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EDITORIAL

Physical education profession wants immediate modernisation. Now all over the India Physical Education Courses are three ~~right now~~: One is general graduation type like B.A. / B.Sc. in Physical Education which is controlled by UGC. Other courses are B.P.Ed. and M.P.Ed. controlled by NCTE. Another type of courses are B.P.E. and M.P.E. But recently UGC rose a question about the name of B.P.E. and M.P.E. Courses. My question, Is Physical Education a teacher training programme or more than that? If more than that, then why NCTE control us? NCTE can control our teacher's training part only. After B.A. / B.Sc. in Physical Education students are compel to join B.P.E. and followed by M.P.E. Course. Why not they will join M.A. / M.Sc. in Physical Education? In India very few university offered M.A. in Physical Education programme. But as for my knowledge is concern no Indian University have offered M.Sc. in Physical Education. So, after graduation most of the students have to go through the teacher's training programme B.P.Ed. and M.P.Ed., willingly or unwillingly. In India Physical Education profession has not controlled by central controlling authority. But other profession like medical, Indian Council of Medical Research (ICMR) control and observe all the matter related to medical education and development. Like this ICAR, AICTE, CSIR are the other central authority, who controls their profession. This is the high time to rise a slogan we need Indian Council of Physical Education Research and for finalising this idea, we have to organise Indian Physical Education Congress as early as possible.

Samiran Mondal

Editor-in-chief

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THE USE OF VYAYAMA OR PHYSICAL EXERCISE, PRESCRIBED IN AYURVEDA

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Vyāyama or Physical Exercise is quite essential for a person to maintain his normal health. Also it helps to carry out daily tasks with energy and attentiveness, without undue tiredness, and with ample vigor. *Vyāyama* (वि+आ+यम्+घट्.)¹ is the term, especially used in Ayurveda for the physical activities, which can be identified with the 'physical exercise' in the present time. Ayurveda, the medical system of India, has also prescribed *Vyāyama* in both the measures: preventive and curative.

Sources for the discussion made here, are mainly the *Vṛddhatrayī*: the *Carakasamhitā*, the *Sūstrutasamhitā* and the *Astanghrdayasamhitā* and for the Sri Lankan medical texts, the *Sārārīhasanīgrahayā*², written in Sanskrit in the 3rd Century A.C.; the *Bhesājjamāñjūsā* written in Pali, the *Yogārnava*³ and he *Prayogaratnāvalīyā*⁴, written in Sinhala in the 13th Century A.C. These four are the oldest treatises on medicine so far found in Sri Lanka. The phrase 'Sri Lankan Medical Texts' is used here to distinguish it from the Indian Ayurvedic texts only. Otherwise, Sri Lankan medical system is nothing but Ayurveda though it has some distinctive features.

The history of *Vyāyama* can be traced from a remote past, even from the primitive societies. We have, at least, more than three thousands years old written evidence for the use of *Vyāyama* and as the *Carakasamhitā* and the *Sūstrutasamhitā* has taken their present form exactly before the 2nd Century A.C., we have nearly two thousand years history of medical perspective of *Vyāyama*.

The definition of *Vyāyama* has been given in the *Carakasamhitā*, thus:

शरीर चेष्टा या चेष्टा स्थैर्यथा बलवर्धनी ।
देहव्यायामसंख्याता मात्रया तां समाचरेत् ॥⁵

That exertion of body which is productive of good consequences to the body itself, which conduces to collectedness of mind and increases strength is called physical exercise. One should have recourse to it in due measure. In

fact, this is the aphorism of *Vyāyama* given in *Carakasamhitā*, and according to this definition *Vyāyama* supports for the perfect health which includes both the body and mind.

In the aphorism मित्याहारविहारभ्यां⁶, *āhāra* comes first and *Vyāyama* comes under *viāhāra* to depict the importance of physical exercise. Ayurveda as the science of life, which based on the principles of nature focuses on the balance of the physiological functions to maintains perfect health. The *dōṣas* (*Vāta*, *Pitta*, and *Kapha*) represents the variations, improper interaction of sense and sense objects; unwholesome acts performed by body and mind, are all responsible for the vitiation of *dōṣas*. *āhāra* (diet) and *viāhāra* (physical exercise) plays a crucial role towards maintaining the body in a state of perfect health.

Then person, who does the physical exercise, should consider the seasons (*ṛtus*) also⁷. Because it should not be continued in the same way through out the year as the natural changes overpower the health. Even physical exercise done in the proper time, considering the season increases not only strength and complexion but also happiness and period of life⁸. Therefore, Ayurveda advises *Vyāyama* to avoid in two seasons: *Gṛīṣmā* (summer)⁹ and *Vārsā* (monsoon)¹⁰.

Ayurveda has advised the physician to examine the '*Vyāyamaśakti*' capacity for physical exercise while examining a patient. It should be ascertained form the capacity for action. व्यायामशक्तिश्चेति; व्यायामशक्तिरपि कर्मशक्त्या परीक्षत ॥¹¹ The judgement on three kinds of strength viz. superior, middling and inferior, is done by the same way¹².

Vyāyama, in Ayurveda, is used even as a treatment; in both the aspects preventive and curative. The foundation of Ayurvedic treatment lies on *Vāyu*, *Pitta* and *Kapha*. They are the three 'Bioregulating principles' present inside the body and are known as *tridosas*, which controls the various physiological functions of the body सर्वेषामेव रोगाणां निदानं कुपिता मलाः ॥¹³ (for all the diseases, the causes are the aggravated *dōṣas*). In all the living things, animals or plants, the three Bio-regulating principles, *Vāyu*, *Pitta* and *Kapha* are responsible for all physiological functions taking place in a cell or a body. *Vāyu*, *Pitta* and *Kapha* are found in each and every cell which regulates and conducts the process in the body. These Bio-regulating Principles, or *dōṣas* when get deranged, they manifest some abnormal symptoms due to their malfunctioning within the body.

According to the classical texts of Ayurveda eighty diseases or

symptomatic disorders are caused by an unbalanced state of *Vāta* (अशीतिर्वातविकाशः) 14. While diseases of pitta are of forty types (चत्वारिंशत्पित्तविकाशः) 15 disease and disorders caused mainly by *kapha* as mentioned in the classical texts are twenty in number (विंशतिः श्लेष्मविकासः) 16.

Vyāyāma also one of the treatments which has been prescribed by the Ayurveda as a treatment for the twenty types of diseases and disorders caused by phlegm (*ślesma*) 17. Again, the *Carakasamhitā*, in the section of *Vimāna*, has explained that the physical exercise as a treatment for phlegm. There, it prescribes running (*dhāvāna*) jumping (*langhana*) leaping (*plāvāna*) walking about (*parisarana*) night-keeping (*jāgarana*) pugilistic combat (boxing - *niuddha*) and athletic exercise etc. for the deranged phlegm 18.

The way *Vyāyāma* works against the phlegm can be understood in another description done by Caraka, thus :

एवमाशयमनुप्रविश्योरोगतं केवलं वैकारिकं श्लेष्ममूर्च्छमुत्क्षिरति,
तत्रावजिते श्लेषण्यपि शरीरान्तर्गतः श्लेष्मविकाराः प्रसूतिसापद्यन्ते,
यथा मित्रे केदार-सेतौ शालियवषट्टिकादीन्यनभि-
ष्यन्धमानान्यम्बसा प्रशोषमापद्यन्ते तद्वदिति ॥ 19.

As paddy, barley and other crops are dried up when the water collected in the field escapes away upon the ridges enclosing it being broken ; even so diseases caused by the phlegm are destroyed upon the root of the phlegm being thus destroyed.

As already mentioned above that the reason for the advice of Ayurveda on doing physical exercise during four seasons ; *Sarat* (autumn) *Sīra* (winter) *Hemanta* (Early winter) *Vasanta* (spring) is clear. According to the nature, water becomes cold, clear and heavy and the Sun's rays are mild. The water and vegetables part taken in *Hemanata* season give rise to an accumulation of *kapha* in the body on account of their heaviness and cold character 20. This accumulated *kapha* finds expression in spring season and so brings about *kapha* type of disease 21. Therefore, in this aspect *Vyāyāma* has a preventive measure. More over, the *Aṣṭāṅgahrdyayasamhitā* has prescribed the अनेकरूप व्यायाम 22. Exercises of 'different kinds' as a therapy for the disease of *kapha*. Even the *Bhesajjamañjūsā* has mentioned the *Vyāyāma* for the same diseases 23. *Vyāyāma* is one of the treatments mentioned for the diseases of suppression of vomiting 24.

According to another explanation given in the *Aṣṭāṅgahrdyayasamhitā*, the therapy is of two kinds, i.e. *brmihana* (stoutening) and *langhana* (thinning, slimming) *santarpana* and *apatarpana* are also used as their synonyms respectively. *Brmihana* nourishes the body while *langhana* makes the body light 25. *Langhana* is of two kinds : *śodhana* and *samana*. *Vāgbhata* included the *Vyāyāma* in seven kinds of *samana* 26. According to Caraka also the *Vyāyāma* is included under *langhana*.

चतुष्प्रकारा संशुद्धिः मारुतातपौ ।
पाचनान्युपवासश्च व्यायामश्चेति लङ्घनम् ॥ 27

It also shows the importance of the *Vyāyāma* as a therapy in both the measures : preventive and curative.

Besides, *Sveda* or Sudation without the agency or fire is suitable in diseases of *Vāta* inactivated by *medas* and *Kapha*. *Vyāyāma* is also one of the methods used in this connection 28. Further, both the traditions, Ayurveda and Sri Lankan, have prescribed the *Vyāyāma* for the diseases those arising from the decrease of *sveda* (sweat) 29.

One may raise the question that if the *Vyāyāma* causes to increase both the *Vāta* and *pitta* while decreasing the *ślesma*, then, how *Vyāyāma* makes the balance of *doṣas* or Bio-regulating principles ? In fact, what *Vyāyāma* does is increasing the digestive fire (*pācakāgni*). When the digestive fire is in its good conditions, all types of foods become easily digested. Then, there is no doubt in increasing *Vāta* or *Pitta*. On the other hand, according to *Suśruta*, *Pitta* is also identical with the elemental fire. He says; "*Pitta* is the same as fire, since such symptoms, as a burning sensation, digestion and all other characteristics of fire can never exhibit themselves in the human body without the intervention of *Pitta*. *Pitta*, therefore, is called internal fire 30. And *Vyāyāma* helps for the digestion of food 31. Even *Vāgbhata* has mentioned, among the causes, behind the aggravation of *Pitta*, excess of physical exercise too 32.

The *ativyāyāma* or excess of physical exercise causes diseases based on both, the *Vāta* 33 and *pitta* as well as the proper physical exercise causes good health. Further the excess correlation of *Vyāyāma* may be caused for fatigue, faintness, loss of vigor, thirst asthma, consumption, fever and attacks of cold.

श्रमः वलमः, क्षयस्तृष्णा रक्तापत्त प्रतामकः
अतिव्यायामातः कासो ज्वक्श्चदिश्च जायते ॥ 34

And it causes for the *kārṣya* or loss of flesh³⁵. According to the Ayurvedic texts, he *kārṣya* or thinness is better than *sīhalya* (fattiness).

अत्यन्तगर्हितावेतौ सदा स्थूलकृशौ नरो ।
श्रेष्ठो मध्यशरीरस्तु कृशः स्थूलास्तु पूजितः ॥ 36

Even Vāgbhata says that the emaciation (*kārṣya*) is better than corpulence (*sīhalya*) because there is no treatment for the obese, for, neither *br̥nhana* nor *langhana* are capable of vanquish excess of fat, digestive activity and *Vātā*.

काष्ठाभिव वरं स्थौल्यात् न हि स्थूलस्य भेषजम् ।
बृहणं लङ्घनं वाऽलमतिमेदोग्निवातजित् ॥ 37

But the person who is thin (*kārṣya*) should not practice the *Vyāyāmas*³⁸. If does, it is called injudicious correlation of *Vyāyāma* (*mīthyāyoga*) and it causes for diseases. Further, the *Bhesajjamañjūsā* and the *Aṣṭāṅgahṛdayasamhitā* mentions that "persons suffering form diseases of *Vātā* and *pitta*; children, the aged and those having indigestion should avoid the *Vyāyāma*. According to the *Yogārṇava*, patients those who are suffering form *upadamsā* (venereal diseases) also should avoid the *Vyāyāma*³⁹.

वातपित्तमयी बालो बुद्धो सामो च तं चजे ।
अतिलायामतो कासो जरो छद्दि ते जायती ।
रक्तपित्तं पदमको खयो चण्हा च बड्ढति ॥ ३० ॥ 40

Therefore, the *Vyāyāma*, even though, is essential for the good health there should be the limitation. Because he who indulges in physical exercise, laughter, talking, walking, sexual congress and nightkeeping excessively, though these are necessary, soon meets with destruction like an elephant that assails a lion⁴¹. The limitation of physical exercise is upto the tiredness. Therefore, Caraka says; प्राक् श्रमाद् व्यायामवर्जी स्यात्⁴² *Vyāyāma* should be stopped before the tiredness. Otherwise, according to the *Aṣṭāṅgahṛdayasamhitā*, *Vyāyāma* should be done by the person using a half of his strength only.

"Persons who are strong and who indulge in fatty, in cold seasons and spring seasons, should do *Vyāyāma* to half of their strength only while others and in other seasons should do it mildly⁴³."

The *Bhesajjamañjūsā* differs some extent on this regard, form the *Aṣṭāṅgahṛdayasamhitā*.

सीतकाले वसन्ते च सो सेब्बो अड्ढसत्तिया ।
अञ्जकाले यथासत्ति आचरे मन्दमेव वा ॥ 44

It is to be done in half of strength cold season and in the spring. In the other seasons should follow it according to the strength or mildly.

Not only *atīvyāyāma* or excess of correlation of physical exercise, but also rest correlations : absence of correlation injudicious correlation of *Vyāyāma* are causes of diseases⁴⁵.

Absence of correlation of *Vyāyāma* is also included in the causes for twenty type of diseases based on *kapha*; such as :

- | | | |
|-----|--------------------------|--|
| 1. | <i>trptī</i> | feeling of full abdomen; no feeling of hunger |
| 2. | <i>tandra</i> | Drowsiness |
| 3. | <i>nīdrādhikya</i> | Excessive sleepiness |
| 4. | <i>staimiyya</i> | Feeling of wet cloth covering the body's timidness |
| 5. | <i>gurugāratā</i> | Heaviness of the body |
| 6. | <i>ālasya</i> | Lassitude. Lethargy in the body |
| 7. | <i>mukha-mā dhurya</i> | Persistent sweet taste in the mouth |
| 8. | <i>mukhasrāva</i> | Excessive salivation form the mouth. |
| 9. | <i>sīlesmod-gīraṇa</i> | Mucous expectoration |
| 10. | <i>mala-syādhikya</i> | Excessive formation of faecal matter |
| 11. | <i>kathopalepa</i> | Secretion of excessive mucous in the throat |
| 12. | <i>Balāsaka</i> | Loss of strength |
| 13. | <i>hrdayopalepa</i> | Secretion of phlegm |
| 14. | <i>dhamani-praticaya</i> | Thickening or dilatation of the blood vessels |
| 15. | <i>galagaṇḍa</i> | Tumor on the side of neck |

16. *atisthauilya* Excessive Obesity
17. *sītāgnīta* Suppression of the digestive power
18. *udarda* Urticaria
19. *swetāva-bhāṣatā* Pallor of the skin
20. *swetāmūtra-netra varcasva* Whiteness of urine, eye and faeces⁴⁶;

Susruta says that absence of *Vyāyāma* causes fattiness of the body (sthaulya)⁴⁷. The *Bhesajjamañjūsā* says that the absence or also a cause for many diseases⁴⁸.

Therefore, not only the ativyayama to be avoided but also injurious exercises or physical exercises which are injudicious to be refrained. One who is addicted to physical practices which are injurious to the body, those practice to be avoided. But it is not easy to do as we say, if it has been practiced for long time. Still, it is possible to abstain from such injurious practices if we do it gradually. Caraka, therefore, prescribes both 'gradual abstaining' and 'gradual practicing'. Caraka says, "An intelligent man should abstain gradually from all habitual practices that are injurious and adopt gradually practices that are beneficial". What is meant by 'Gradually' or '*krama*' also has been explained thus :

प्रक्षेपापचये ताभ्यां क्रम पादाशिको भवेत्
एकान्तरं तत्तचोर्ध्वं द्वन्तरं तथा ।।⁴⁹

Progressive procedure or the '*krama*' of abstaining from the injurious practices and getting accustomed to the health-full practice is called '*pādāmsika*'; that is one fourth, half and three fourth, Caraka's this theory which is called *pādāmsika* has been explained by Cakrapānidatta, the well versed commentator to the *Carakasamhitā*, in his commentary with an example; thus :

अपथ्या वकादयोऽथ्यस्तास्ते त्र्याजाः रक्तशाल्यादयः पथ्या
अनड्यस्तास्ते सेव्याः, तत्र प्रथम दिने यवकपादत्रयं रक्तशालीनामेक
पादः । द्वितीये दिवसे द्वौ पथ्यस्य पादौ द्वावपथ्यस्य, एवं तृतीये,
एवं द्वितीयपादभ्यासो द्वन्तरो भवति; चतुर्थे त्रयः पादाः पथ्यस्य
एकोऽपथ्यस्य एवं पञ्चमे षष्ठे च, एवं तृतीयपादभ्यासरऋयन्तरो
भवति; सप्तदिनप्रभृति तु चतुष्पादपथ्याभ्यास⁵⁰ :

Yavaka (barley) etc. which is unwholesome should be abandoned though they have been practiced; red-rice (*rakiasālī*) etc. which are

wholesome to be practiced though unaccustomed. For the first day three fourth of the unwholesome and one fourth of the wholesome. For the second day half of the unwholesome and the rest half to be filled with wholesome. The same for the third day. For the fourth day one fourth of unwholesome and three fourth of wholesome. The same for the fifth and sixth days. From the seventh day wholesome only is to be practiced. In this way are to be got rid of faults gradually, and good habits acquired gradually. In this way are faults to be got rid of by the good, never to return and healthful habits are acquired without ever losing them again.

क्रमेणापचिता दोषाः क्रमेणोपचिता गुणाः
सन्तो यात्यपुनर्भावमप्रकम्प्या भवन्ति च ।।⁵¹

Taber's cyclopedic medical Dictionary had defined the term physical activity and exercise as follows "A general term for any sort of muscular effort but especially the kinds intended to train condition or increase flexibility of the muscular and skeletal systems of the body"⁵². Nevertheless, according to the discussion made above, it is clear that the *Vyāyāma* or physical exercise mentioned in Ayurveda is not mere external physical exercise which supports the muscular and skeletal systems of the body. *Vyāyāma* works for the perfect health or 'physical fitness' which provided "the ability to carry out daily tasks with vigor and alertness, without undue fatigue and with ample energy to enjoy leisure-time pursuits and meet unforeseen emergencies"⁵³. The definition on 'exercise and physical conditioning' done in the Encyclopedia Britannica : "the training of the body to improve its function and enhance its fitness." is somewhat close to the aim of *Vyāyāma* in Ayurveda.

Both the traditions, i.e. Indian and Sri Lanka, have shown the result of *Vyāyāma* in a similar way. The *Carakasamhitā* :

लाघवं कर्मसामर्थ्यं सशैर्यं दुःखसहिष्णुता ।
दोषक्षयोऽग्निवृद्धिश्च व्यायामादुपजायते ।।⁵⁴

The consequences resulting from physical exercise are lightness of body, capacity for work, collectedness, power of enduring hardship, removal of all imperfections and augmentation of the digestive fire.

The *Aṣṭāṅgharḍayasaṁhitā* :
लाघवं कर्मसामर्थ्यं दीप्तोऽग्निमेदसः क्षयः
विभक्तघनगात्रत्वं व्यायामादुपजायते ।⁵⁵

Lightness of the body, ability to do hard work, keen digestion, depletion of excess fat and stable and distinct physique accrue from *Kyāyāma*.
The *Bhesajjamañjūsā* :

अग्निनो दीपमभ्देस्त्रयो कम्मसमत्थता ।
लाघवं घनदेहं वायामा उपजायते ॥ ⁵⁶

Keen digestion, depletion of excess fat, ability to do hard work, lightness of the body and stable physique are the results of physical exercise. We, therefore, conclude here, Ayurveda also has given an importance to the physical exercise or *Kyāyāma* considering the maintenance of good health. The consequences resulting from physical exercise are not only lightness of body, capacity for work, collectedness, power of enduring hardship ; but also it removes of all imperfections and augments the digestive fire, which is very much needed for the balance of three humors which otherwise causes illness. Nevertheless, the intelligent person should never indulge in physical exercise as, according to Ayurveda, it results in fatigue, faintness, loss of vigor, thirst asthma, consumption, fever and attacks of cold. Further, the time, when the physical exercise to be done, is also to be highly considered. The use of the physical exercise, according to Ayurveda, can be included in both preventive and curative methods.

One endowed with intelligence and desirous of happiness both here and hereafter, should, bent upon achieving what is beneficial, bestow great care upon everything connected with food, deportment and physical practice.

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- 14 CS.I.20.10.
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- 28 AH.I.17.28.; BM.I.77.
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SPORT, PSYCHOLOGY AND PERFORMANCE ENHANCEMENT**

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"Man is Bio-Psycho-Socio-Culturo-Morale and Spiritual organism"

Dr. V. D. Bapat

Human being is endowed with biological mass in the form of body and psyche in the form of brain. He grows and develops in the family and society where remaining dimensions of his personality i.e. Social, cultural, moral and spiritual take shape depending upon the type of environment he is exposed to and his ability to identify and utilize the incoming opportunity for desired gains. In this process of learning intelligence and other faculties of mind get scope of further development.

It is evident from this natural order of development of man, leaving aside body, other aspects of development are based upon 'good psyche'. The philosophy, aims, objects and mission of life depend upon the type of training and shape given to the psyche.

For proportionate and healthy growth of body, there is a systematic and scientific programme of exercise. Lot of scientific work has also been carried out in the techniques, skills and equipments used in competitive sports for enhancing performance of working athletes; and it has yielded desired results. The training of body has received great significance. The scientific community engaged in competitive sport and allied fields has developed Norms of physical fitness, body measurements, types and those of physiological parameters, as per the kind & requirements of sport. Today competitive sports have gained prime place in the international market. Electronic and print media have fanned the hot craze of the people to witness 'Killer instinct' of athletes in action. Olympic festival has once again proved to be the greatest show in earth. Human performance in sports seemed to have reached to its

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- 42 CS.1.8.18.
43 AH.1.2.11,12.
44 BM.3.9.
45 CS.11.39-41.
46 CS.1.20.17.
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48 BM.I.54,55 "Vāyāmanī ye na kubbanti vasanta sisiritūsi"
49 CS.1.7.37.
50 CS.p.51.
51 CS.1.7.38.
52 Taber's Cyclopedic Medical Dictionary, ed: Clayton L. Thomas. : Philadelphia, 1993; p. 1505
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54 CS.1.7.32.
55 The *Aṣṭāṅghradīyasamhitā*, ed: H. Sadasiva Sastri, Chaukamba Surabharati Prakashan, Varanasi, 1997, (AH)1.2.10.
56 BM.3.8
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pinnacle. The creativity, aesthetics and rhythmicity of movement, the muscle power, flexibility and endurance, sharp reflexes, accuracy, split second decisions followed by appropriate coordinated movement pattern exhibited by the individual athletes, gymnasts, swimmers, divers or players of the team games are the points of appreciation worth to be noted while watching the Olympic show. The hidden factors behind these exhibits of extraordinary skills are : their commitment, motivation, intelligence, body form, emotions, sentiments, will-power, perseverance of training, in addition to the meticulous planning and execution of training programme by the team of experts including the coach and sports psychologist. As the competitive sport is considered to be emotional play, the role of psychologist in the training of athlete obviously, goes parallel with that of the coach. The training programme of pre-season phase is critical one. It is during this phase that the mental make up of the athlete is to be properly designed alongwith his physical build-up. The mental make-up and dynamics are closely interlinked with physical and physiological aspects of training. Merely higher level of skill training and physical fitness will not result into elite performance; it requires regular, consistent and progressive psychological training, too. The athlete is prepared for higher performance by the formal, structured application of psychological techniques. In the psychological preparation of an athlete efforts are made to minimize influence of the factors leading to mental weaknesses on the one hand, and optimize promotion of factors leading to strengthening of mental power and intelligence on the other hand.

Coaches and attending psychologists have noted during training many weaknesses of mind in athletes affecting and obstructing practice schedule.

These are instances in the sporting career of an athlete that while undergoing training of longer duration monotony sets in. The stereotype training schedule can cause this state of mind. It leads to showing of certain symptoms like loss of attention over the activity, delayed reactions, committing errors in execution of movement, forwarding excuses for inattentiveness, etc. All these symptoms if not treated in time may lead to decrease in performance.

Many a times a sportsman with his superior skills of the game elevates and separates himself from others and starts ridiculing his colleagues for their minor lapses. This personality complex proves harmful to himself as well as to the team as it creates psychological problems in the team affecting its morale and performance both. This tendency of individual player to think himself superior to others needs to be curbed.

While being nearer to the main competition of national prestige, the athlete during peak of his practice period suddenly feels worried and develops psychic tension. His anxiety level shoots up. He becomes restless and shows sign of nervousness. Under such critical condition confidence building measures are inevitable. The same type of condition can be observed in team-psyche. Nervousness or overconfidence before competition, frustration after successive failures, fear, anxiety, worry, stress, physical and mental fatigue during training, sense of defedence etc. are common type of mental weakness which need to be minimized by using appropriate Psychological techniques and periodical tests. Diagnostic tools and tests are used for collection of data which is further analyzed and interpreted to know the exact causes of distress and further to chalk out strategy for creating and developing in athlete a positive mental framework and to reinforce it with such factors which instigate and mobilize his mental power leading to dedicated physical efforts for performance enhancement. Psychological diagnosis is therefore, a pre requisite for preventive, curative and activating measures for improvement.

Psychological preparation further encourages coach-athlete interaction and close relationship enabling the athlete to have free dialogue without any fear or inhibition. In this relationship and interaction the psychologist is also involved at times. Special counseling sessions or sitting are arranged with him to understand intricacy and complexity of the problem and to have accurate assessment of the psychological status of the athlete.

The psychic readiness for competition is one of the most important aspects in the psychological preparation of the athlete for competitive sport. This readiness appears as a result of the activation of the psychic preparedness, which includes three aspects of the psychic activity : the perceptual, emotional and violative aspects. The perceptual aspect deals with cognitive learning of skills, strategies, movement patterns, and understanding of the entire gamut to training. Emotional aspect touches to the motivations, goal setting, psycho-physiological functions, activation arousal and energy dynamics. The violative aspects of psychic readiness reflects in the values such as dedication, commitment, will-power perseverance, intelligence, etc.

As the subject of psychology deals with the behaviour pattern and mental processes, it has a vast canvas ranging from simple mental activity to social, cultural, moral and spiritual activities. Even our physical activities are initiated and monitored by mental processes. An athlete preparing for higher-level competitions by way of undergoing intensive physical training, it

is obvious that he or a group of athletes must have developed a typical psyche. The psychologists study an individual or a team in action charged with emotions and sentiments. There is therefore, lot of scope for researchers to study, develop and learn to utilize various techniques and methods to strengthen the mind frame of the individual athlete as well as team psyche with the object to enhance the performance.

In view of the theme of this national workshop, it is presumed that it would be endeavour to find out specific direction and certain areas of sports psychology to contemplate upon and derive a plan of action or at least a broad outline of the methodology for the use of those who are involved in using psychology for performance excellence. To contribute and share the exercise of this workshop, a few points and issues are submitted for the consideration of the house.

1. Identification of psychological areas and specific factors contributing towards performance enhancement.
2. Identification of psychological areas and specific factors which affect performance and training, both.
3. Measure and remedies to minimize effect of factors affecting performance.
4. Nurturing of those factors favourable to performance enhancement.
5. Training and education of the coach and the athlete.
6. Taking stock of completed researches and the projects that are in the pipeline, related to application of sports psychology for performance enhancement.

Also, to cite a few, some specific areas are proposed from the field of sports psychology which may be found useful for the consideration of the house :

1. Area of orientation and cognitive learning of sports skills - learning is a mental process, it involves understanding sequence of the skill and memorizing. Conceptualization, interpretation, perception, recalling of memory, intelligence, etc.
2. Practical skill learning requires neuro-muscular coordination involving sensory and motor activity, neuro-transmission, reaction

and reflexes, neuro-humeral control over movement and thinking process. It is a psycho-physiological area of operation.

3. **Psycho-energetics :** Mobilizing psychic energy through emotions, aggression, goals, will-power, motivation, ambition, courage, aspiration, instincts, intuition, inspiration, etc.

4. **Mental values :** Dedication, commitment, obedience, honesty, faith, loyalty, cooperation, self-confidence, sacrifice, character, morality, sportsmanship etc. Enquiry of these values in respect of building and maintaining high morale of the team in practice and competition. Do they directly or indirectly contribute to dedicated practice and better performance ?

5. **Role of coach form psychological point of view in enhancement of performance.**

- ❖ To understand the athlete as an individual.
- ❖ To understand and analyze behaviour pattern and personality type of an athlete.
- ❖ To arrange coaching schedule and training programme based on need, interest, ability and capacity of an athlete.
- ❖ To understand mental weaknesses of the athlete.
- ❖ To extend guidance and counselling to the athlete.
- ❖ To seek cooperation of sports-psychologist during psychological crisis experienced by the athlete.
- ❖ Will the education and practical training of the coach help him to use psychology in the enhancement of the performance of his athlete.

6. **Review of research literature globally available on use of psychology in the performance enhancement.**

7. **Suggestions and recommendations of practical oriented research projects.**

8. **Preparing bibliography of literature concerned with applied aspects of sport psychology.**

PHYSICAL EDUCATION, SPORTS AND HUMAN WELL-BEING

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Physical activity and play have been so natural and co-extensive with human living that these have been in vogue since time immemorial. Sport is rather late comer.

Facing the broad canvas of philosophical-historical perspective we witness the golden age society in ancient Greece holding aloft the idea of 'mens sana in corpore sano' on the strength of the preachings of the great idealist philosophers Socrates, Plato, and Aristotle. But they knew that sound mind and sound body could only be developed through serious culture and earnest efforts to earn that significant status and the stamp of a glorious era. That's why they pronounced:

'Orandum est ut sit

Mens sana in corpore sano'

'Let it be prayed that there be a sound mind in sound body'. This prayer, this effort, this culture paved the way for the birth of the great olympics - a historic movement that brought forth all the talents in fair competition in the sports arena where athletes, poets, singers, orators all participated. This great olympic movement has traversed a history of nearly three millennium with its towering appeal for peace, friendship, fraternity and well-being.

Ancient Greece's educational culture and the birth of the olympics were possible because of the influence of the then idealistic philosophy, the historical need of the time, and the political compulsion to keep the City States together for the glory of the ancient civilization and for the glory of their motherland (or fatherland?).

In medieval Europe, the emphasis on gymnastics and gymnastics-centric movement flourished because of two counts: one, to establish the philosophical belief of domination of mind over the body; and secondly, the politico-historical need of the time to arouse the people through gymnastics based activities to form strong movement against foreign domination. In this

respect there was a keen similarity between Germany's Turnverein movement and India's Akhara movement.

The British Knights were once famous for their bravery, chivalry and extending their helping hands to the poor and the distressed. The scenario in Great Britain changed when the mighty British empire conceded to their aristocratic nobility the privilege of amassing huge wealth by virtue of the plundering of their colonial countries and thereby providing enough leisure for engagement in recreational activities. The geographical condition of the land also somewhat forced their population to remain outdoors as long as possible in order to enjoy the sunny blessing of nature. The two factors together resulted in the origination of many of the outdoor games over and above the parent activities track and field athletics and gymnastics.

On one side of the perspective canvas we witness that the trend of activities in the United States of America has been influenced by social-historical reason. The newly established American civilization under the influence of the newly propagated philosophy of experimentalism did not stick to the otherwise popular activities bound by rigid rules and regulations; instead they preferred pragmatic approach in conducting free play activities to let the children grow with more freedom and provision for experimentation. They also introduced few indoor and outdoor games in the process.

On another side of the perspective canvas, trend in activities developed differently in the ancient days of Indian civilization. The typical Indian philosophy of plain living and high thinking led to a sort of life directed towards an imaginary happy life beyond. This effort was supposed to be materialised through a simple healthful living at all stages of life, but directed towards gradual detachment and ultimate samadhi. The whole idea was exemplified through the practice of yoga. It was an altogether different way of living through the eight stages of yogic way, namely - Yama, Niyama, Asana, pranayam, Pratyahar, Dhyan, Dharana and Samadhi.

The practice of yoga resulted in disease-scarce healthy living with restraint and calmness in fit and agile body having mental poise and gradual upliftment to a super-normal level. It was transcendence of man, the animal into man, the human, ultimately towards man, the divine self.

The yogic way has bestowed something new to the world - a new method of fitness and relaxation, concentration of mind, a happy feeling of wellness through an improved quality of life. Yogic practice have given rise to a therapeutic procedure named Yoga therapy.

Yoga therapy like exercise therapy and sports therapy are important regimens in the prevention, cure and rehabilitation in the cases of many of the ailments which can not be properly taken care of through other known regimens. Rehabilitative measures through exercise, sports and yoga in certain cases have yielded very satisfactory results. Even as recovery measures given during de-addiction stage of the drug-addicts and also during their long-term rehabilitation stage very satisfactory results have been obtained.

Drug addiction have become a problem in today's fast-living society where healthy social-moral fabric is dangerously eroding. Not only that delinquents are indulging in drug-taking out of frustration for temporary escape from their disliked surroundings, sports persons also are taking drug to boost their performance in a sort of craze for achieving miracles.

Yoga, exercise and recreational games have been found to have positive therapeutic effect in the recovery process of the drug addicts as well as the drug-induced sports persons to relieve them from the stressful situation under influence of drug. This stress-producing agent drug like some other similar agents disturb the homeostatic balance, and requires special management.

Stress is a situation when the body reacts under trying circumstances to adapt itself in defence of the functional mechanism for maintenance of the living process. Such adaptability is probably the most distinctive characteristic of life.

Claude Barnard first focussed on the relative constancy of the internal environment of the organism, for maintenance of life in spite of changes in the environment. W.B. Cannon termed it as Homeostasis to designate this uncanny wisdom of the body.

Stress impose a demand on the body which tries to adapt through self-regulatory defence mechanism. If the stress is within limit and the body gets conditioned to it, there develops the general adaptation. If it is beyond limit or prolonged for a longer duration which the body can hardly adapt, there develops what is called syndromes. These syndromes are signals of danger. If the stress is still there, exhaustion occurs.

Hans Selye viewed stress as the state manifested by a specific syndrome that consists of all the non-specifically induced changes within a biological system. Selye thinks that whatever the stressors, the body reacts in a consistent manner. The response of the body is local and general. The general response under stressful conditions lead to the General Adaptation Syndrome

or the G-A-S. It has three stages : (i) the alarm reaction, (ii) the resistance stage, and (iii) the exhaustion stage. The alarm reaction has again two phases : the phase of shock, and the phase of countershock. The phase of countershock is the beginning of the resistance stage.

There are individual difference in stress adaptation under trying circumstances. One man's stress may be another man's pleasure. Some people thrive in modern day's stressful living; they are of 'B' type. While some others over-respond dangerously; they are of 'A' type. May be, deficiency in vital hormone level is the differentiating factor.

In spite of the fact that life appears to be more stable today, new stressors have replaced the old. An explosion of personal expectations seriously affect the adaptability of the generation.

According to Selye's stress theory, exercise is a potent stressor (like heat, cold, pathogenic agents, emotions etc.). Since exposure to stress results at first an alarm reaction followed by an adaptation stage, it may be hypothesized that development of the resistance mechanisms by one stressor might enable the body to better resist a second stressor. Some kinds of stressors may be antidotes for the harmful effects of other kinds. One implication of Selye's stress theory is therefore that the person who exercises regularly would be better able to resist another stressor. Although one cannot be cured of stress, one can learn to enjoy it.

Some authors have classified exercise also as an emotion since it involves activity of the autonomic nervous system very similar as those during emotional state. On occasions when great demands are likely to be placed on the neuro-muscular system in the doing of unusual labour, emotional excitement is not uncommon. It highly competitive sports, where emotional excitement is high enough, such release of energy resulting in remarkable exhibition of power and resistance to fatigue is noticeable.

Exercise and recreational sports have thus effective roles in stress management.

With the backdrop of a perspective of changing trends and role of physical activities, thoughts may now be focussed on the operational part in curriculum innovation and creative teaching.

Curriculum, in modern concept, is considered to be a series of meaningful and guided experiences directed towards attainment of certain objectives. Curriculum is neither simply a body of knowledge nor certain skills only; it is rather a design for providing a series of socially desired

experiences. And physical education curricular programmes are not 'end's in themselves, these are used as 'mean's for problem solving and adjustment in social living.

Physical education programme is unique in the sense that it develops human qualities through physical activities and physical experiences. Mere participation in activities will not yield the desired result. The total perspective has to be focussed. And for that matter coordinated planning i.e., correlation and integration is necessary in curriculum implementation.

To make it really functional, curricular materials should be linked with life situations and the needs of the society. We have to make innovations in the teaching materials. New related subjects have to be introduced. Boundaries of subjects have to be coalesced in such a way that free and uninhibited access to different areas would be possible. To make innovations really worthwhile we have to be creative in our teaching approach.

Elements of physical education are to be correlated with elements form bio-sciences. Our research should be correlated with statistics and computer application; physical education and sport administration with new management techniques; technology and related industry in the affairs of physical education and sports; therapeutic role of exercise-yoga and sports; new type of journalism in physical education and sports affairs; problems and adapted programme for the atypicals etc. etc.

In order to be creative one has to have the wonderful and amazing ability to make new ways to find solutions to challenging problems. Creativity is rather natural than acquired ; but it can probably be nurtured and developed, although there is some sort of intuition behind creative work.

Creative thinking makes possible new association of existing elements involving a device or mechanism. It could be a new combination, a new arrangement, a new sequence or a new emphasis. It is this aspect that makes creativity a useful device in bringing novelty in teaching. Classroom teaching as well as outdoor teaching through creative innovations become interesting, attractive and successful in moulding young learners.

All individuals possess creative ability in varying degrees, and can contribute in their respective fields of work. Creativity can exercise influence in any kind of human behaviour. Like many other areas one can be creative in motor behaviour, and in performing motor movements. Skillful, movement-oriented activity situations are fertile fields where creativity may grow and flourish in individuality and uniqueness. Child's play are expression of

creativity in his own world of actions. With addition of skills, the movements develop into creative patterns, as the child grows. Gradually they make sort of creative self-expression. From self-expression to creative self-development toward a sort of self-actualization. Thus highly skilled and advanced sportpersons reach the peak level of creativity. Such concept of creativity has to be made popular in educational situations.

With these fringe discussions on the philosophical-historical perspective, the role of exercise and yoga in stress management, curricular innovations and creative teaching, now we have to search for concrete innovative steps in designing curriculum and novel instances of creativity in teaching situations, and make conclusive recommendations for effective implementation so that all our efforts lead to human well-being.

USES OF RELAXATION TECHNIQUES

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Introduction :

Relaxation helps in releasing tension, anxiety and frustration. Our anxiety are reflected in dreams. Individuals spend sleepless nights during anxieties and tension. Unfortunately, we have created our own monster. How often do we start the day in nerve-grinding traffic jams, making us long for a deserted island far away? Our environment is affected by pollution, noise and crowded. Some individuals arrive late in office miss important appointments due to traffic jam and mental overload.

It is not only physical strain and effort that uses up our energy, anger, worry, and tension drain enormous amount of energy from our body, leaving us tired and irritable. If we do not replenish this energy, the price we have to pay is great for it ages our body and mind more rapidly. Therefore, the deep relaxation of Yoga is of great importance to our health. It revitalizes our body, regenerates the mind and creates new life force. Relaxation guides us to maintain fitness through endurance, stamina, strength and patience.

Principle of Relaxation :

Tear of the body is compensated during sleep by nature. This helps in maintaining the steady rhythm of life. It is in this way that the efficiency is maintained at the level of the body and the mind. But many people do not sleep till midnight, or their sleep is disturbed by dreams or external environmental factors. Sometimes it may be some worry that keeps them awake till late or night. People who suffer from insomnia use tranquilizers. This is because natural sleep does not come to them. The chemicals contained in these sleeping pills (tranquilizers) are harmful for the brain and they can do damage to an extent that cannot be foretold. Proper rest helps individuals to maintain a sound body-mind relationship. Relaxation techniques help us to lessen the mental overload.

Relaxation and Yogic Practices :

Relaxation occupies a central place in modern yoga. It tries to break down all unnecessary physical tensions, tries to maintain harmony in the body-mind relationship, and above all, provide mental poise and serenity.

1. Yogic Asanas :

The Yoga method of doing various cultural asanas with its emphasis on the stretch part of muscles rather than the contraction of the active muscles, helps us to control the body and mind. Individuals can be free from mental overload and physical fatigue if they follow relaxation techniques properly.

2. Yogic Breathing Method :

The deep process where the respiratory act is harmonized and controlled, brings about mental equilibrium and considerable relaxation which have a soothing effect on the nerves.

3. Psychosomatic Practices :

Our mind needs much attention. The mind is in a constant flux of thoughts, and feelings, as in any people are affected by heightened nervous strain in the modern age. We included relaxation practices in our course. These are the best types of practices which have a direct impact on the mind, thinking, emotions and bring about, the desired psycho-physical changes.

The practices will bring about a state of neuro-muscular relaxation with an increase in energy content of the body, in the shortest possible time. They relieve us of psychosomatic disturbances. They give us a feeling of freshness, provide energy, physical rest and mental poise. They help us to achieve steadiness of mind, unifying our experience and harmonizing us with a higher state of consciousness.

4. Special Psychosomatic Practices :

“Relaxation quickly recuperates, regains the nerve centers, collects the scattered forces, reinvigorates the whole body” - *Shri Yogendraji*

“True relaxation would mean a complete resignation of the body to the laws of gravity. The mind to nature and the entire energy transferred to a deep dynamic breathing” -- *Shri Yogendraji*

Relaxation of Asanas :

a. Savasans :

Are you going out to the theatre tonight, or perhaps preparing a dinner party? Are the children going home from school very soon? I know how busy you are, but do take ten or fifteen minutes out for the deep yoga relaxation. It will reward you in so many ways. Tonight you will be a radiant and relaxed hostess, raching out with warmth to your guests, making them feel good and completely at ease, the perfect ingredients for a lovely evening. What about sitting through that pay and enjoying it, instead of dozing off in the middle, and when the children are home, you can listen to them with greater interest and better understanding. Isn't it worth a try?

b. Yogendra Nispanda Bhava :

With learning to condition the mind through meditative postures described in the beginning of the course, you may have achieved some progress. The number of thoughts and their intensity must have been considerably reduced if you have sufficiently practiced. This brings down the nervous agitation and quietyens the mind.

However, in Yogendra Nispanda Bhava you have to make use of the sense of hearing (mechanism of sound) and, through it, achieve still greater quietness of mind - an unmoved condition which no disturbance can affect. Sit in a relaxed position, reclining against the wall, listen to a sound of low intensity, a rhythmic sound or a sound of a fading-out nature (like a sound of a passing by car or aeroplane). This listening is to be done in a passive manner. This passivity, when it deepens, leads to a deeper quietness where the hold of the mind on the body is loosened and it withdraws, narrowing the beam of consciousness.

Yogendra Nispanda Bhava (Motionless state of mind)

Nis : Negative

Panda: Movement

Bhava: State of Mind

i)

Method : Sit relaxed reclining against the wall, properly adjust your legs, feet, arms, and hands to a comfortable position in figure. Sit motionless and feet quiet. Keep attention on sound preferably a lowintensity or a fading sound or a rhythmic sound, for example, of a time-piece. Cultivate the passive attitude of

The main purpose of this practice is to withdraw the mind from sense objects and take you in a mechanical way to the stage of abstraction (Prathyahara). This is the best way to give rest to your turbulent mind in a conscious way and to conserve energy.

5. Transcendental Meditation :

We are discussing about meditation. They are the means to reach our destiny, the concentration. Concentration is such a state of mind where all the internal and external sensations are points towards only one and one end only. A little practice of concentration in between the play also would help to remain with concentration. Sit silently, close your eyes. Have deep breathing, relax form forehead to legs slowly come to your play.

6. Zen Meditation :

The word Zen, in fact, means meditation. It is a Japanese word, corresponding of the Chinese Chan and the Hindi dhyana.

Zen practice begins with his continuing, the inhalations and exhalations of his breath while he is in the motionless Zen posture. Mind is concentrated on breathing - in and breathing out, for getting all other things, surroundings and environmental.

7. Music Relaxation :

Music has a great power in soothing a tired and tense mind. A distracted mind easily becomes centred on the pleasant music and songs. In fact nowadays 'music therapy' has emerged as a separate branch of therapy in which different types of music are tried for curing various physical and psychological disorders. However, classical music, old melodious songs, devotional music and Bhajan's have been found to be generally soothing for a restless and disturbed mind.

8. Relaxation effect of water and other nature cure method :

Water acts as a great relaxant for a tired and tensed body and mind. There are various techniques in hydrotherapy for giving variable benefits but the relaxation obtained by a simple hot or cold water bath itself.

listening. Remain passive and get completely absorbed in the sound.

- ii) RHYTHM : Normal breathing
- iii) DURATION : 10 to 15 minutes
- iv) BENEFITS : Introspective training of mind. Release of tension. Feeling of being physically and mentally relaxed. Subjective experience of quietude. Ideal technique for cultivating passivity.

Note : One can do it sitting on a chair or sofa in the office or at home.

c. Yoni Mudra :

The main purpose of this practice is to withdraw the mind from sense objects and take you in a mechanical way to the stage of abstraction (Pratyahara). This is the best way to give rest to your turbulent mind in a conscious way and do conserve energy. The stoppage of outward tendency itself directly bring about a change in the state of mind and feeling. Sitting in a meditative posture, holding the arms in a particular way with thumb and fingers tackling various sense (hearing, smell and taste), it combines a sort of neuro-muscular training and an exercise for endurance. Giving pressure on the ears by pressing the lobes through the respective thumbs gives a vibrating sound form the brain and helps in localizing the mind or may be you hear the inner sound of your breathing as you inhale and exhale. Synchronise your mind with it. Yoni Mudra is much praised and is highly recommended for higher practices in Yoga. It is rightly termed Yoni Mudra, because with its aid, the yoga aspirant can reach, through subjective approach, after avoiding all objective contacts, his true origin or Yoni which this practice symbolizes.

d. Yoni Mudra (Symbol of true origin) :

- i) Method : Sitting in a meditative posture, preferably padmasana, close various organs (senses). Close ears, pressing the lobes with the respective thumbs. Index finger on eyelashes after closing the eyes-no undue strain. Middle fingers on either side of nose - a slight touch wherein two fingers on the upper and lower lips. Retain the pose-keep yourself motionless as far as possible. The mind is to be given no work. If you can hear the breathing sound, put your mind in listening to it or vibrating sound at ears.
- ii) RHYTHM : Normal breathing
- iii) Duration : 10 to 15 minutes

- iv) Benefits : Gives rest to a turbulent mind conserves energy, control external senses, leads to pratyahara (abstraction), induces joy of solitude.

e. Matsya Kridasana : Flapping fish pose

Lie on the stomach with fingers interlocked under the right cheek. Bend the left knee and bring it up close to the ribs, with the inner thigh and calf muscle surface resting on the floor. Swivel the arms to the left and rest the left elbow on the left knee. Rest the right side of the head on the crook of the right arm. Use normal relaxed breathing while in this posture.

Benefits : This asana should be practiced as much as possible on both sides. This is an excellent rest pose and can be for sleeping. It redistributes waistline fat deposits and stimulates digestive peristalsis by stretching the intestines. It helps to relieve constipation. It relieves sciatic pain by relaxing the muscles in the legs and changing the angles of stress on the sciatic nerves.

f. Makarasana : Crocodile pose

Lie on the stomach. Raise the trunk and rest the head in the palms of the hands with the elbow placed on the floors. Let the heels flop outwards.

Benefits : This is an easy and effective posture for those suffering from slipped disc and backache, in which case one should remain in this position for extended lengths of time for the best results. This posture activates intestinal peristalsis and removes wind.

g. Yoga Nidra :

Lying down, name the different parts of the body which he has to feel without moving. Start with the thumb of the right hand, move up the arm and then down the right side to the toes. Practice the same way for the left side of the body. Finish with the head then suggest visualizing of present picture to imagine.

h. Kaya Kriya :

An excellent yoga kriya rejuvenating the body by dynamic movement while concentrating upon the breath is to be found in Kaya Kriya, the yoga technique of whole body relaxation. This form of dynamic relaxation can rejuvenate the nervous system and contribute greatly to relief nerve injury and the results of accidents and other traumas.

In Sanskrit "Kaya" means the physical body and "Kriya" means a dynamic breath-body-movement coordination activity. Kaya Kriya also has a beneficial effect on psychological hurts, emotional and mental tension and can be easily learned. There are four parts of the Kaya Kriya and each part is related to breathing in different segments of the lung.

Technique :

Lie down on the floor in a supine position like Shava Asana the Corpse Posture and if possible align your body with head to the polar North so as to take advantage of the natural electro-magnetic flux of the planet Earth.

Reference :

- 1 Structural YOGA therapy - Mukunda Stiles
- 2 Mental tension and its cure - Dr. O. P. Jaggi
- 3 Abstracts and Bibliography of Articles on Yoga form Kaivalyadhama Swami Maheshananda, Dr. T. K. Bera.

EFFECT OF KAPALABHATI ON BREATH HOLDING CAPACITY OF SWIMMERS AGED BETWEEN TWELVES TO FOURTEEN YEARS

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ABSTRACT :

The retention of breath over a shorter and longer period is called breath holding. It was assumed that breath holding capacity effect the performance of swimmer in a positive manner. With such idea the researcher under took the study with the purpose of (i) to find out the breath holding capacity of swimmer (ii) to indicate the improvement in the performance of swimmer through the practice of Kapalabhati. Twenty (20) swimmers were divided into two groups (Experimental & Control). Experimental group was given six weeks training with Kapalabhati. Control group was allowed to have normal practice. Statistical analysis revealed significant changes in breath holding capacity of the experimental group of swimmers.

INTRODUCTION :

The game of Swimming has many skills involved in it. The game involved a high standard of strength, agility, flexibility, judgement, aerobic, anaerobic, and breath holding capacity, alertness of mind, fearlessness, tact and skillful bodily movements on the part of the participants.

Kapalabhati is essentially a breathing exercise. Puraka and Rechaka are done in a quick succession with the help of the abdominal muscles and diaphragm. The thoracic part is more or less unmoved. But rechaka is active while puraka is passive / involuntary. Therefore it is basically a Diaphragmatic or Abdominal breathing where very little work is left for ribs and their muscle and chest is kept fixed.

The miraculous effect to retain breathing can also be partly explained in the following way if we watch the athlete, the javelin thrower, the discus thrower, the tennis player, the Kabaddi player, the swimmer, we can see how just before the supreme exertion of his decisive moment, the athlete hold his breath and often makes a whole series of movements before exhaling. The greater the muscular work or the power he is required to exert, the deeper will be his inhalation preceding it and the longer he will hold his breath.

Bhole's (1976) study on 'Effect of kapalabhati on breath holding time' indicated that the Kapalabhati for 30 to 45 seconds improved breath holding time by 12 to 9 seconds for the average value of 57 seconds for males and 41 seconds for females respectively.

Ganguly and Garote (1989) in their study on 'Immediate Effect of Kapalabhati on Cardiovascular Endurance', involving 14 male students of R.P.T.S. Khandala showed significant improvement ($P < 0.01$) in their cardiovascular endurance after performing one minute of Kapalabhati as compared to the hyperventilation.

PURPOSE OF THE STUDY :

- 1) To find out the breath holding capacity of swimmer.
- 2) To indicate the improvement in the performance of swimmer through the practice of Kapalabhati.

METHODOLOGY :

Subject for the study were taken from members of Kolaghat swimming club of Purba Midnapur District (W.B.). Twenty (20) district level swimmers were selected as the subject for the study. The study was conducted during the month of April 2002 to June 2002. The subjects were randomly assigned to two groups. Ten (10) were in experimental group and another ten (10) were kept in control group. The age of the subjects were between 12 to 14 years. The mean age of the subjects for both groups were 12.8 years.

For assessment of breath holding capacity, standard stopwatch was used. Breath holding capacity measured by breath holding time (Under water).

Before administering the initial test the subjects were properly oriented to the correct procedure of performing test. After six weeks of treatment with Kapalabhati to experimental group, the same tests were again repeated on all the subjects. Control group was given no treatment and allowed to practice in normal activities.

For determining the significance of difference of initial and final means, 't'-test was employed. The level of significance chosen was .05.

FINDINGS & DISCUSSIONS :

The data collected was statistically analyzed which was presented in Table - 1.

Table - 1

Significance of mean difference in Experimental and control group in the performance of breath holding capacity of swimmers.

Group	Pre-test	Post-test	SED	't' Ratio
Control	N = 10 Mn = 53.3 SD = 4.91	N = 10 Mn = 53.8 SD = 4.52	.48	0.21 NS
Experimental	N = 10 Mn = 55.5 SD = 4.46	N = 10 Mn = 59.8 SD = 2.49	.69	6.23*

*Significance at .01 level of confidence

* NS - Non significant

t.05 = 2.26

t.01 = 3.25

The analysis of data revealed that the mean performance of the experimental group is the certain measures of breath holding capacity was better than that of control group as a result of practice of Kapalabhati.

The mean difference between the initial and final scores of the experimental group trained with Kapalabhati were statistically significant at 0.05 level. (t 6.23).

Therefore increase in breath holding capacity of Kapalabhati may be attribute due to increase in strength of the respiratory system, the circulatory system and the digestive system.

CONCLUSIONS :

From the above investigation following conclusion may be drawn :

- 1) The practice of Kapalabhati can enhance breath holding-capacity in swimmers of the age group of 12-14 years.
- 2) Better breath holding capacity of individual swimmers.

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STUDIES ON ADJUSTMENT PATTERN, MOTOR ABILITY AND SELECTED ANTHROPOMETRIC MEASUREMENTS OF SCHOOL GOING ATHLETES AND NON-ATHLETES — A SOCIO-PSYCHOLOGICAL APPROACH

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INTRODUCTION :

The world changes and changes too rapidly with the advancement of civilization. With each new theory and the ensuring formulation of new concepts, the picture of the world grows more complicated.

Each human organism exists in a complex world in which he must continually adjust his behaviour. The continuing activity of each person that is, his behaviour is the result of characteristics within him as well as the multitude of stimulation he has received and is receiving from his environment. Adjustment means any operation where by an organism or organ becomes more favourably related to the environment, or the entire situation, environment and internal.

Though for the purpose of study, analysis and understanding human personality has been divided into a number of faculties, it is an established fact that human being is a unified whole. In the process of interaction between heredity and environment the faculties of human personality develop and the sum of development of all these faculties determines the personality profile of the individual. Physical education programmes influence the development of different personality areas through participation in games and sports. Resultant influence is noticed in the psychomotor aspects, behavioural pattern and the physical makeup of the individual in addition to the cognitive development.

School going youths are characterized by rapid growth and development almost in all the faculties of personality. This is a natural process of growth and development. It is interesting to note whether the organised physical education programme can influence this natural process.

This particular idea was the basis of the present project to study the different aspects of growth and development of school going boys and girls.

Efforts have been made to compare these developmental processes between athletes and non-athletes taking the non-athletes as the product of natural process and athletes as the product of natural process as well as organised form of imposed physical education programme. Social adjustment pattern was considered as a psychosocial aspect of personality, Anthropometric Measurements were considered as the aspect of physical growth and Motor Development was considered as the aspect of psychophysical development of personality.

REVIEW OF LITERATURE :

From previous studies with the same groups of subjects it was known that the adjustment pattern for normal subjects was better than gifted ones (Pandey 1986) the girls were better in adjustment ability than the boys (Pandit 1976) and sportsmen were better in adjustment pattern than in nonsportsmen. It had also been reported that there did not exist any significant relations between intelligence and adjustment, adjustment and parental education and fathers occupation (Gupta 1976).

METHODOLOGY :

Eighty four school going boys and girls within the age group of 14-16 years were selected as subjects for this study. Among them twenty two were athlete boys, twenty were non-athletes boys, twenty two were athlete girls and twenty were non-athlete girls.

Social adjustment pattern was determined by Cowell Social adjustment Index (1958) and Motor ability was assessed by AAHPER YOUTH FITNESS TEST battery (1976). Among Anthropometric variables height, weight, skinfold measurements of biceps and calf and diameters of humerus and femur were considered. Measurements of different variables were taken following standard procedure. In this connection, weighing machine was used to measure the body weight; measuring steel tape was used to measure the height and circumferences; skinfold caliper was used to measure different skinfolds and a bony caliper was used to measure bone diameters.

For analyzing the data, statistical method was applied. Mean and standard deviation for different variables were computed as the measure of central tendency and the measure of variability respectively. Significance of inter group difference was tested by Analysis of variance and for finding out the exact significance group difference 't' ratio was computed. Relationship

among different variables was calculated by finding out co-efficient of correlation (Spearman's Rank correlation co-efficient). Somatotypic components were computed with the help of the formulae given Carter (1980).

RESULTS :

Results showed that the athlete boys and girls were superior to the nonathlete boys and girls respectively but not at significant level in adjustment pattern. No significant difference in adjustment pattern was obtained between athlete boys and athlete girls, and non-athlete boys and non-athlete girls. In motor ability, athlete boys were significantly better than the non athlete boys. Similar was the result for girls subjects. In anthropometric measurements significant differences were observed in skinfold measurements both in boys and girls and in this connection the non-athletes subjects were found to have greater measurements. The athlete boys and girls appeared to be ectomorphic mesomorph where as non-athlete girls were ectomorphic endomorph. Social adjustment pattern did not produce significant correlation either with motor ability or with anthropometric measurements that were considered in the present study.

CONCLUSIONS :

On the basis of the results of the present study following conclusions may be drawn.

- (i) Social adjustment pattern of athletes boys and girls seems to be better than non-athlete boys and girls. Further studies should be conducted to ascertain it.
- (ii) Motor ability of athlete boys and girls appears to be greater than that of non-athlete boys and girls.
- (iii) Different groups of athletes and non-athletes perhaps do not bear any significant difference in height and weight within this age range 14 to 16 years.
- (iv) Motor ability of the subjects appears to be directly related to better than non-athlete boys and girls.
- (v) Mesomorphic components of athlete boys and girls seem to be the mesomorphic component of somatotyping.
- (vi) Endomorph appears to be more socially adjusted in comparison to other two classes of somatotypes.

(vii) In athlete boys and girls mesomorphic and ectomorphic components were greater than endomorphic components so they also may be called ectomorphic mesomorph.

RECOMMENDATIONS :

In the light of results obtained and conclusions drawn, the researcher suggests following recommendations for future investigations and practical applications.

Recommendations for future investigation :

- (i) The present study being conducted only with the school level athlete and non-athlete subjects, it would be better to study the same variables with college and university level athlete and non-athlete men and women.
- (ii) The present study have been conducted within the age range of 14-16 years. Further study may be conducted taking subjects below this age group.
- (iii) Present study was conducted with small samples. Similar studies may be conducted with large samples to draw the conclusions more firmly.
- (iv) Further studies may be conducted with other anthropometric measurements as a criterion measure.
- (v) As the time of research work was too short, the researcher measured adjustment pattern through Cowell Social adjustment index. Further studies can be conducted measuring adjustment pattern objectively with the help of standardized test (Bell Adjustment Inventory).
- (vi) Motor ability of athlete and non-athlete boys and girls were measured through AAHPER YOUTH FITNESS TEST battery using norms for American subjects. Further studies may be conducted using AAHPER YOUTH FITNESS TEST batteries with Indian norms.

Recommendation for Practical Application :

- (i) For selection of athletes for different games and sports ecto-mesomorphic subjects should be given preference during adolescence.
- (ii) In formulating physical education programme for school attention should be given for development of social adjustment ability of the subjects along with other psychophysical developments.
- (iii) Social adjustment pattern should be considered as one of the criteria for evaluation and assessment of school boys and girls in physical education.

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INACTIVE LIFE STYLE - A DEVIATION OF OUR BIOLOGIC AND CULTURAL HERITAGE WITH PARTICULAR REFERENCE TO SENIOR CITIZEN

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INTRODUCTION :

Anthropologists are concerned with study of the individual human but also with the comparison of societies of people both contemporary and historic. The point of interest is how groups adjust biologically and culturally to their environments. Since man adopts biologically via the relatively slow process of evolution, the highly technologic, urban environment we now live in may well place demands on us that we are biologically ill prepared to handle. Biologic evolution has facilitated man's capacity for assimilating a complex culture and the two are inter related in man's ability to cope successfully with the environment. On the other hand the culture is learned from humans and form environment and not only form their parents as in biologic heredity. Culture is however and instrument of adaptation which is vastly more efficient than the biological process.

A tremendous transition has taken place in the biologically short period of time that has transpired from primitive man to the present highly civilized and domesticated citizens : a transition from an active and physically strenuous life, subject to privations and hardships of climate, to an extremely well protected but caged existence. It seems unlikely that such a change of environment and mode of living can take place without major reactions of the organism. While adaptability to new circumstances is one of the outstanding qualities of the human body, as well as the human mind, it can function only within certain limits. It is likely that overly dramatic changes of living habits may throw the organism off balance.

From an evolutionary perspective, modern man's advance technologically based culture has propelled him well ahead of his biologic adaptive capacity, such that substitute forms of vigorous physical activity

are necessary to replace that inherent in man's normal everyday life until little more than 100 years ago.

Anthropologists have discovered some cultural universals in otherwise widely diverse phenomena. These include dance, games, education, and other activities fundamentally associated with physical education and recreation. The place of physical activity in any culture is determined by what the predominant philosophy is relative to the way one's body should be treated whether trained, denied, disciplined, developed, or educated. Historic examination of the role of organised physical activity programs reveals that various cultures have placed widely disparate value on the physical being and the corresponding resultant emphasis on physical education.

Movement is the basis of life. Following birth, Children grow and develop according to similar patterns until maturity. This growth and development process includes physical cognitive, social-psychologic and motor aspects, all of which are interrelated.

Physical activity and childhood seem natural partners common to all young animal or growing child. However, cultural change is now laying a firm restraining hand on the instinctive movement patterns of the youngsters. Various features of our late 20th century civilization television, spectator sports, cars, labour saving gadgets and urban overcrowding have conspired to create a generation of inactive children. This situation has no historical homologue and seems to contradict the very nature of any young mammal. It is an uncharted life style and may carry serious hazards for both the physical and the intellectual development of the growing child.

Science and technology changes our way of living form vigorous occupation, keeping always safe form the attacks of wild beasts and to survive form various natural calamities by our ancestors into an easy, comfortable and less-vigorous life of present world. Scientific inventions have been changed our style of living which includes and will continue to near future into two ways (a) the impact of technology on our work and leisure time (b) the general aging of the population. Mechanization and automation, swift communication and transport, computer uses and television viewing have abolished the requirements for vigorous occupation and discouraged involvement in leisure time recreational activity. The reduction in physical activity as a result of technological advancements appear relatively minor and when considered over days or weeks probably have little impact on health. However, when considered over months and years this small reduction

in energy expenditure could significantly contribute to the increase in degenerative / hypokinetic diseases.

POPULATION AGING :

One of the main features of the world population in the 20th century was a considerable increase in the absolute and relative number of elder people in both developed and developing countries/ This phenomenon will continue in the 21st century and is referred to as 'population aging'. Of the approximately 58 crores elderly people (60 years and more) in the world today, around 35 crores live in developing countries.

Over the last fifty years mortality rates in developing countries have declined dramatically raising the average life expectancy at birth form around 41 years in the early 1950's to almost 62 years in 1990. By 2020, it is projected to reach 70 years.

More recently sharp falls have also occurred in birth rates in nearly all developing countries except for most of sub-saharan Africa. Total fertility rates in China, for example, declined form 5.5 in 1970 to the current 1.8 level. Respective figures for Brazil are 5.1 and 2.2 and for India 5.9 and 3.1. BY 2020 the number of elderly people world wide will reach more than 100 crores with over 70 crores of them in developing countries.

DEFINING AGING :

Aging is universal process of growing old. It touches everyone regardless of age, gender of socio-economic level. We are all travelling at different speeds to the same destination. With respect to the entire range of human life, physical and motor performance measures and physiological functions in general improve rapidly form early childhood to a maximum some where between the late teens and about 30 years of age. In most cases a slow decline occurs during maturity and becomes rapid with increasing age. Indeed, some functions do not seem to degenerate with age. In general, the functions that involve the co-ordination activity of more than one organ system decline most with age and, as might be expected, changes due to the aging process are most rapidly observed when the organism is stressed. Homeostatic readjustment is considerably slower with readjustment age.

CONSEQUENCES OF AGING :

Aging decreases cognitive and psychomotor functions of the body.

Some of the important physiologic impairments and psychological attributes which contribute to functional decline, that are, loss of muscle mass, strength and endurance, loss of aerobic capacity; changes in gait and balance, depression and loss of efficiency. Apart from these, peripheral blood flow in general is slowed down with typically increasing resistance to flow and concomitant increases in blood pressure. After about 35 years of age men and women tend to progressively add weight until the fifth or sixth decades of life, although the lean body mass decreases. This typical gain of body weight is due to increasing levels of accumulation of body fat and its consequent effects are associated with increased blood pressure, plasma, triglyceride concentrations, insulin resistance and lowered high density cholesterol levels. Slowness of behaviour is perhaps one of the most changes perceived in and by the elderly. Not only it is apparent in their motor responses, but it is also evident in the highest decision making neural structures of the central nervous system. Age related declines have been documented for many motor functions, including reaction time, balance, flexibility and grip strength.

PROBLEMS OF THE AGED PERSONS :

The rapidly growing absolute and relative numbers of older people in both developed and developing countries mean that more and more people will be entering the age when the risk of developing certain chronic and debilitating diseases is significantly higher. Nearly 85% of the elderly suffer from one or more diseases or health problems. Between four and 11% of people over the age of 65 years have some form of senile dementia, especially Alzheimer's disease. The most frequently occurring health problems among the elderly are : Arthritis (48% of the elderly), High blood pressure (36%), Heart disease (32%), Hearing impairments (32%), Orthopedic impairments (19%), Cataracts (17%), Diabetes (11%) and Visual impairments (9%).

BENEFITS OF EXERCISE OF THE AGED :

The value of exercise to the health of the older people has been well established by professionals in variety of health related fields. Benefits of exercise are mainly trifolied, as it promote health, avoid disease, and imply satisfaction with living. Many women and men reaching their 60s, 70s and 80s are free of a life threatening disease but are suffering the consequences form years of physical inactivity which increases disability and reduce quality

of life. At least 50% of the functional capacity decline in the elderly has been attributed to lack of activity. It has been shown that, putting either already sedentary patients or healthy people to bed for even a few days can have important negative effects on many of the body's system, including bone mineral loss, reduced glucose tolerance and decreases in cardio-vascular function. A regular programme of exercise produce positive adaptive changes in the structural and functioned integrity of the cardio-vascular, neuromuscular and skeletal systems to counteract the deteriorating effects of aging. Exercise has a preventive effect on the incidence and progression of chronic disease often related to aging. The point of concern is to prescribe appropriate exercise training programme.

Adverse effects of exercise training in older adults, especially musculoskeletal injuries occur primarily from over-use and have a higher incidence than in young adults, unless activity levels are initiated at a low intensity and increased slowly.

CONCLUSION :

Senior citizens are going to be a significant and sizeable portion of our population. This is because of decrease in morbidity and mortality, conscious nutrition and advancement of medical sciences. One may raise the question of utilizing the wisdom and manpower of this portion of our population. It is assumed that, if the senior citizens can maintain healthy and abundant life style may be very useful in the society by their experience and wisdom towards maintaining a desirable standard of our society in all sphere of life.

It is not important to add 'years to life', but 'life to years'. The length of life was not as important a criterion of health status as the richness and fullness of life. Daily habits of exercise are part of one's life style and appropriate life style contributes to health and the quality of life.

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BOOK REVIEW

BOOK OF UGC (NET / SLET)

IN

PHYSICAL EDUCATION

Soina Sehgal

Cosmos Book Hive (p) Ltd., Rs. 320.00/-

USEFUL BOOK FOR PHYSICAL EDUCATION

Mr. Tirtha Mondal, Teacher

Sudhir Memorial Institute, Doltala, Kolkata - 7000129

We have searched last few years for a readymade book for NET examination in Physical Education. We finds some books but that could not fulfilled our demand or cover the whole syllabus. But this book cover the whole syllabus even Part - I (General Paper) also. I think that this book can meet the demand of the Physical Education students for U.G.C. exam. There are main three parts in this book - Part I is the unique source of Paper - I (General), Part - II cover some model question paper for objective physical education, Part III has ten unit (I - X). The Unit - I is excellent. The Unit - II Bio energetic part is not discussed properly. If it can be discussed aerobic, anaerobic part separately with some diagram it will be more helpful. Unit III is very good but in the massage part all types of massage such as vibration, clapping kneading etc. should be discussed

separately and with their physiological & psychological effect also. Unit - IV is covered all things but health aspects, balance diet etc. are not discussed properly. In the First-aid part-golden rule, duties of first aider and various injuries are not discussed properly; Unit - VII part is good but characteristics of sports training should be discussed more. In periodization part proper explanation is not here. Unit - IX is excellent, but when discussing of various games skill part if picture in shown it becomes more effective. The other units of this book is very rich sources to gather knowledge and information for UGC NET Examination for Physical Education. I hope this book will help Physical Education Student and Teacher for their career development.

A GUIDE FOR UGC EXAMINATION

FOR

PHYSICAL EDUCATION

Dr. Suresh Kutty K.

Sports Publication, Delhi, Rs. 950.00/- (H.B.), 500.00/- (P.B.)

Mr. Aparup Koanr, Lecturer (part-time)

Dept. of Physical Education

Rabindra Mahavidyalaya, Champadanga, Hooghly

This book is very informative, resourceful, productive and systematic for NET. SLET examination for physical education. This kind of book are very rare in the field of physical education for UGC examination. This is one of such book which caters all the needs of the specific literature of physical education. This book in its outset gives us a lot of details about the general paper and subject paper. This book provides up-to-date and comprehensive most essential information to prepare students and covers the entire syllabus of physical education. This book is organised into three papers (Paper - I, Paper - II and Paper - III) continuing 4 - units in Paper - I, 3 units in Paper - II and 9 unites in Paper - III. Paper - I (General paper) is good, but there are minimum examples in each units. In Paper - II (Unit - I), less reference in Kinedsiology and biomechanics,

Olympics, philosophy & psychology and research methods. It would be more effective if all major games are given (only Athletics, Basketball and Hockey are there) in Unit - I. Unit - II is excellent for sports general knowledge like terms associated with major games & sports, sports cups & trophies, venues of Olympic Games (Summer & Winter), Commonwealth games, Asian games, World cup football, Cricket, Hockey, Sports Awards, Important terminologies in physical education, model questions etc.

Paper - III is unique one but some units should have to be improvised. In my opinion at Unit - I, better to mention Historical development of ancient and modern Olympic game age wise. At Unit - III, mechanical analysis of various sports activities should be incorporated. Unit - II & IV is properly explained. At Unit - V, principles of curriculum planning, course content of academic and professional courses, Age characteristics of peoples and selection of activities, construction of class and school physical education timetable if added it will be better. In Unit - VI, health related fitness, obesity and its management are not mentioned and first aid is not elaborated sufficiently. Communicable disease their preventive and therapeutic aspect, personal hygiene, recreation programmes for various categories of people have not documented enough. At unit - VII, it would be fruitful if sports talent identification - Process & Procedures, rules of games and sports and their interpretations are made briefly. Some areas of this units are mixed with the next Chapter. Unit - VIII is excellently discussed under the Unit - IX, it would be more acceptable if concept of test, measurement and evaluation, principle of measurement and evaluation are specified. Anthropometric measurement and body composition should also explained sufficiently. It would also better if people-teacher interaction and relationship are indicated. Unit - X tagged with Unit - IX. In future if this book arrange sufficient illustrated examples and graphical representation it will be a classic one. I strongly believe that this book will help Physical Education student and teacher for their future endeavour.

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Congratulation

For Ph.D. and Research Work

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FORTH COMING SEMINAR / CONFERENCE / WORKSHOP

1. **Venue:** KALYANI UNIVERSITY
Seminar Topic: Physical Education, Health and Well being
Time: April / May, 2005
Contact: Prof. S. Bhowmik, Ph. No. : 033-25825255 (R)
Prof. A. K. Banerjee, Ph. No. : 033-25828095 (R)
2. **Venue:** JADAVPUR UNIVERSITY
Seminar Topic: Yoga Therapy
Time: April / May, 2005
Contact: Dr. G. Chakraborty, Ph. No. : 033-24146232 (R)
Dr. P. Devnath, Ph. No. : 033-24136786 (R)
3. **Venue:** KAIWALYADHAMA
Workshop/Seminar Topic: Yoga
Time: December, 2005
Contact: Dr. T. K. Bera, Ph. No. : 02114-271523
4. **WEST BENGAL SPORTS MEDICINE CONFERENCE, 2006**
Venue: Kalyani University
Time: January, 2006
Contact: Prof. S. Bhowmik, Ph. No. : 033-25825255 (R)
Prof. A. K. Banerjee, Ph. No. : 033-25828095 (R)