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A program for neurological organization is explained and its purposes are stated. Hints are given for working with both child and parents, and form for evaluating measures of neuromotor fitness is included. Also provided is a checklist for rating motor exploration, including movements performed lying on the back, on the knees, or standing or on mats, as well as balance, trampoline and creative movement, and perception activities (tactile, visual, kinesthetic, eye hand coordination, and manipulative skills). Special techniques and equipment to be used are listed, a diagram of the gymnasium and a clinician data sheet are supplied. (JD)

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A PROGRAM FOR  
NEUROLOGICAL ORGANIZATION

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PROJECT ON RECREATION AND FITNESS FOR THE MENTALLY RETARDED  
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## INTRODUCTION

Children grow and develop neurologically from birth to maturity in a definite recognizable sequential pattern. Each level of development serves as a base for further development in the next stage of neurological maturity. As a result of neurological (neuromotor) experiences at one level, in which the child explores the interrelationship of kinesthetic, tactile, visual, and auditory perception, a coordinated development of the neuromotor system takes place. Information, skills, and awarenesses gained at one level are carried over and utilized in the next.

Four recognized levels of development in which there is progressive movement exploration are: (1) moving arms and legs without forward movement (2) crawling (3) creeping (4) walking. When there is an omission or interruption in any of these developmental stages performance at the next stage will be affected.

An interruption in or the omission of any developmental level could be the result of trauma before or at birth, childhood diseases or accidents which might result in neurological impairment. On the other hand, it may simply be a result of overly protective parents who will not allow the child the opportunity for movement exploration and experiences. Whenever adequate neuromotor experiences are lacking in the developmental sequence there is less than optimum neurological organization.

Neurological disorganization as seen in some children is severe and quite recognizable while in others it may be mild and not be noticeable except in acts requiring fine and highly coordinated neuromotor performance such as reading and writing. It is, therefore, the purpose of this program to measure and evaluate the developmental performance level of each child and to plan a program of activities designed to improve his performance. In some instances it will be necessary to provide the opportunity for the child to experience the neuromotor activities which were common to that level of development which may have been interrupted or omitted.

Since neurological organization is so essential to visual perception, spacial relationships, reading skills and writing, an improvement in the neuromotor area should contribute to increased performance in the academic areas as well.

A child's self image and his social interaction with others depends to a large extent on how he sees himself, his body, and what he can do with it. Through increasing the individual's range of movement, his control over his body in performance, and his confidence and interest in attempting new activities, he will perhaps see himself and others in his environment in a different light.

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## PURPOSES

The purposes of the program are:

- (1) to develop a level of physical fitness in the child which would increase his potential to perform basic movement skills and to teach the child the motor skills so necessary for his social and psychological development
- (2) to provide an experience for physical education majors in teaching exceptional children
- (3) to develop activities and teaching techniques for the mentally retarded child, and
- (4) to assist teachers of special classes to initiate physical education programs into their curriculum.

## HELPFUL HINTS IN WORKING WITH THE CHILD AND PARENTS

1. Always be dressed in your major's uniform when working with the child as this adds much to the cooperation you will get both from the child and parent.
2. Become a friend of the child as well as his teacher. Teach him your name, (first name is less formal, but use your own judgment) repeat it often, and get to know his parents.
3. In observing and evaluating the child always attempt to look at him from not only the physical performance standpoint, but his social and emotional performance as well: alone and in a group.
4. Make a game of initial measures (see measures of motor fitness sheet). But use no measures which seem inappropriate for your child. Remeasure at end of the program.
5. Capitalize on your child's interests and imagination in suggesting activities, but also guide him toward those activities which he needs most.
6. You can expect progress to be slow and uneven from week to week and yet dramatic at times. When your child has successfully accomplished something let him repeat it and enjoy it rather than rushing on to a new activity.
7. Be generous with encouragement and praise achievement, be it ever so small.
8. Do not be too insistant on quality performance because many of the activities are designed for the child to benefit from the inherent movement experience and a pleasurable attitude toward the experience is very important.
9. Avoid activity which might be too strenuous at first since most of the children tire easily. In some cases it would possibly be wise to return the child to the parent before the hour is up.
10. Always start the evening workout on time and don't run overtime. It is better to have the child looking forward to a planned future activity.
11. In recommending exercises to the parents for home performance it will be necessary to demonstrate and write down what you expect them to do. The parents are interested and willing but are not physical education majors; therefore, they are most anxious to follow your advice.
12. If there is a question in your mind concerning the safety of a given activity, don't use it with the child. At the end of each session we want to return the children to their parents improved and uninjured.
13. The parents and, from time to time, guest observers will be seated in the gymnasium bleachers. Ignore their presence and your child will probably do the same.
14. All the instruments for measuring will be kept in a box in the testing area. (See map) Return each instrument to box after using it.

MEASURES OF NEUROMOTOR FITNESS

NAME \_\_\_\_\_ AGE \_\_\_\_\_ WEIGHT \_\_\_\_\_ DATE \_\_\_\_\_

Preferred:

Hand R \_\_\_\_\_ L \_\_\_\_\_ Eye R \_\_\_\_\_ L \_\_\_\_\_ Foot R \_\_\_\_\_ L \_\_\_\_\_ Ear R \_\_\_\_\_ L \_\_\_\_\_

Eye-Hand Reaction time \_\_\_\_\_ Average \_\_\_\_\_

Eye-Foot Reaction time \_\_\_\_\_ Average \_\_\_\_\_

Grip Strength

Vital Air Capacity

R \_\_\_\_\_ L \_\_\_\_\_

\_\_\_\_\_ cc.

Balance-Modified Bass Stick Test - 5 trials

\_\_\_\_\_ TOTAL \_\_\_\_\_

Agility - Three Block Test - Three Feet Apart

Time \_\_\_\_\_

Power - Standing Broad Jump - \_\_\_\_\_ Average \_\_\_\_\_

Speed - Ten Yard Dash - Time \_\_\_\_\_

Visual Perceptual and Hand Coordination Test

Two circle, square, triangle and diamond shaped blocks must be placed in appropriate shaped hold. Time \_\_\_\_\_

Legend - Symbols for weekly observation of performance.

P = Performed      PP = Performed Poorly      CNP = Could Not Perform \*

Subscript number indicates the week in which the activity was attempted or performed. Example P<sub>2</sub> - Performed during second meeting.

### MOVEMENT EXPLORATION

#### Level I - Performed Lying on Back

Moving both arms in jumping jack fashion \_\_\_\_\_

Moving both legs in jumping jack fashion \_\_\_\_\_

Moving both arms and legs in jumping jack fashion \_\_\_\_\_

Head facing left, left arm and left leg flexed, right arm and leg extended \_\_\_\_\_

Head facing right, right arm and right leg flexed, left arm and leg extended \_\_\_\_\_

Head facing left, left arm extended and left leg flexed, right arm flexed and right leg extended \_\_\_\_\_

Head facing right, right arm extended and right leg flexed, left arm flexed and left leg extended \_\_\_\_\_

Supination and pronation of hands with elbows bent \_\_\_\_\_

Oppose thumb and forefinger \_\_\_\_\_

Hand to side - roll right - roll left \_\_\_\_\_

Tuck - roll right - roll left \_\_\_\_\_

Roll right from back to hands and knees \_\_\_\_\_

Roll left from back to hands and knees \_\_\_\_\_

Roll left from hands and knees to back \_\_\_\_\_

Roll right from back to all fours \_\_\_\_\_

Roll left from back to all fours \_\_\_\_\_

\* Alternative Legend (Suggested by Project on Recreation and Fitness for Mentally Retarded)

O = Would Not Try

T = Tried, Failed, Quit

TT = Tried Several Times, Failed on Each, Then Quit

TTT = Tried Continuously, Failed

Continuously, Had To Be Stopped

PP = Performed Poorly

P = Performed Satisfactorily

PS = Performed Smoothly, Gracefully, and Efficiently

Level II - Performed on Knees

Crawl through tunnel

Crawl backward through tunnel

Crawling looking at forward hand

Cross pattern creeping - left hand and right leg forward

Crawling forward on all fours

Crawling backward on all fours

Level III - Performed Standing or on Mat

Make yourself as tall as you can

Make yourself as short as you can

Make yourself flat as you can

Make yourself as stiff as you can

Make yourself as relaxed as you can

Make yourself as round as you can

Make yourself as heavy as you can

Move as slow as you can

Walking using foot patterns

Walk with hand following lead foot

Walk with opposite hand following lead foot

Walk with cross over pattern

Walk cross over pattern with hand following lead foot

Marching in place - right hand touches right knee

Marching in place - right hand touches left knee

Hopping on right foot

Hopping on left foot

Take off on one foot and land on two

Take off on two feet and land on two

Two footed hop across rope

\_\_\_\_\_

Take off on two feet and land on one side slide pattern

\_\_\_\_\_

Galloping

\_\_\_\_\_

Lift both arms in jumping jack fashion

\_\_\_\_\_

Lift both legs in jumping jack fashion

\_\_\_\_\_

Perform jumping jack

\_\_\_\_\_

Jump-bringing knees up and touching simultaneously with both hands

\_\_\_\_\_

Running

\_\_\_\_\_

Skipping

\_\_\_\_\_

Balance

Walks line on gymnasium floor

\_\_\_\_\_

Walks four inch balance beam

\_\_\_\_\_

Walks tilted balance beam-cross over step

\_\_\_\_\_

Holds balance on balance tilt

\_\_\_\_\_

Walks on two-inch wood blocks

\_\_\_\_\_

Walks two-inch low balance beam

\_\_\_\_\_

Walks two-inch high balance beam

\_\_\_\_\_

Walks two-inch low balance beam while shifting weight  
from hand to hand

\_\_\_\_\_

Walks two-inch high balance beam while shifting weight  
from hand to hand

\_\_\_\_\_

Walks two-inch low balance beam - steps over one foot bar

\_\_\_\_\_

Walks two-inch low balance beam and walks under three foot bar

\_\_\_\_\_

Catches bean bag while balancing on two-inch low balance beam

\_\_\_\_\_

Throws bean bag while balancing on two-inch low balance beam

\_\_\_\_\_

Can follow teacher across two-inch low balance beam

\_\_\_\_\_

Trampoline - Creative Movement

Jumps on bounce board with two feet \_\_\_\_\_

Jumps on bounce board with foot \_\_\_\_\_

Jumps on bounce board with one foot and changes feet \_\_\_\_\_

Jumps on bounce board and off \_\_\_\_\_

Bounces seated on trampoline bed \_\_\_\_\_

Control bounce on trampoline \_\_\_\_\_

Bounce - bring knees up \_\_\_\_\_

Bounce - perform jumping jack \_\_\_\_\_

Bounce - perform one-half turn \_\_\_\_\_

Bounce on right foot \_\_\_\_\_

Bounce on left foot \_\_\_\_\_

Bounce on alternate feet \_\_\_\_\_

Perception Activities

Tactile

Can distinguish between hot and cold towel \_\_\_\_\_

Can distinguish between smooth and rough surface with the eyes closed \_\_\_\_\_

Can distinguish between wood, metal, rock surfaces with the eyes closed \_\_\_\_\_

Can distinguish shape of object with eyes closed - round, square, triangle, diamond \_\_\_\_\_

Can distinguish numbers by shape and/or size \_\_\_\_\_

Can place circle, square, triangle, and diamond in appropriate slot \_\_\_\_\_

Visual Perception

Pursues moving target with eyes while lying down \_\_\_\_\_

Pursues moving target with eyes while standing \_\_\_\_\_

Can pursue moving target with eyes and stop it with the hand on command \_\_\_\_\_

Catches balloon using both hands simultaneously \_\_\_\_\_

Kinesthetic Perception

Can duplicate position of the arms with eyes closed - within three inches

\_\_\_\_\_

Can duplicate position of the legs with eyes closed - within three inches

\_\_\_\_\_

Can duplicate force on scale push within 10 pounds with eyes closed

\_\_\_\_\_

Can duplicate force on scale push within 5 pounds with eyes closed

\_\_\_\_\_

Can distinguish between weights of varying amounts with eyes closed

\_\_\_\_\_

Eye Hand Coordination

Catches large playground ball on bounce

\_\_\_\_\_

Passes large playground ball to receiver

\_\_\_\_\_

Catches large playground ball in air

\_\_\_\_\_

Can kick ball not moving - soccer style

\_\_\_\_\_

Can kick ball moving - soccer style

\_\_\_\_\_

Can trap moving ball with feet - soccer style

\_\_\_\_\_

Hits box target with bean bag at ten feet

\_\_\_\_\_

Catches bean bag in the air

\_\_\_\_\_

Catches ball in cup

\_\_\_\_\_

Manipulative Skills

Bi-manual circles - clockwise

\_\_\_\_\_

Bi-manual circles - counterclockwise

\_\_\_\_\_

Bi-manual circles - left hand, clockwise; right hand, counterclockwise

\_\_\_\_\_

Bi-manual straight lines - lines drawn to center simultaneously with both hands

\_\_\_\_\_

Special Techniques and Equipment to be used:

1. Use tunnel to promote crawling
2. Perform floor exercises on new Resilite mat or use knee pads on children
3. Use foot patterns for hopping, jumping, galloping, skipping, etc.
4. Practice cross pattern crawling and walking on an incline board with mat
5. Utilize boxes of different sizes, colors, designs, and numbers for bean bag targets
6. In exploring movement have the children form some of the following letters with their bodies while looking in the non-reversable mirror:  

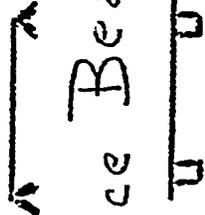
Y   I   F   E   L   C   X   H   V   O   T
7. Use non-reversable mirror or shadow image to teach new movements
8. Explore not only right and left lateral balance on balance tilt, but forward-backward tilt as well. (Perform with weight in hands)
9. Use balance pole to lower the center of gravity of the child in walking the two-inch balance beam.
10. Use peg board for hand eye coordination. Have form circle, square, triangle, etc.
11. Use deep breathing exercises in children whose vital air capacity is lacking.
12. Use gym scooters to teach basic swimming strokes and for developing arm strength.

Bleachers

(parents sit here)

Bleachers

Balance Activities

  
(Balance Beams)

  
(Balance Tilt)

(Electrical Timer)  


Measuring Area

Gymnasium

Perception  
Activities

Trampoline Activities

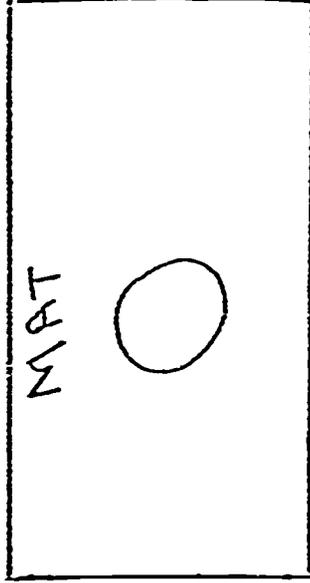
(Bounce Board)



(Trampoline)



Movement Exploration

MAT  


Y  
(equipment table)

CLINICIAN DATA SHEET

\_\_\_\_\_  
Clinician's Name

\_\_\_\_\_  
Major

\_\_\_\_\_  
Semester - Year

\_\_\_\_\_  
Date to be graduated

\_\_\_\_\_  
Mailing Address

\_\_\_\_\_  
Campus Phone No.

Attendance Record

\_\_\_\_\_  
1      2      3      4      5      6      7      8      9      10

\_\_\_\_\_  
Name of Child