

MOTOR ABILITY

By:- Dr.Chetak

INTRODUCTION

- ◉ Motor ability is comprised of two words. :- MOTOR and ABILITY. MOTOR means something connected with movement of the body that is produced by the muscles and ABILITY means the fact that the body is able to do something /level or skill or intelligence.
- ◉ Shortly ,MOTOR ABILITY means the level of skill or intelligence of the body connected with the movement produced by the muscles .

DEFINITIONS

1. The present level of ability to perform movement (motor) skills.
2. Motor ability may be defined as one's present innate and acquired ability to perform motor skills of a general and fundamental nature excluding specialized sports skill.

ITEMS OF MOTOR ABILITY

➤ The motor ability is made up of 13 items .

MOTOR FITNESS COMPONENT:-

- 1.Muscular strength.
- 2.muscular endurance.
- 3.cadio vascular endurance.
- 4.freedom from obesity.
- 5.flexibility.
- 6.power.
- 7.speed.
- 8.agility.
- 9.balance.
- 10.reaction time.

MOTOR CO- ORDINATION OR MOTOR CONTROL:-

- 1.Hand eye co-ordination.
- 2.Foot eye co-ordination
- 3.Whole Body Co-ordination.

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General
motor
ability.
(GMA)
(13 Items)

1. Muscular strength: -maximal contraction power of the muscles is known as muscular strength.

- ◉ EX-weight training push up
- ◉ Apparatus to measure-
DYNAMOMETER.
- ◉ Test related -1>KRAUS-WEBER
STRENGTH TEST.
- ◉ 2>ROGER STRENGTH TEST
- ◉ 3>PHILLIPS TEST.

- ② 2. Muscular endurance:-The duration for which the muscles groups may perform work maximally is known as muscular endurance.
- ③ EX-In volley ball attacking in football kicking long distance running etc.
- ④ Test related-1>STATIC OR ISOMATIC MUSCULAR ENDURANCE TEST.
- ⑤ 2>DYNAMIC OR ISOTONIC MUSCULAR ENDURANCE TEST

- 3. Cardio-vascular endurance: -The ability to perform muscular work at submaximal level by moderate contractions for a long time is known as cardio-vascular endurance.
- Test related-1> TUTTLE PUSLE RATIO TEST.
- 2> HARVARD STEP TEST.
- 3> RUN AND WALK TEST.
- 4> MAXIMUM OXYGEN UPTAKE TESTING.

- ④ 4. Freedom from obesity :-excess accumulation of fat in the body is known as obesity. Accumulation of fat related to many health problem such as coronary heart disease, high blood pressure ,diabetes, respiratory problems etc.
- ④ Test related-ANTHROPOMETRY
- ④ UNDERWATER WEIGHING METHOD.

- ⦿ X-RAY METHOD
- ⦿ BIO-ELECTRIC METHOD
- ⦿ AIR DISPLACEMENT METHOD
- ⦿ MULTIPLE ISOTOPE DILUTION METHOD
- ⦿ ULTRASOUND METHOD
- ⦿ NEAR INFRARED INTERACTANCE METHOD.

- 5.Flexibility:-the range of movement in a joint or sequence of joint is known as flexibility.
- Ex-touching of fingers to toes while sitting or standing without bending knees , rope malkham etc.
- Test related-TEST OF ABSOLUTE TEST.
- TEST OF RELATIVE FLEXIBILITY TEST.

6. Power:- (a) power may be defined as work done per second.

⦿ (b) power may be defined as product of force and velocity.

⦿ $\text{power} = \text{force} \times \text{distance} / \text{time}$

Test related-(a)-ATHLETIC POWER TEST

(B)WORK POWER TEST.

7.Speed:-Total distance divided by the time ;capacity of the individual to repeat the same kind of movement at a fast rate is known as speed.

- ⦿ EX-sprinting events ,hurdle races,basketball etc.
- ⦿ Test related-(a)SPRINT TEST(50mt YARD).
- ⦿ DISTANCE TEST FOR 4,6OR 8 SECONDS.

- 8.Agility:-The speed with which an individual may change his body movement is known as agility.
- The individual change in the body movement with the same speed is known as agility.
- EX-shuttle run, dodging run etc.
- Test related-SQUAT THRUST
- SIDE STEP
- SHUTTLE RUN
- SEMO AGILITY TEST
- RIGHT BOOMERANG RUN TEST
- DODGING RUN TEST

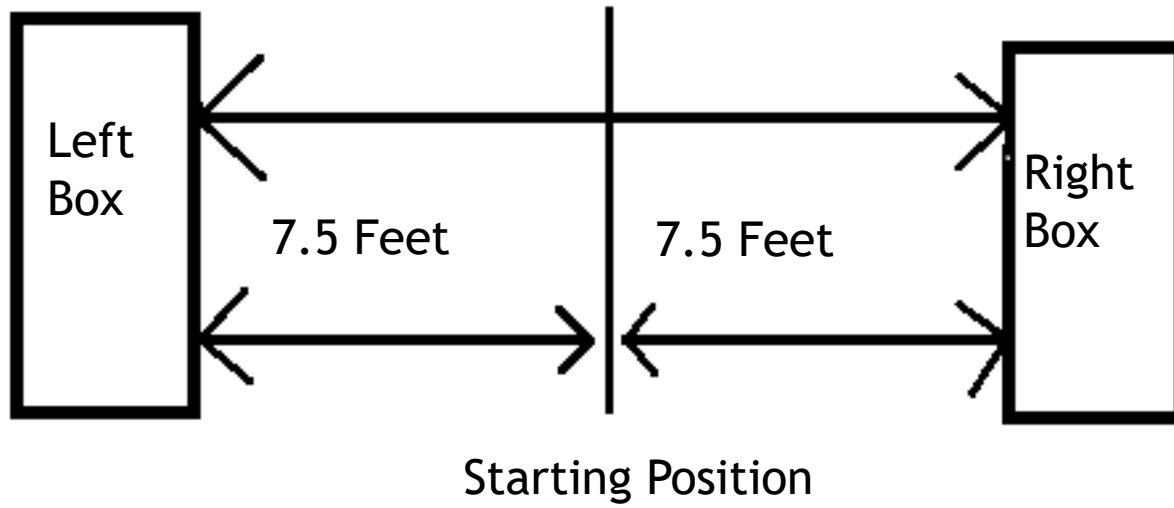
- 9.Balance:- The ability to hold the body position in comparatively less stable positions ,is known as body balance.
- (center of gravity hold on center of base is called balance).
- Test related -STATIC BALANCE TEST .
- DYNAMIC BALANCE TEST.

- ◉ 10.Reaction time:-The interval between presentation of stimulus and the first response is called reaction time.
- ◉ Test related -NELSON HAND REACTION TIME TEST.
- ◉ NELSON FOOT REACTION TIME TEST.
- ◉ ELECTRONIC VISUAL HAND REACTION TIME TEST.
- ◉ ELECTRONIC AUDITORY REACTION TIME TEST.
- ◉ ELECTRONIC VISUAL FOOT REACTION TIME TEST.
- ◉ ELECTRONIC TACTILE HAND REACTION TIME TEST.

MOTOR CO-ORDINATION

- ◉ Definition: The ability to performer to integrate types of body movements into specific patterns is known as co-ordination.
- ◉ EX-co-ordination is very important in all type of activity.
- ◉ TEST OF CO-ORDINATION:- (a) Eye-hand co-ordination test. (ball transfer)
- ◉ (b) Eye-foot co-ordination test.
- ◉ (c) Upper-limb co-ordination test.
- ◉ (d) Scott obstacle race test.

- ◉ (a) Eye-hand co-ordination test (ball transfer):-This test is as evident from its name is used to test the co-ordination between eyes and hands. This test can apply on both boys and girls.
- ◉ Equipment: Two large boxes or container (capable of holding more than 5 balls of 10 inches diameter each) and stop watch.



- (b) Eye foot co-ordination test:- This test is used to measure co-ordination between eye and foot. This test is also applied on both boys and girls. Age should be 4 years and above in both Eye hand co-ordination as well as in Eye foot co-ordination test.
- Equipment : A Stopwatch, sheet or paper with footprints or some marking to guide foot placement in a specific a specific pattern. In the absence of sheet or paper, floor play area may be painted black to indicate foot placement pattern with foot prints or other marking about 12 to 15 inches apart.