury
not falling > injury
neurologic or metabolic overstimulation

Cues to facilitate proper global and local stabilization?

model for the patient

be brief and to the point

use cues that are:

kinesthetic

visual

auditory

How much is too much?

Do not let them practice a poor pattern.

Stop or go back to something easier

A few hint and concepts

slow

controlled

find the endpoints

stay within the endpoints

omitting vision

cervical rotation

with or without fixation

eye motion

one foot

ball toss

talking

reading aloud

visual exercises

Types of labile surfaces for the clinical setting

rocker board

wobble board

posture board

trampoline

foam

baps board

balance sandals

ball

disc

Types of labile surfaces in the patient's world

- uneven ground
- soft surfaces
- shoes
 - high heels
 - special technology shoes

Safety

- non-slip surface such as carpet
- corner of the room
- no dangerous objects nearby
- appropriate shoes or barefoot
- spotting the patient
- patient selection

What are the common mistakes to avoid?

- missing pertinent signs and symptoms
- training the patient at too high a level
- training the patient too long
- poor patient preparation and selection

How do I prepare the patient?

- facilitation
- mobilization

Additional advantages of balance therapy

- simple
- affordable
- patients can experience the progress
- potential for home use

What are relative contraindications for balance therapy?

- neuropathy
- metabolic insufficiency
- frank unstable joint
- inflammation

Shared concepts and key words

diadochokinesis
Sherrington's Law of Reciprocal inhibition
fixation
suppression
inhibition
diadochokinesis
fatigue
functional stability

A comment about tone:

Tone is a function of both CNS mediated tissue tension and also mesenchymal tissue structure.

A comment about development:

The quality of the developmental process is reflected in morphological structure as well as motor function.

Poor CNS function = poor morphological development.

References

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