



EFFECT OF A SIX WEEK TRAINING PROGRAMME ON TACTILE SENSITIVITY OF SCHOOL LEVEL STUDENTS

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ABSTRACT

The aim of this study was to investigate the effect of a six week training programme on tactile sensitivity of the skin. Sixty school students (boys) from different schools of Gwalior, whose age ranged between 8 to 14 years, who participated in summer coaching camp held at Lakshmbai National institute of Physical Education, Gwalior were selected and undergone a training programme under the guidance of the student teachers of the institute. Tactile sensitivity was measured by Aesthesiometer for this study. The training classes were conducted in the morning session, mostly for five days a week for six weeks, with the duration of one hundred and twenty minutes in each session. Paired t' test was applied to investigate the existence of significant difference between pre and post test phases of the effect of a six week exercise programme. In conclusion improvement was found after a six week of experimental training programme and the difference was statistically significant. Exercise not only gives health life style but also improve the skin sensitivity, so exercise is strongly recommended.



KEYWORDS: Tactile Sensitivity, Schools students, Training Programme.

INTRODUCTION

The somato sensory system or tactile system includes multiple types of sensation from the body – light touch, pain, pressure, temperature, and joint and muscle position sense (also called proprioception). However, these modalities are lumped into three different pathways in the spinal cord and have different targets in the brain. The first modality is called discriminative touch, which includes touch, pressure, and vibration perception, and enables us to “read” raised letters with our fingertips, or describe the shape and texture of an object without seeing it. The second grouping is pain and temperature, which is just what it sounds like, and also includes the sensations of itch and tickle. The third modality is called proprioception, and includes receptors for what happens below the body surface: muscle stretch, joint position, tendon tension, etc. This modality primarily targets the cerebellum which needs minute-by-minute feedback on what the muscles are doing.
(<http://www.spdaustralia.com.au/the-tactile-system>)

The central nervous systems ability to process tactile sensory input is distorted in the child with special physical disability and causes the child great discomfort. Their brain may register even the most subtle sensations as extreme irritation or even painful and they may respond in an abnormally reactive

way such as grimacing or pulling away from the stimulus. The central nervous system must rely on five sensory nerve receptors in the skin to keep it informed about its environment. These receptors are; light touch (surface), pressure (deep), temperature (hot & cold) and pain. It is quite possible for one type of receptor to be sensitive and the other normalized. (<http://www.spdaustralia.com.au/the-tactile-system>)

Tactile sensitivity is an increased sensitivity to touch that makes the sensory experience of touch feel noxious or peculiar. It is sometimes referred to as tactile defensiveness to distinguish between it and normal levels of sensitivity to touch. (<http://www.wisegeek.com/what-is-tactile-sensitivity.htm>)

In very young children, tactile sensitivity can interfere with the development of motor skills and may impede other developmental milestones as well. The sense of touch provides a great deal of information about the world and people who perceive touch as painful and avoid it will have difficulty interacting with their environment. The developing brain may also fail to make some important connections without sensory input to help it understand how to process information. This can lead to learning disabilities and other impairments. (<http://www.wisegeek.com/what-is-tactile-sensitivity.htm>)

Touch helps promote parent-child attachment by giving your baby a sense of safety, security and love. Developing awareness of the nature and quality of a variety of tactile input also gives infant valuable information about the world around them, thus aiding their cognitive and fine/gross motor skills. Offer infants a variety of safe textures to explore. Give her an infant massage (with or without lotion). Lightly rub her feet and clap her hands together. (Herlihy, 2011)

DEFINATION OF THE TERM TACTILE SENSE

The tactile sense is one of the five traditional senses of the body. It is recognized by the organs of touch which are found mainly in the skin. The sensitivity varies from one part of the skin to another, e.g. the highly sensitive areas are the tactile sense on the forehead, temples, and the back of the forearm (Martin, 2010). Tactile sense is focused mainly on sense of pressure, traction and touch, excluding temperature and pain.

METHOD AND MATERIALS

SUBJECT:

The study was descriptive experimental type. Sixty male school students from different schools of Gwalior who participated in summer coaching camp held at Lakshmibai National Institute of Physical Education, Gwalior were selected randomly for this study, whose age ranged from 8 to 14 years.

TACTILE SENSITIVITY

Tactile sensitivity was measured by Aesthesiometer. It is a calliper formed of two pieces sliding across one another. One having a graduate scale and the other sliding part with one window also having scales on its sides. Two pointed projections can be increased and decreased through the sliding of sliding part of rider. The rider also have thumping wheel through which the rider is moved forward or backward. The zero distance between the two pointed projections gives a sensation of one point. It is known as Aesthesiometer because it measures the sensitivity of the individual.

A two inch line was drawn on the front part of subject's forearm, and he was blind folded so that he may not be able to see the touch by Aesthesiometer. Now the experiment was started. The metronome was set on 60 beats per minute with alternative bell. First of all the rough threshold was found out. The 10 ascending and 10 descending trials were taken. On every tick of the metronome the points of Aesthesiometer was touch and on bell it was removed. The response of the subject was noted down. Lower scores (Millimetre) indicate better performance.

STATISTICAL PROCEDURE:

Pair 't' test was applied to investigate the existence of significant difference between pre and post test of skin sensitivity after a six week training programme.

FINDINGS:

TABLE-1
MEAN, SD AND 't' RATIO OF SKIN SENSITIVITY OF SCHOOL STUDENTS

VARIABLES	SUBJECTS	MEAN	S.D.	't' ratio	REMARK
Skin Sensitivity Test (Pre Test)	60	5.67	0.83	3.78	Significant
Skin Sensitivity Test (Post Test)	60	5.34	0.71		

't' value required to be significant at 0.05 level of significance with 99 degree of freedom was 1.98.

FINDINGS

Table-1 clearly reveals that the skin sensitivity of the boys measured after the a six week Training Programme were significantly better than the Skin sensitivity measured before the said training as the calculated 't' value (3.78) was higher than the tabulated 't' value (1.98) required to be significant at 0.05 level of significance with 99 degree of freedom.

DISCUSSION OF FINDINGS

This study aimed to investigate the effect of a six week training programme on tactile sensitivity of the skin. It was found from the above statistical calculation that after a six week of training programme, skin sensitivity was improved and the improvement was statistically significant. These findings are consistent with results of the recent study conducted by Rev Bras et.al (2008).

The effect of exercise on skin sensitivity may have been influenced by continuous pressure on the hands (due to contact with exercise machines and free weights) during the training session. Also depending on the intensity of the external stimulus, touch and pain receptors may activate simultaneously. Koltyn and Umeda (2006) recently reported a significant association between resistance training, pain sensitivity, and blood pressure. Santos et.al (2008) concluded that the training undertaken was effective in increasing the plantar tactile sensitivity.

The somatosensory system comprises a variety of mechanoreceptors distributed throughout the body as reported by Mochizuki et.al 2006. These specialized receptors are responsible for receiving various stimuli from within the body (proprioceptors) the external environment (exteroceptors) (Toledo et.al 2010). Skin sensitivity results from the stimulation of a variety of exteroceptors, such as those responsible for sensitivity to touch (Meissner's corpuscles and Merkel's discs), pressure (Merkel's discs and/or Vater-Pacini corpuscles), and pain (free nerve endings or nociceptors) (Guyton et.al 1986).

The physical activities associated with exercise programs improving aerobic efficiency, may have provided sufficient cortical stimulation to promote structural and functional change. The fact that aerobic conditioning resulted in improvement for a variety of neuropsychological variables (tactile sensitivity).

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