

Original Research Article

Positional Wedge with Mirror

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Abstract: The "Positional Wedge with mirror" project explores the development and application of a novel optical device designed to assist in the spatial learning, cognitive development, and visual perception of children. This device utilizes a positional mirror wedge—an adjustable, angled mirror structure—that allows for dynamic manipulation of reflected light and images. By altering the angle of reflection, the wedge creates a variety of visual effects that help engage children in activities such as puzzle solving, spatial reasoning, and understanding symmetry and reflection. The primary objective of the project is to create an interactive tool that not only stimulates curiosity and creativity but also enhances children's ability to understand abstract concepts related to geometry, physics, and visual processing. The wedge can be used in educational settings to aid in learning games, art activities, and problem-solving exercises by offering a hands-on approach to exploring reflection, refraction, and positioning. This research aims to assess the impact of the positional mirror wedge on children's cognitive development, focusing on its ability to improve problem-solving skills, visual-spatial awareness, and critical thinking. Through a series of user studies, the project seeks to understand the effectiveness of this device in both individual and group settings, providing insight into how children interact with optical phenomena and how such experiences can contribute to educational outcomes. Ultimately, the positional mirror wedge is envisioned as a tool that bridges the gap between playful exploration and educational growth, encouraging children to engage with the fundamentals of optics and geometry in an accessible and enjoyable manner.

Keywords: Cognitive Development, Spatial Learning, Interactive Learning Tool, Reflection and Refraction, Visual-Spatial Awareness.

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INTRODUCTION

Position

Positioning is placing your child in anatomical alignment. Proper positioning can aid in Maintaining current status, improve functional gains, and prevent complications. Proper positioning benefits your child in many ways. It maintains their body in anatomically Correct alignment. This is important to avoiding contractures or muscle tightening that is so Strong that it can pull the bones out of alignment in the body. When in proper body alignment, the child's body is better able to take advantage of the Movement that they have. It is easier to reach when your body can move. The same is for a child Who might want to reach for a toy or feed themselves. The more positioning is set for alignment, The better able the child is to move. Functional ability might even improve. With any spinal cord injury, some natural improvements Develop over time. Even those

these might be slight or seemingly non-purposeful when first Discovered; these chance movements can be harnessed into functional ability with therapy and perhaps some adaptive equipment. Since children are growing, developing, and increasing in Strength, they may discover new skills. This development would not be noticed if the child is out of position, so they are unable to attempt or see new the top of the list is pressure injury. Keeping the body in alignment is the first line of defence in reducing pressure Breathing is easier when in alignment. If the child is hunched over to one side, the airways are Less able to inhale and exhale. If the head has fallen forward, the main airway is constricted. Much like infants sleeping in their car seats, the weight of the head and force of pressure on the Airway can become occluded.

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Wedge

A positioning wedge or therapy wedge is a comfortable, practical tool. Positioning and therapy wedges help children and adults improve their tolerance to laying down in a prone position or develop increased head control. Wedges help children gain strength for gross motor activities. These soft, durable foam wedges come in a variety of shapes and sizes to suit specific needs. Use them for practicing gross motor activities such as rolling, tumbling, and walking up- or downhill. They also provide comfortable positioning for reading and Other fine motor activities. A therapy wedge with movable straps supports your child as they move their head around, while strengthening head and neck muscles. This is safe and comfortable for many age groups Therapeutic wedges help children gain strength for gross motor activities. Some of these Activities include walking on an incline, or up a hill. These wedges are part of nearly every Paediatric physical therapy regiment. Wedge is helpful in improvement in neck control & also gives good posture to the child.

Positioning Wedge with Mirror

A positioning wedge or therapy wedge is a comfortable practical tool .it helps children. Increases their tolerance of a prone position. Wedge for Kids is the perfect tool for improving posture while kids are gaming, drawing, or doing homework. The inflatable wedge positions the pelvis for better spinal alignment, while the unstable surface activates the core muscles, improving balance. Use upright in any chair as a back support or as a cushion on the floor. The positioning Wedge where better posture and muscle stimulation can help with increased mental focus.it can also be improve a children stability and Head control. therapeutic wedge help children gain strength for gross motor activities. some of

these activities include walking on an incline, or up a hill. A therapy wedge with movable strap supports your child as they move their head around Looking at focal points around the room while strengthening head and neck muscle Mirror Therapy is an evidence based therapeutic approach the primary tool of this therapy is a mirror From Which the patient receive visual feedback that was the child views a mirror image of functional Hand .the image of The successful function portrayed as if it is the weaker arm is through to help the brain Reorganize and change Mirror therapy was generally effective in enhancing muscle strength, motor speed ,muscle Activity .mirror Therapy consists of the activation of the mirror neuron system ,a network of neuron whose Activity occurs When individuals perform specific movements or observe other people performing certain movements. In this Therapy these neuron are activated bt patients, who observed movement of their own upper Limb reflected mirror System, it provides a number of different uses and functions. On one side, it can be used activity tray for the child to place learning or exercise tools on top of. On th other, provides a large mirror to stimulate the child's curiosity and infant-driven movements. Focus her eyes, follow images, learn new words and explore the wonderful things a face can do. And enjoying one's own blinking, smiling image in a mirror is actually an important social and emotional milestone that babies tend to achieve during the first year. By gazing at themselves and their loved ones in a mirror, your infant can learn to identify familiar faces, track movements and even develop her tiny muscles as she reaches and rolls toward her reflection. And if you talk to your baby about the emotions you're showing or each part of your face while you're in front of the mirror, you'll also help boost her language skills.



Aim:

- To Improve positioning in pediatric population
- To enhance their postural control
- Improve Upper extremity motor function

Objective:

- To enhance the use of wedge with mirror for improving posture control and upper extremity
- To improve motor function in children who are having postural problem and delay in milestone
- To improve hand functions.
- To improve eye -hand coordination 5...to seek visual feedback

Rationale of the Study

The purpose of this project is to solve the problem of the pediatrics population having difficulty in acquiring head control, maintaining head function and achieving development milestone occupational therapist help in improving head control and hand function also acquiring the development milestone in children by using positioning wedge with mirror.

METHODOLOGY

Targeting Population
Pediatric Population
Age 0-3 yr

MATERIAL USED

Wooden Jute

Glut foam
Wooden glue
Pins
Mirror
Velcr

Precautions

Children

- Children should be supervised at all times when lay down on wedge
- Never leave lying around as a toddler can put them in their mouth and choke on them.
- Keep your wedge somewhere that is out of reach of very small children

Benefits:

Positioning wedge with mirror Can be used in a variety of ways, either as an activity tray for the child or a mirror to stimulate curiosity.

Mirror can help to provide effective early intervention therapy for infants from birth to age three. These therapies are especially useful for infants with cerebral palsy, motor delays or other motor dysfunctions. Ideal for use in the clinic or at home, the positioning

wedge with mirror is a comprehensive tool for effective positioning and therapy of infants

A Sensory Mirror is an engaging backdrop for working on eye contact, visual tracking and expressive and receptive language skills.

The versatile design of the wedge with mirror system allows for a wide range of different treatment options for the therapist. The Tray with Mirror can be used with the half roll, wedge and base for creative positioning to target many separate areas of the body. These uses include:

- Positioning (side lying, prone, supine or sitting)
- Weight bearing to particular areas (pelvis, arms)
- Vestibular activity
- Postural drainage
- Improve kids posture and ensure spinal alignment.
- Small muscle adjustments stimulates the brain and keeps kids focused.

System, it provides a number of different uses and functions. On one side, it can be used activity tray for the child to place learning or exercise tools on top of. On the other, provides a large mirror to stimulate the child's curiosity and infant-driven movements. Focus her eyes, follow images, learn new words and explore the wonderful things a face can do. And enjoying one's own blinking, smiling image in a mirror is actually an important social and emotional milestone that babies tend to achieve during the first year. By gazing at themselves and their loved ones in a mirror, your infant can learn to identify familiar faces, track movements and even develop her tiny muscles as she reaches and rolls toward her reflection. And if you talk to your baby about the emotions you're showing or each part of your face while you're in front of the mirror, you'll also help boost her language skills.

Procedure

- STEP 1:- Cut medium density fibre boards for the frame. To buit the positioning wedge with mirror medium density wood was used and was cut in a 3*3 l*b
- STEP 2:- Using saw different sockets were carve into the board
- STEP 3:- same shaped foam was assembled to the wooden board using wooden glue.
- STEP 4:- Wooden board and foam was covered by 4m cloth and stitched through punching gun
- STEP 5:- Hole on the wedge and attach the dumble on it
- STEP 6:- Attach the Velcro on the wedge



DISCUSSION

This project holds the promise of improving the head control, rolling, and trunk stabilization in the child. Yet for all the promise, existing research indicates that positioning wedges but also on a regular flat surface.

In a study done by Jaya Rachwani et al (2013) that they influence in an external support at the thoracic and pelvic level of trunk on the success of reaching, postural stability, and reaching kinesthesia while infants reached for a toy. Almost all infants showed similar quality reaching behavior.



CONCLUSION

We conclude that positioning wedge with mirror help in neck control, rolling, crawling, and trunk stabilization.

These postures are the chief components of achieving the developmental milestone and help in maintaining and improving the performance in the child and enhancing the eye – hand coordination.

Hence it emphasis on positioning wedge in front of the mirror on the wedge as therapy which directly connect to occupational performance of the child.

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