

# MULTIPURPOSE REHAB BAG

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**Subject:** Rehabilitation Science - Occupational Therapy

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**Abstract:** There are various components in occupational therapy, aspects of functional ability required for occupational performance results from dynamic relationship between people, their occupational roles, environment, work and play. Aim is to develop a project on performance components i.e., sensory motor abilities, cognitive and perceptual abilities along with gait and coordination through activities like Hopscotch, Frankel exerciser, Place the tail, Body shapes puzzle, Sensory walk etc. 'Multipurpose rehab bag' consists of 2 surfaces as follows: Surface 1- Hopscotch, Body puzzle, Place the tail, Make the rain, Finger Ladder. Surface 2- Numbers for sequencing, Finger ladder, Frankel exerciser, Footsteps, Colorful paths to follow, Sensory walk. These activities helps children with Attention-deficit/hyperactivity disorder, Autism, Cerebral palsy, Developmental Delay, Learning Disabilities, Sensory processing disorder as well as in other conditions like Frozen shoulder, Stroke, Parkinsonism, Cognitive impairment, Mood disorders, Memory Loss/ Short Attention Span etc. As a result we found that 'multipurpose rehab bag' helped to improve Sensory-motor performance in children and adult, also helped in shaping perceptual abilities, and helped in connecting children's work and play in improving overall well being, by providing communication, social interaction and feeling of competition. Used as an effective way of addressing Game as therapy.

**Keywords:** Sensory-motor, cognitive, perceptual abilities, Psychosocial, Occupational Therapy

## INTRODUCTION

Clinical settings have different equipments to treat different conditions individually. Multipurpose rehab bag (MRB) is used to manage different problems or conditions by using this one portable bag. It will be convenient for therapists to provide therapy at any place. This project is used for utilization and demonstration for managing the patient (symptomatically), since the concept of this bag has not yet been used in department neither as a treatment protocol nor as an evaluation tool for research purposes. Hence the need was felt to make this project entitled "multipurpose rehab bag".

Children can experience a range of mental health conditions including – anxiety disorders, ADHD, autism spectrum disorder (ASD), schizophrenia, and learning disability. There are many physical disabilities such as delayed walking, cerebral palsy, etc. Occupational therapists are important tools to deal with these issues.

Pediatric occupational therapists focus on improving the child's ability to play and learn which are important for development and becoming independent and the multipurpose rehab bag can help the child to improve these components, for example: for children with cerebral palsy, occupational therapy can help with muscle and joint coordination issues- Issues that can make everyday tasks difficult.

MRB can help to improve physical, cognitive and social abilities as well as fine motor skills and posture. This can also help address difficulties with processing sensory information.

## RATIONALE OF STUDY

Clinical settings have different equipments to treat different conditions individually. Multipurpose Rehab bag is used to manage different problems or conditions by using this one portable bag it will be convenient for therapists to provide a therapy at any place. This project is used for utilization and demonstration for managing the patient (symptomatically), since the concept of this bag has not yet been used in department neither as a treatment protocol or as a evaluation tool for research purposes. Hence the need was felt to make this project entitled "Multipurpose Rehab Bag".

**AIM:** To develop a project on performance components i.e., sensory motor abilities, cognitive and perceptual abilities along with gait and coordination.

**OBJECTIVE:** Objective of the project was to improve, maintain and rehabilitate performance components i.e., sensory motor abilities like eye hand coordination, perceptual and cognitive abilities, gait and coordination with the help of multipurpose rehab bag.

Occupational therapy and MRB can help children by –

- Increasing their chance for independence.
- Improving their ability to play and learn.
- Boosting their self esteem and confidence.

**MATERIALS USED**

1. Foam sheet
2. Cotton cloth
3. Fabric colors
4. Velcro
5. Cardboards
6. Artificial grass mat
7. Fur cloth piece
8. Velvet cloth piece
9. Straws
10. Wool
11. Pebbles
12. Sponges
13. Buttons.

MRB was made by using the above mentioned materials. The bag is made by cloth which when unfolded opens like a mat. The mat consists of 2 surfaces and both surfaces have different activities. These activities are :-

**(A) HOPSCOTCH-**

1. Hopping- midline development
2. Don't step on the line- body control
3. Stop and start- body rhythm
4. Leaping- muscle strength
5. One footedness- balance
6. Spaces- spatial awareness
7. Pitching pebbles- eye/hand coordination
8. Picking up your pebble- fine motor control
9. Strategy- sequencing and prioritizing
10. Taking turns- social development
11. Winning/loosing- character development

**(B) FRENKEL EXERCISES**

1. Achieve the regulation of movement
2. Restoration of coordination
3. Right left discrimination
4. Gait improvement

**(C) FINGER LADDER**

1. Improve mobility of shoulder, elbow, wrist and fingers
2. Improve flexibility shoulder, elbow, wrist and fingers
3. Enhance overhead
4. Improve range of motion of shoulder flexion and abduction
5. Strengthen muscles slowly

**(D) SENSORY WALK**

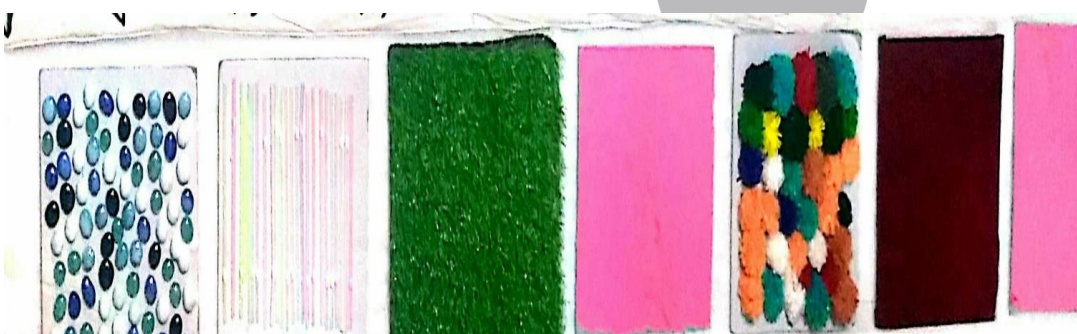
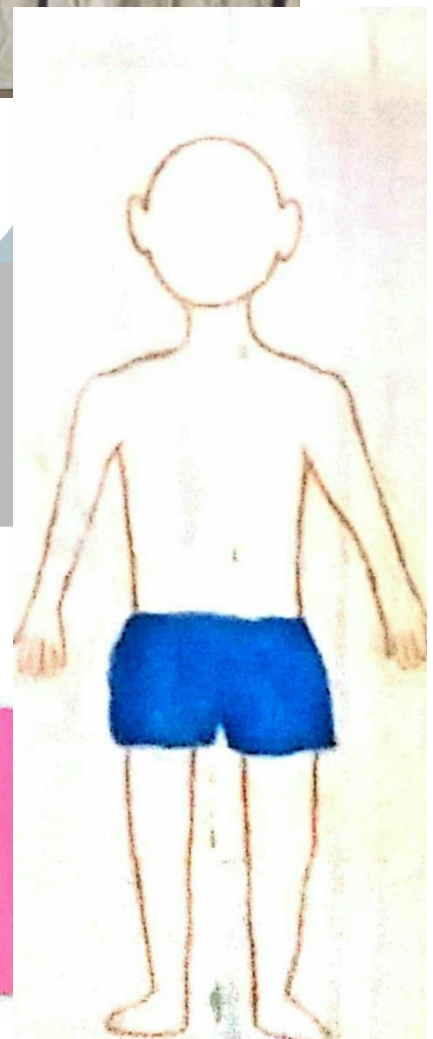
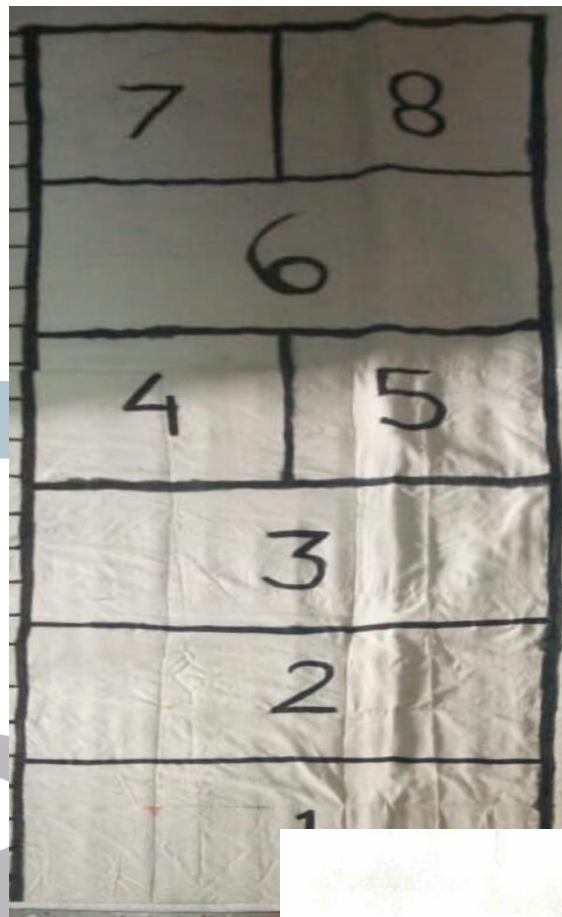
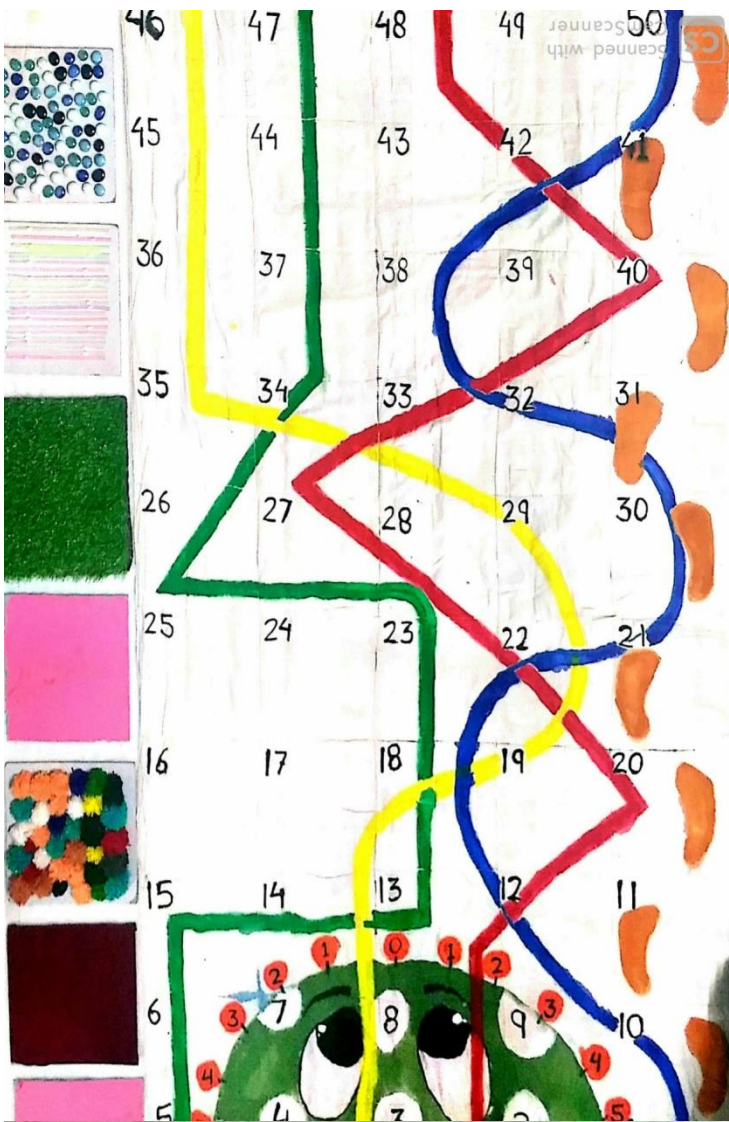
1. Development of sensory awareness
2. Observational skills
3. Helps build nerve conduction in brain
4. Encourages development of motor skills

**(E) BODY PARTS PUZZLE**

1. Cognitive skills
2. Problem solving
3. Fine motor development
4. Enhance and promote cooperative play
5. Self esteem

**(F) PLACE THE TAIL**

1. Hang function- fine motor
2. Eye hand coordination
3. Color discrimination
4. Cognitive skills





## **INDICATION**

### **Pediatric Population–**

1. Autism spectrum disorder
2. ADHD
3. Developmental delay
4. Learning disabilities
5. Sensory processing disorders
6. Cerebral palsy

### **Others –**

1. Frozen shoulder
2. Depression /anxiety
3. Mood disorders
4. Stroke
5. Parkinson diseases
6. Cognitive impairment
7. Memory loss (Short term)
8. Color Perception
9. Short Attention span

### **Therapeutic use:**

- It will help improve eye hand coordination
- Improve memory
- Improve Attention span
- Helps to develop command following
- Learning of Calculations
- Learning of Colors
- Learning of numbers
- Helps to know mood of client
- Improve and learn Left right and up down discrimination
- Maintain and improve shoulder and elbow movements
- Positive and negative reinforcement
- Improve motor planning
- Improve gait and coordination
- Improve social skills

## **PROCEDURE**

- Open the buttons of the bag
- Unfold the mat
- Put the mat on a clean and plain surface
- Perform different activities on the mat according to the patient needs
- Use the other surface of the mat for hopscotch and body puzzle activities
- Take out sensory cardboards from the pocket of bag and arrange them in soft to hard or hard to soft to create sensory walk
- Take out rabbits and tails for place the tail activities for fine motor skills
- In case of hyperactive child, hide other activities with any cloth when any activity is going on
- Fold the mat into the bag after the session

### **PRECAUTIONS:-**

1. Do not talk while doing activities
2. Mat should be placed on a clean floor
3. Patient's and therapist's should clean their feet before using the mat
4. Avoid any sharp tool in the environment during the session
5. Hide other activities on the mat with a cloth in case of hyperactive children

### **INSTRUCTIONS:-**

1. All instructions must be clear
2. The mat can be used in different ways for different purposes according to the subject's need.
3. After the session, the mat should be packed in the form of bag and all the small components should be placed in the pockets of the bag

## **DISCUSSION**

The project demonstrates the use of “MULTIPURPOSE REHAB BAG”. Occupational Therapy helps to improve physical, cognitive and social abilities as well as fine motor skills and posture which are most important components in one's life for a functionally independent life.

Sherrington et al found in their study that exercise interventions that concentrate on balance training have been shown to be effective in reducing the rise of falls in older adults with a prior history of falling.

Uta Sailer et al found in their research that latencies of ocular & manual moves change in a similar way during different tasks. The higher correlation of latencies under conditions requiring intentional movements compared with reflexive movements indicates that eye & hand movements are based on shared information. They are intentional i.e, when cognitive processing is involved.

A Safe Gait is necessary for independent living and the prevention of falls and injuries. According to American coordination structures. Coordination of eye & hand movements was preserved by initiating the hand movements at about the same time as the eye motion to guide pickup & placement.

Eye Hand Coordination is one of the most important parts of the learning process. It helps your child track the movements of their hands with their eyes, which is essential for reading and decoding. Because your child also uses their visual system with **hand-eye coordination**, it can greatly impact their writing skills and handwriting as they use their eyes to guide, direct and control their hand movements across the page as they write letters and words. Your child's eyes send a message to the brain about a certain object or stimuli (pencil, ball, apple), which triggers signals to your child's hands for a reaction to that object or stimuli (writing, throwing, eating).

Jeff Pelz, Mary Hayhol & Russ Loeber found in their study that the stable pattern of eye, head & hand coordination probably resulted from the creation of temporary synergies or coordinative structures.

Jennifer H Foss-Feig, Jessica L Heacock, Carissa J Cascio Tactile responsiveness patterns and their association with core features in autism spectrum disorders (ASD). We assessed the association between three aberrant patterns of tactile responsiveness (hyper-responsiveness, hypo-responsiveness, sensory seeking) and core symptoms of ASD. Our results demonstrate that for the tactile modality, sensory hypo-responsiveness correlates strongly with increased social and communication impairments, and to a lesser degree, repetitive behaviors. Sensory seeking was found to correlate strongly with social impairment, nonverbal communication impairment, and repetitive behaviors.

## CONCLUSION

From this project in which we demonstrated "MULTIPURPOSE REHAB BAG" in context to occupational therapy performance components we conclude that:-

1. Frankel exercises and hopscotch helps to improve gait, balance and coordination.
2. Improves communication, social interaction and feeling of competition.
3. It also improves perceptual abilities.
4. Covers various other components like attention, memory etc.
5. By including token economy, social skills can be improved.
6. Sensory walk may help in sensitization and desensitization.

Overall emphasis is on activities as therapy which directly connects to occupational performance of a person.

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