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EDITORIAL

This Journal wants to promote the all aspects of Physical Education, Exercise Science and Sport Science. Nowadays Physical Educator, Exercise & Sport Science Experts have to prepared themselves about the well-being Education which is the demand of our Globe, Physical Training has been replaced by Physical Education. In the coming days Physical Education term may be shifted by Exercise Science and Sport Science. Advance curriculum for this subject at different phases integrating various disciplines of human knowledge, understanding, occupation etc. come together. More over moral and spiritual education also is becoming part and parcel of this subject because newer explanation of yogic Science are also assumed proper place in its curriculum.

To keep pace with changing concept of Physical Education all the professional in this line should meet together and explore a forum for interaction, communication and growth of this discipline. For this purpose a humble effort we have taking. Suggestion from readers, contributors, scientists, social workers are welcome.

Samiran Mondal

Editor-in-chief.

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EXERCISE AND PSYCHOLOGICAL WELL BEING

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ABSTRACT

Exercise has become an exact science. The beneficial effect of Exercise on Physiological systems are well established. We have reviewed here about the Psychological benefits of exercise on the line of mental functioning, neurophysiology, behaviour, psychasomatic point of views.

The word exercise derived from Latin, means "to drive on" or "to keep busy". Exercise specially physical exercise is a definition of life itself that is to be active, to be reconditioned, to be involved. In the text of Exercise Psychology, authors have defined exercise as "to work". Sheehan (1982) noted that "Exercise has become an exact science that can be measured very carefully in a laboratory with many sophisticated devices." Morris (1984) developed one working definition that "Exercise is physical work which can be accurately measured in a human performance laboratory."

Many exercise physiologists have also defined exercise as a stress, since exercise tends to upset internal environment of the body, that is homestatic balance. It may further be mentioned that this stress is not necessary harmful rather if it is conducted in terms of intensity, duration and frequency, it has beneficial effect and carry over value to health and well-being. Through many longitudinal and cross sectional studies researchers have shown that regular exercise can make crucial difference in various physiological systems in comparison to inactive person. The beneficial effects of exercise on heart and cardiovascular system, on body composition and body weight control, blood sugar and cholesterol level etc are well established.

From the recent research it has now been established that in addition to physiological changes there is a myriad of changes occur to the mental health or mental functioning of the exercising individual (Fuenning et al 1981). Morris (1984) has

listed a number of psychological beneficial effects, for example :

1. A positive correlation has been shown between physical fitness and academic success.
2. Exercise has been shown to increase circulation to the brain and other vital organs.
3. Exercise tends to increase resistance to both mental and physical fatigue.
4. Exercise tends to produce arousal which in turn increases alertness and the speed and efficiency of certain perceptual and psycho-motor process.
5. Exercise has been shown to aid in relieving many of the stress of the twentieth century.

Unfortunately, all these benefits do not come over night. For achieving a positive beneficial effect one has to perform exercise regularly, that is to follow a well planned schedule. May be there are no opponant to defeat, no times to overcome, no records to break, one can set his or her own schedule, rules and standard, but regularity is essential. This regular participation in exercise programme for a considerable period of time (not less then few months) may result changes in physiological potentialities. For adaptive chages to occur, exercise with a definite intensity, duration and frequency are essential and this a methodical approach in exercise programme is referred to chronic exercise and the resultant adaptive changes are normally described by exercise scientists as training effects.

It has recently been proposed that chronic exercise may act to balance, or stabilize the physiological consequence of emotional stress. Although the physiological mechanism is not yet known for certain, there is evidence of changes in hormones, neurotransmitters and other body chemistry that may possibly help to prepare the body's responce to stress situations. Research have been shown to increase in blood aminess, glucose, androgens, lactic acid and and corticoid compounds resulting from chronic exercise. Other evidence suggests that chronic exercise causes the release of such chemicals as enkephalin, a euphoria-producing substance and that physical conditioning programmes facilitate the release of the beta-endorphin from brain cells, a substance that produces relaxation. Some researchers attribute the beneficial effects of exercise on stress to rdduced electrical activity in the muscles and an increased feeling of fitness. In combination, these

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factors may help to improve self concept, reduce anxiety, insulate from stress and enhance psychological functioning (McGlynn, 1987).

Physical exercise elicits neurophysiological responses. Consequently with the adaptive changes in the physiological system it is expected that there would be potential changes in the behavioural aspects-level of arousal, anxiety, attention, motivation etc. Behavioural science firmly rests on the assumption that behaviour does not occur by chance, but rather a response to stimulation. Nervous and mental activity has long been considered as a response to external or internal stimuli. This assumption of stimulus-response relationships while explaining behaviour leaves the impression, that, perhaps electrons, molecules and various nuclei in the nervous system get together for a conference to decide when, where, how and why behaviour is to be altered. Considerable research has investigated the positive behavioural effects of physical activity upon attitudes and personality. Researchers have attempted to investigate the involvement of physical exercise in positively affecting mental functioning through a broad variety of research approaches. Physical conditioning programme for young men and older adults has been shown to improve certain motor performance and cognitive function in conjunction with improvement in work capacity and circulatory functions. It has also been suggested that the maintenance of fitness throughout middle-age also may play a role in averting cognitive disfunction associated with aging through the maintenance of cerebral vasculature (Powell 1975)

Over the years researchers have investigated relationship between exercise and cognitive abilities. Questions relating mental alertness and other scholastic achievement has been studied. On the other hand little investigation has been made into the nature of cognitive indisposition resulting from more severe exercise stress. Research concerning both the short and long term effect of exercise upon cognition is especially vague and has relied primarily upon psychological test or academic performance in order to indirectly evaluate cognitive outcome of exercise. While regular and submaximal exercise may very well have immediate or long term positive effects upon cognitive functions, different factors during severe maximal exercise may have destructive effects upon the cerebral metabolic environment.

From a psychosomatic view point the acute effect of exercise are less interesting than the possibility that regular exercise has lasting effect on psychological functioning affecting the physiological response to stress in general rather than specially after exercise. Exercise should yield profound changes in general

well being and psychological ability to cope with stress which are not limited to the acute exercise situation. Some researchers have raised the question of validity of claim that exercise training will induce profound changes in psychological functioning in large group of subjects, without denying the potential of exercise as a therapy in isolated subjects. Blumenthal et al (1989) contradicted the idea that regular exercise may specifically prevent loss of cognitive function in elderly person although a number of physiological benefits were found. Though numerous claims (Sachs and Buffons, 1984; Sima, 1984; Morgan and Goldston, 1987) have been made regarding the possible psychosomatic benefits of exercise. Roth (1989) concluded that both active and inactive individual experience acute reduction in anxiety following single bouts of exercise even in the absence of changes in cardiovascular reactivity. Stepto et al (1990) was of the opinion that exercise has an important influence on individual differences in cardiovascular activity and may also be valuable in stress management and in the control of hypertension. It has been suggested that one of the mechanisms through which physical activity influence hypertension and coronary morbidity is by moderating stress related hemodynamic reactions.

Studies have claimed a beneficial effects of exercise-fitness training on psychological well-being in terms of decreased feeling of anxiety and increased self-esteem. The efficiency of the cardiovascular system to deal with physical load is higher in acrobically fit subjects, resulting in a reduced activation of the sympathetic nervous system during submaximal work load. These positive psychological and physiological effects of fitness have laid psychophysiological to assume that high fit persons may evince smaller increases in sympathetic activity during psychological stress situation.

From the above discussion it may appear that, there are several possible mechanisms by which exercise may create impact on psychological well-being. Lastly we conclude this topic with Stappoe's study. Stappoe et al (1992) attempted to find the benefits of psychological well being from physical exercise Programme and was of the opinion that exercise does have the long term positive effect on mood and psychological well-being and that psychological gains are not restricted to athletes, they may be confined to people with a positive disposition towards increasing the physical activity level.

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Hints to Contributors

1. This Journal publishes original and exclusive research articles in the area of Physical Education, Exercise Science and Sport Science.
2. Reviews of New books and Research Studies in Physical Education, Exercise & Sport.
3. Outstanding Research Abstracts.
4. Articles about scientific Instruments related to Exercise and Sport Science Research.
5. Professional National and International News like Scientific Conference etc.
6. Any other matter, suitable to fulfil the objectives held by us, will be cordially welcome.
7. All sorts of literature (English and Bengali) must be sent in the form of double spaced, type written on single side of the sheet.
8. Each contributor will be responsible for the views and contents of the literature sent by him / her.
9. All articles should be accompanied by their abstracts.
10. Every Literature should be addressed to the Editor-in Chief, Journal of Exercise Science and Sport Science, Dr. Samiran Mondal, C/o Sri Satya Sankar Chakraborty Aban Palli, Santiniketan-731235, West Bengal, India.