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Effect of depth perception on motor-coordinative ability of tribal adolescents.

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Abstract: *Adolescence (lat adolescere = (to) grow) is a transitional stage of physical and mental human development that occurs between childhood and adulthood. This transition involves biological (i.e. pubertal), social, and psychological changes, though the biological or physiological ones are the easiest to measure objectively.-Childhood and adolescence are crucial periods of life, since dramatic physiological, psychological and cognitive changes take place at these ages. The cognitive changes along with perceptual development may affect their motor coordinative abilities as well specially in tribal adolescents, who belong to altogether different socio cultural environment. Reaching for a pen, grasping a doorknob, driving, roller skating walking-etc. which are examples of few physical actions-all involve well-coordinated movements made with well-balanced postures. In fact, whenever we move the three basic functions of movement, balance, and coordination work in concert to produce graceful, purposeful motions of body parts*
Key words*: Adolescent, Depth perception., Tribal adolescent, Monocular cues, motor coordination.*

I. Introduction

Depth perception refers to the ability to see and understand the 3-D spatial relationship and relative distance between objects and oneself. Its primary value is to make hand-eye coordination efficient and provide for safe movement through space. Infants are born with an immature vision system that gradually develops to take in better and more precise visual information while the brain learns to look for cues gleaned from experience.

Physiology: The retina is the curved two-dimensional surface at the back of the eye containing photoreceptor cells called rods and cones. Cones perceive color, fine detail and respond rapidly to stimuli so they can register changes to images quickly. Signals travel from the retina to the visual cortex of the brain, which develops as it learns to interpret the 2-D images it receives and use their messages to recreate the 3-D world. Infants are attracted by movement and instinctively seek stimulation that gives them the cues they need to develop depth perception.

Monocular Cues: Monocular cues are those detected with one eye. Babies begin learning their meanings before their eyes start tracking together. Types of monocular cues include motion parallax cues that teach the infant that as he moves, closer surfaces appear to move farther and faster than distant ones do. (Think of driving down a road lined with trees. The ones close to you zip by faster than the ones in the distance that seem to move more slowly.) Optic flow, revealed at 3 to 4 weeks of age by blinking when an object approaches, teaches babies that moving toward a surface makes things appear bigger and that the reverse is also true. This tells infants in which direction they are moving.

Binocular Cues: Once the infant develops stereopticon vision, at 3 to 4 months old, cues that compare information from the two eyes teach the surfaces and distant objects. If the baby sees a whole chair and part of a bookcase, she learns that the chair is in front of the bookcase. By 7 to 10 months, infants-depth perception ability matches that of an adult.

II. Sample

To solve the problem, following steps have been taken to conduct the study "A random sample is one in which each element in the universe has an equal opportunity of being selected." (Henry, J. Mont aye, 1973) Sampling is taking any portion of a population or universe as representative of that population or universe. It is rather taking a portion of population and considering it to be the representative. Random sampling is the method of drawing a portion (sample) of a population or a universe so that all possible samples of fixed size "n" have the same probability of being selected. (W. Feller, 1957) Definitions indicate that a sample taken for the study may be selected from any place of the given area, therefore, for the above mentioned study, random sampling method has been selected. For the present study, 150 tribal adolescents' boys residing in the State of Chhattisgarh, ranging from age group 12 to 17 years were selected. From each age group i.e. 12 years, 13 years, 14 years, 15 years, 16 years and 17 years respectively, 25 tribal boys residing in the State of Chhattisgarh were selected randomly.

III. Nature Of Variables:

Depth perception refers to the ability to see and understand the 3-D spatial relationship and relative distance between objects and oneself. Its primary value is to make hand-eye coordination efficient and provide for safe movement through space. Infants are born with an immature vision system that gradually develops to take in better and more precise visual information while the brain learns to look for cues gleaned from experience. Since the research design is patched up in nature, depth perception is used as dependent as well as independent variable in the present study. as superior depth perception i.e. lower the depth perception scores, the

IV. Tools:

Depth perception of the selected subjects was recorded by a specially designed depth perception apparatus. This device has a rectangular wooden box which is illuminated by lamp. It consist of three horizontal rod in which two rods are fixed and the middle rod is movable which moves forward and backward of the fixed rod. In this experiment the subject has to adjust the rods in such a way that they align behind each other. The error in deviation was recorded through a meter located in LCD panel. This experiment is conducted three times i.e. with left eye, right eye and both eyes. In this way we get mono ocular and binocular depth perception. Scores nearer to 0 are considered better depth perception is the notion used in the depth perception.

V. Summary:

Adolescence (lat adolescere = (to) grow) is a transitional stage of physical and mental human development that occurs between childhood and adulthood. This transition involves biological (i.e. pubertal), social, and psychological changes, though the biological or physiological ones are the easiest to measure objectively.-Childhood and adolescence are crucial periods of life, since dramatic physiological, psychological and cognitive changes take place at these ages. The cognitive changes along with perceptual development may affect their motor coordinative abilities as well specially in tribal adolescents, who belong to altogether different socio cultural environment. Reaching for a pen, grasping a doorknob, driving, roller skating walking-etc. which are examples of few physical actions-all involve well-coordinated movements made with well-balanced postures. In fact, whenever we move the three basic functions of movement, balance, and coordination work in concert to produce graceful, purposeful motions of body parts. This is actually quite a feat, because moving is a complex process. depth perception on motor coordinative abilities of young adolescent and specially tribal adolescents because the environment they live in should be a fine ground for learning new motor and well as perceptual skills. Whether this depth-perception influences their motor coordinative abilities, is the point of contention in the present study. The problem was depth perceptual on motor coordinative ability among tribal adolescents (age 12-17 years), it was decided to use Cooper's JCR test (1963) to assess motor coordinative ability i.e. agility of the selected subjects through shuttle run test. Hand eye coordination of the subjects was assessed by mirror drawing test while depth perception was evaluated by standard apparatus especially designed for this.

VI. Results:

1. Ageing has positive impact upon mono ocular depth perception (left eye) of tribal adolescent boys between 12 to 17 years of age i.e. as age of subject increases; the mono-ocular depth perception (left eye) also increases.
2. Ageing has positive impact upon mono ocular depth perception of tribal adolescent boys between 12 to 17 years of age i.e. as age of subject increases; the mono- ocular depth perception (right eye) also increases.
3. Ageing has positive impact upon binocular depth perception of tribal adolescent boys between 12 to 17 years of age i.e. as age of subject increases; the binocular depth perception also increases.

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