Kinesthetic Role In Motorist Learning

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Abstract: This article describes the role of kinesthetic in motor learning. It starts with a definition that kinesthetic is Generally regarded as "a feeling or awareness" of body position and body movement. But there are four factors are seemingly quite common in definitions of kinesthetic: positioning of body segments, precision of movement, balance, and spatial orientation. Any Appropriate reference explaining the reception and transmission of kinesthetic information during movement has not yet been determined to the satisfaction of all Reviews those working in this area. Traditionally, it has been assumed that the proprioceptor in the muscles represents the source of kinesthetic. The possibility of improving the capability of the kinesthetic organs of sense has been a subject of considerable interest in discussions among instructors of physical education. But there is, as yet, no convincing evidence that kinesthetic can be improved. It is Generally stated, though, that the more one practices in repeating A Certain movement, the more skillful one Becomes in making that movement. One can feel, however, that "feeling" and "balance", as the main elements of kinesthetic, can be improved through practice Increased frequency and or creation of a conducive condition..

Keywords: kinesthetic, positioning of body segments, precision of movement, balance, and spatial orientation

Introduction

The phrase indicates potential motor skills above reinforced by some athletes following statement. Experienced golf players say *"that felt* good" when he was able to do a blow beautifully. Powerful baseball bat Said *"Iknew it the moment I*s "after he hit the ball and the *home* run. The phrase *"feel your* stroke", known as the standard instructions for the athletes swimming coach before

getting into the water to enter the race. Another phrase is given a gymnast named Ernest SanAngelo who said:*"Ithink of routine before my event. I check up and think of what I'm going to do. Then they call me for my first event. I jump up to the apparatus and think of my first moves -and that is all. The rest is taken care of by my kinesthetic sense. I go through what I have been practicing in my workouts -and that is all.*[1]

The essence of the above statement can be formulated into the Questions as follows: if we can control the movement without kinesthetic feedback ?, or more operations can be expressed with words what guides the movement of the arm, joints, and finger- their fingers, so it can move is always appropriate to all high velocity and direction ?. Implicitly Ernest San Angelo has stated that to obtain optimal motor performance required preparation kinesthetic feeling.

Kinesthetic feelings are often expressed as muscle or motor feeling, even quite popular as well as the six senses*(the sixth* sense),since known as extrasensory perception of the five senses is known today. Moderate to describe the feeling of muscles, tendons, and joints, including awareness the number of muscle fibers voltage, in the form of stretching and contraction, often used terminology somatic sensations[2]. Kinesthetic are often also called proprioception refers to the sensation and perception of the body and head movement. Although this capability is often overlooked as one of the senses human, kinesthetic important as a source of feedback and always provide sensory information to the central nervous system on matters related to the characteristics of the movement, such as the direction, position in space, speed,

[1] Frost, Reuben B. 1971. Psychological Concepts Applied To Physical Education and Coaching. London: Addison-Wesley Publish-ing Company. P 104
[2] Frost, Reuben B. 1971. Psychological Concepts Applied To Physical Education and Coaching. London: Addison-Wesley Publish-ing Company. P 40

and muscle activation [3]. In the motion control model *"close the* loop" kinesthetic information significant role. At the time of one's actions with this model made possible correction movement using kinesthetic information. Meanwhile, in the model "open *of loop*" like doing fast movements or movement of ballistic all controlled by a central command, without involving kinesthetic feedback, one cannot be corrected motion for a limited time, although kinesthetic feedback provided .[4]

Problems kinesthetic has piqued the interest of experts air-years-old. Experts have a lot to show the existence of taste-an kinesthetic this, and have also done a variety of experimental approaches to determine the role of kinesthetic in controlling action coordinated, however, in relative terms is not widely known by practitioners in the field of physical education and sport are outside the scientific field. The gap is over until the emergence of a number of research kinesthetic happened in the last few years.

According Oxendine less favorable view of the existence of the role of kinesthetic perhaps as a result of the following factors: (1) problems and differences of opinion in the definition of kinesthetic; (2) difficulties in making measurements;

(3) problems associated with the separation of other kinesthetic sensing of influence[5] (. To act assessment of the benefits and role contained in this capacity, the discussion will be carried out gradually from the definition of kinesthetic, the rationale being used, measurements were carried out, the

[3] [3] Magill RA 2001. Motor Learning: Concepts and Appications. Singa-pura: McGraw-Hill Book Co. p 75
[4] Magill RA 2001. Motor Learning: Concepts and Appications. Singa-pura: McGraw-Hill Book Co. p 76
[5] Oxendine, Joseph B. 1968. Psychology of Motor Learning. New York: Appleton, Century–Croft. P 291

development of kinesthetic, relations between variables kinesthetic and motor performance, and its implementation in teaching physical education and sport.

Definitions kinesthetic

Kinesthetic word, first used by Bastian, comes from two Greek words meaning "moving" and "sensation". In various references, kinesthetic word often used interchangeably with proprioception, because according Sherington of proprioception sense include motion together to feel the stress, pressure, strength, and body orientation of the space without involving any movement[6].

Many scholars have attempted to define kinesthetic, which of its use each viewpoint. For example, Smith defines kinesthetic information about *"the joint receptors*", while others propose a meaningful concept wider than the concept that is very limited. For example, Gibson argues that kinesthetic should be viewed as*"the Obtaining of information about one's action"* to ignore sensory modalities*(thesensory*modalities).Proprioseptor kinesthetic regard comes from an idea that is not quite right, because the information related to the movement can be found through various sensory systems .[7]

To enrich the discourse on the definition of kinesthetic in this paper put forward the views Frost et al. Frost said the kinesthetic is awareness or perception of the position and motion of the body as well as other body parts

[6] [6] Sage GH 1984. Motor Learning and Control: A Neuropsychological Approach. Dubuque, Iowa: Wm. C. Brown Publishers. P 106
[7] Sage GH 1984. Motor Learning and Control: A Neuropsychological Approach. Dubuque, Iowa: Wm. C. Brown Publishers. P 178

are sourced from feeling the muscles, tendons, joints, and other tissues [8]. Further explained that the sensory nerve endings help to things that berkenaaan with the position and orientation of the space. *Proprioseptor* receive stimuli from the internal organs are internal, while *exteroceptor* receive stimuli from the external environment. *Proprioseptor* role to guide and coordinate the whole movement of late, but generally act as stimuli which presents information on the central nervous system, as was done by *exteroceptor*.[9]

The same definition is expressed by Oxendine:*"The kinesthetic sense is Generally Considered to be "feel" or awareness of body position and body movement*. However, the definition more specific and carefully offered by other experts may help to clarify the scope of capacity contained in the capability which is the object of this study.

Scott kinesthetic defines as: "... *the sense roommates enables us to Determine the position of segments of the body, Reviews their rate, extent, and direction of movement, the position of the entire body, and the characteristics of total body motion*[10]. Another definition by stating that the proposed Magruder kinesthetic are: (1) *the ability to Recognize muscular constrictions of a known amount;*(2) *the ability to balance;* (3) *the ability to assume and identify body position;* and (4) *the ability to orient the body in space*[11]. Phillips and Summers showed kinesthetic perception as *"the conscious awareness of the individual of the of the position of the parts of the body during voluntary movement*", and the last presented is Howard and Templeton opinion.

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[8] [8] Frost, Reuben B. 1971. Psychological Concepts Applied To Physical Education and Coaching. London: Addison-Wesley Publish-ing Company. P 99

[9] [9] Frost, Reuben B. 1971. Psychological Concepts Applied To Physical Education and Coaching. London: Addison-Wesley Publish-ing Company. P 104

[10] Oxendine, Joseph B. 1968. Psychology of Motor Learning. New York: Appleton, Century–Croft. P 291

[11] Oxendine, Joseph B. 1968. Psychology of Motor Learning. New York: Appleton, Century–Croft. P 291

Howard and Templeton, said *kinesthetic is the discrimination of the positions and movements of body parts based on information other than visual or auditory.* Fast excitatory arise due to changes in long voltage, pressure, and power comes from the influence of gravity, the relative movement of the body, and muscle contraction. It is concluded that the discrimination position of body parts, discrimination movement, and the amplitude of the movement of body parts generated active and passive[12].

After noticing some definitions suggested by experts in the above, it can be noted in some agreements may developed as common sense kinesthetic. It seems like there are four factors that commonly arise in the various statements of the experts, namely: (1) the position of the body segments; (2) the accuracy of the motion; (3) balance; and (4) the orientation of the space. This concept offers a basis for developing a test for measuring kinesthetic doing. Tests kinesthetic always developed, although it has many concepts that have kinesthetic documented, which in turn is expected to result in a list of more specific elements kinesthetic ability.

basic kinesthetic

Most senses depend on stimulation from outside the body. For example, the eyes, nose, ears, skin, and taste bud receptors receive external stimuli. But the air-kinesthetic senses different from the five senses which have been called the first, kinesthetic feeling dependent on internal stimulation. The nerve endings-called spindle *(spindless)* or proprioseptor located in muscles, tendons,

[12] Sage GH 1984. Motor Learning and Control: A Neuropsychological Approach. Dubuque, Iowa: Wm. C. Brown Publishers. P 68

and ligaments, seems to be a means of coordinating the movement of the body. There captors *labyrinthine* are located in the inner ear is a regulator of the body's balance. Ability of coordination and balance, both of which are essential elements kinesthetic senses.

The above explanation is reinforced by D. Allen Phillips and James Hornak stating that the sense organs or taste-tetik kines is proprioseptor covering certain sensory receptors in the muscles, tendons, joints and tools are located vestibular in the inner ear[13]. Further described by Sugiyanto that each receptor me-had its own function in conjunction with the position and movement of the body. The main function of muscle spindle activity to back-aids postural reflexes and maintain muscle tension. Prescription-tor joints is important for the perception of the position and movement of the joints, and tools vestibular useful for maintaining balance and interpretation of lateral movement, horizontal and verticals[14].

To clarify what exactly is the basis kinesthetic, it can be stated that in the beginning not all experts agree kinesthetic senses explained using physiological basis. Traditionally it is assumed that proprioseptor in muscles stimulated by contraction or stretching of the muscle cells. Furthermore, pro-prioseptor in tendon and ligament stimulated by stretching or movement that comes from the contraction of muscles. A constant flow of stimulus from the receptor gives the possibility for learners to sense the position of the body without using the senses of sight, and more learners will be able to perform a coordinated movement and adjust to the *antigravity* sensation of awareness even(conscious *of*

[13] ----------. 1980. Motor Learning And Human Performance: An Application To Motor Skills and Movement Behavior. New York: Macmillan Publishers Co., Inc. P 252
[14] Sugiyanto. 1984. Pengaruh Penggunaan Videokaset, Kualitas Model Gerakan, Kelompok Umur, Jenis Kelamin dan Persepsi Kin-estetik (disertasi). Jakarta: FPS-IKIP Jakarta. P 122

sensations)of the receptor.

Flow think with physiological above approach is supported by Cooper and Glassow. Both experts in kinesthetic sensory receptors have been identified as the muscle spindle, Golgi tendon organs and blood cells*(corpuscles)*Pacini (Oxendine, 1968: 292). It is said that each receptor is stimulated by changes in voltage, and further nerve impulses*(nerve impulses)*forward to ***cerebral cortexl*** which acts as a basis for sensation and perception kinesthetic. There are 4 types of nerve endings receptors, three of which relate to the feelings of the position and movement, while the free nerve endings (and Pacini blood cells) are sensitive to the harsh pressure.

Briefly described kinesthetic resources, but as what has been said before that there is a difference of view early in connection with this problem. Rose and Mount castle expressed his doubts to stretch receptors in muscles provide information on the movement or position. The two experts were stating: "... ***it appears that classical proprioceptors Contribute may not at all to the arousal of 'proprioceptive' sensations***" Gardner also expressed confidence that"***muscle spindless do not play an important role in kinesthetic reception***", and further says that has primary responsibility for kinesthetic ability is Ruffini nerve endings and blood cells Pacini*(Pacinicorpuscles)*. Therefore, a proper source for the reception and transfer of kinesthetic information during the motion cannot be determined satisfactorily for all parties working in this field.

In conversations definition has been stated that the balance or *equilibrium* is one important element in kinesthetic, of course, this balance is closely linked to overall kinesthetic. Since the learners aware of the occurrence of a change in

position, should he be able to also be aware of the position and movement of the head. Receptors ***Labyrinthine*** located in the ear is activated by a change in position or movement of the head in relation to the overall body movement. When an external force throws the body of learners, it would
the ability to form good posture or maintain proper position. And this situation is evidence of the exercise of the function of the receptor usage.

Effectiveness of motor performance depends not only on the coordination of body movements alone, but also on body balance control. Thus, eventually it can be stated that the receptor assumed to be part of the mechanism kinesthetic.

Measurement kinesthetic

Research kinesthetic broadly divided into two categories. First, the form of studies related to pemi-recov- test and measurement, and the second one comes to the relationship between the kinesthetic and the performance of the motor or motor learning process of learners. Further studies evaluating the existence of relations between the two variable above, are encouraged to be associated with the measurement of the material.

Kinesthetic concepts relatively easily defined, but it is different with weights and measures, it is very difficult to measure effectively kinesthetic. Therefore, the definition of an existing kinesthetic seen as more consistent than the tests that have been developed. Although many evaluation tools used for measuring kinesthetic, most of the test do not have a steady validity.

Some experts familiar with this field conclude that kinesthetic sense is not

the capacity of a general nature, but rather leads to a combined specific elements, as stated by Oxendine that:*"the kinesthetic sense is not a general capacity. Rather, it is composed of specific elements*" [15]. For this purpose, Scott suggests some special abilities that can be used to determine the kinesthetic senses. Capability that is intended is: (1) The *muscular contractions of a known* amount;(2) *balance* ability;(3) *ability to assume and identify body* position;(4) The *precise use of the* hands; and 5 *orientation of the body in space*[16]. In addition there are other researchers Scott who developed a list of special abilities though somewhat different.

The concept of thinking that must be followed in this context is: when performing measurements kinesthetic senses must measure a number of different capacities in self-learners. For this not only requires the test items, but some test items. In its efforts to conduct measurements of the many elements that involved in the kinesthetic, the researchers have devised a test battery consisting of 15-25 test items. Usually indicated a very low correlation between the tests used. This low correlation to form the belief that there is no single capability or a single test items are quite capable of covering the overall kinesthetic sense.

Results analysis's kinesthetic measurements showed that the majority of battery test is designed to measure the ability of:

(1) functions as static and dynamic arm; (2) the function of the legs and thighs;

[15] Oxendine, Joseph B. 1968. Psychology of Motor Learning. New York: Appleton, Century–Croft. P 293
[16] Oxendine, Joseph B. 1968. Psychology of Motor Learning. New York: Appleton, Century–Croft. P 293

(3) balance and; (4) vertical and horizontal motion of the arm. measure against various capabilities beyond done with the assumption that the senses of sight and taste cannot be included in the measurement. No single test is adequate to measure all characteristics of kinesthetic.

A second problem encountered in measuring kinesthetic is as difficult to take measurements of the characteristics / other properties, which stretches from the problems of intelligence until the motor skills. Almost impossible to choose beads of the same and new tests for all learners. Research has shown that the performance of the tests used in the measurement can be improved through practice kinesthetic. Therefore, the results of testing conducted kinesthetic will raise questions that are fundamental, such as: Are learners perform kinesthetic tests with good results, due to the *sensory capacity* high or experience in the following test results in the past, or perform other similar activities. Although few studies done on this subject, one thing that needs to be addressed is the understanding that performance is affected by factors heredities kinesthetic and the environment.

Typical tests that are kinesthetic requires the subject to perform the following types of activities.

a. Duplicate or assume space, position or angle provided with arms and legs
b. Demonstrate accuracy of arm movements to the horizontal and vertical planes
c. Using the amount of power given to the against resistance measured
d. Leaping according to the distance and elevation that has been granted
e. Walk on a particular track special way

a. Throwing an object to improve accuracy and knowing the distance

b. Touching or designate a specific goal)

Phillips and Summers describes the position or straightness measurement technique*(alignment)* of the body. In the study, the research subjects were blindfolded with a cloth and asked assumptions standing position. A spotlight is put in front of the subject so that the reflection radiated into a board which has been characterized by varying degrees of size. Subject scores are determined by the amount of the variability in the desired position. The same technique is used when the subject stood facing the board which has been characterized by levels of measurement at a distance from the body's fingertips. Here the subject assumes a different arm positions, and measurements were carried out varies from the desired positions.

In summary, efforts to develop kinesthetic tests have result conclusions stated that there some specific elements that need to be combined into a test battery that's adequate for measuring kinesthetic. Although some of these elements have been identified by some researchers, but to determine the best tool in the measurement, each item element still not getting the deal. Since kinesthetic assumed to depend on proprioseptor andreceptors, *labyrinthine* it is generally concluded that the test should not involve kinesthetic sense of vision. Finally, several tests used to kinesthetics have shown reliability-bag level is high, although the validity of the test can not be set

Relationship kinesthetic And Motor Performance

measurement At the start of talks kinesthetic stated that category to two related studies the correlation between the kinesthetic and motor performance. Below are presented some results of the study as evidence of scientific studies that have been conducted by researchers in this field. Although only based on a few studies, the results are expected to be used for doing withdrawal kinesthetic

generalization to problems.

Several investigators have reported that there is a high correlation between test performance kinesthetic and general motor skills. Also stated that a high score in kinesthetic more at-produced by learners status of athletes compared to non-athletes learners. However, this conclusion as the study is limited by the validity of the tests that have not been tested.

Phillips and Summer reporting relationship between the ability to learn the motion in the sport *of bowling* and kinesthetic. Phillips and classify 115 Summer college student in a group of fast and slow by the *bowling* appointed score-right in the exercise period (the period of exercise performed 24 times). Further tests involving kinesthetic given position size to the whole subject. Researchers reported that kinesthetic memo-possess a higher correlation in the early stages of learning the sport motion *of bowling* rather than at the final stage. In the study researchers also reported kinesthetic perception of differences between the arms were chosen and not. It is suggested that the habit of using the arm can produce perceptual difference. Another study using
objects *bowling* done by Greenlee. Greenlee found an association between dynamic balance and *bowling,* but no relationship was found between kinesthetic size, strength and static balance with the ability *bowling* .

Mumby develop tests that require the subject maintains constant pressure on moving objects. Mumby give this test to 21 students who follow wrestling lessons, and reported that a better wrestler obtain a higher score. Finally, Mumby concluded that wrestling ability associated with sensitivity to pressure and ability to react accurately (Oxendine, 1968: 295). Phillips testing out some kinesthetic size to 63 students in golf lessons. Reporting that there is a

relationship between the size of certain kinesthetic and ability *"putting"* ,but otherwise there are no or little to do with performance *"driving"* [17].

Clapper provide kinesthetic tests daughter middle school students, which are grouped into socio-economic level of low, medium, and high. The test involves the ability to designate the points target *(target pointing),*lift arm*(arm rising),*spreading finger*(finger spreading),*and the balance on the ball*(ball balancing).*Clapper reported that there is a low correlation between the ability to learn movements and score accumulation test battery. If the test items are analyzed individually produced significant discoveries. Also reported that the performance test items used in the study can be developed in a little more exercise.

Wiebe reported that college athletes had higher scores on a 21-point follow kinesthetic tests than non-athletes). Taylor in his research get a successful outcome male athletes into college basketball teams that scored kinesthetic higher when compared to candidates who failed to become a member of the team . Gross and Thompson reported in his research that athletes have better dynamic balance, capable of faster swimming pool and have the ability to better overall when compared with the balance athlete ugly.

Young investigated the relationship between the kinesthetic and some form of movement that was elected in gymnastics and sports. The study group consisted of 37 female students perform tests of motion that involves the movement of arms and legs, throwing, kicking, hitting, squeezing, and balance. Although the validity of the test kinesthetic used in research to get some questions, researchers conclude that there is a positive correlation between the

[17] Oxendine, Joseph B. 1968. Psychology of Motor Learning. New York: Appleton, Century–Croft. P 295

kinesthetic and some typical movements used in gymnastics and sports. Roloff provide a test of motor skills are developed Scott and 8 points kinesthetic tests for the 200 students who take physical education lessons. Students as research subjects reflect the different levels of ability. The results showed that among the two tests bettered has a positive relationship. Role off concluded tests used in research have merit in the development of kinesthetic, more Role off developed a regression equation to the points test battery consisting of *arm* raising, *weight* shifting, *arm* circling, and *stick balance*[18]. ,

Norrie physical education students divide into groups of good and bad physical ability. Kinesthetic battery test given to each group. Having evaluated by instructors found that there is a positive correlation between these tests and motor.

To further refine kinesthetic insight into the problems, in this work will be presented some research that's getting results opposite to the research that has been mentioned earlier. For example Witte reported no relationship between the size and capability of positional kinesthetic the ball rolling for the student sons and daughters of elementary school classes 1 and 2. It is also stated there was no difference between students' kinesthetic size sons and daughters comparing the level of effectiveness measurement Rollo golf skills between traditional methods and teaching using kinesthetic perception. The conclusion states there is no difference between the two approaches used in the lawyer-golf doctrine (Drowatzky, 1975, 184)[19]. Hill-conludes in his research that there is no correlation between the type of kinesthetic and learn the simple motor tasks

[18] Oxendine, Joseph B. 1968. Psychology of Motor Learning. New York: Appleton, Century–Croft. P 298
[19] Drowatzky, John N. 1975. Motor Learning Principles And Practices. Minneapolis, Minnesota: Burgess Publishing Company. P 184

either complex. Similarly stated by Sisley that there is no relationship between the kinesthetic and levels of one branch of the sport of basketball, *bowling* and tennis (Drowatzky, 1975: 184).

Similarly, few studies have been carried out by some experts, who until now still not getting the results are consistent, however, there must be an advantage to drawn from the differences in the results of research that has been presented, which allows us to obtain a reference think that is argumentative.

development of kinesthetic

Possible sensory ability to develop kinesthetic learners has been an interesting debate among the experts of physical education. None the less, the possibility capacity development through practice basic sensory seems is still something vague. There has been no scientific evidence which stated conclusively kinesthetic can be improved. Just in general it can be stated that the more repetitive activities, the more skilled learners also undertake activities that are repeated.

Widdop in his research showed that ballet training to develop the ability to position the limbs and late-conscious learners limb position. There is little doubt as to the activity or action is given able shape better kinesthetic. Nonetheless seems Widdop research, as well as other researchers, show only on certain types of movements and positions that can be learned by learners .

Although the assumptions stated kinesthetic basic capacity cannot be developed through training programs, seems to take part in motor activity has

other advantages. Body control, balance and motor skills better will be produced from a wide variety of activities *(wide spread* activity).

More and more learners do response and position movement, the more many possibilities to develop behavioral skills necessary movement in days to come. Therefore, students who take part in a variety of dance, gymnastics and other sports, will likely be able to point higher score in kinesthetic. General development in motor skills as it seems to give the development of kinesthetic owned. In fact, it only represents the development of skills that will be duplicated or transferred to the same skills in days to come.

Implementation kinesthetic in Teaching Physical Education and Sport

Kinesthetic learners with a sharp feeling seem to remember the correct motor movement is easy, because the sensation in the position to receive information from proprioceptors. For example the typing lessons. As described above, when the following subjects at the beginning of learners develop awareness of feelings by doing touch to any letter in the typewriter keys. Once the sensation is set, then learners can press a key type in which it calls the proper radius without notice. The fingers should not be too often knocked among key type or double-lock type at the same time. The same kinesthetic knowledge applied also by the possibility of a piano player or a motorist who can pedal acceleration or brake pedal without using the senses of sight.

Skill and ease in motion sport with which learners assume certain positions or execute motion certain evidenced by this kinesthetic level. Therefore, learners with quality kinesthetic high can easily perform the repetition of the

starting position in the movement ran in track athletics, kick appropriately in football, or the attitude of hitting in baseball, even though at the beginning of the execution of occasional done incorrectly. In an effort to execute correctly learners should be able to feel the movements involved clearly.

To obtain high effectiveness and consistency in the lawyer-teaching of physical education and sport, sensory clues learners should be guided. Instructions teachers or coaches who do immediately to help achieve the formation of the correct movement. Although even so, the final analysis the formation of the movement must be known with certainty by learners. Learners should develop the feeling to swing, throw, jump, or other movements correctly. In many situations, the teacher's instructions or trainer necessary for the effective performance of early activities such as gymnastics, dance, or some other activity. Learners must always remember the sensation of movement made to duplicate it the next time.

Teacher or coach can help raise awareness of kinesthetic movement required learners to a particular response. The more so for clear and natural sensation which learners receive no guidance, teachers should help students in conceptualizing the movement for more Acknowledgement awareness of sensation. Reception power greater sensation very assist students in reviewing the performance generated and mentally rehearse the next performance.

Tools often used by teachers to improve the movement in accordance with the mechanics and consciousness responses of learners. Body mechanics techniques to "balance the book" who have understood the students outside of the head, while the movement up and down stairs, sitting and standing, or walking around the room is a method that should be run. Mechanical motion in sports shortly utilization factor to cover heavy weapons including golf clubs, a

club baseball, or tennis racket to help learners develop what developed continued movement(follow-through) accordingly .club Golf and ball base heavy will strengthen learners to perform advanced motion and perhaps experience this response is a first-time experience. One time the right moves to do, teachers can be very helpful in alerting learners acquire the sensation.

By basing on the description that has been done, what is contained in this work can be stated briefly as below.

Kinesthesia expressed as muscle feeling or feeling motorist , which are generally closely linked with the position of the body segments, the accuracy of motion, balance and spatial orientation. Basic kinesthetic experts still being debated, but for discussion in this work it is assumed that proprioceptor, through receptors in muscles, tendons, joints and tools inside the ear vestibular is a source of kinesthetic

Research in the kinesthetic broadly divided into two categories. The first study relates to choice test and measurement; and a second study concerning the relationship between the kinesthetic and motor performance.

Tests kinesthetic that there still needs to be developed, especially regarding the issue of the validity of the test. Research presented show the results have not been consistent. A group of researchers says there is a positive relationship between test kinesthetic and motor performance and other groups found the air different results.

Efforts to develop the ability kinesthetic learners is still the talk of the experts. Assumptions used me-stated their doubts about the possibility of the

development of the ability of kinesthetic learners, because at least not until this work is presented not obtained conclusive scientific evidence that kinesthetic can be improved through practice. In this context, it can be the said heredity factor prominent role.

On the other hand can clearly be perceived that the "feeling" and "balancing" the main element kinesthetic ability can be improved through increasing the frequency of practice, or the creation of a favorable climate. In other words, it can be stated that environmental factors determine the occurrence of kinesthetic skill development. One fact difficult to resist showing elements of "feeling" and "balancing" is a capability that is needed in physical education and sport.

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