Chapter I

INTRODUCTION

Achievements in sports provide respect, recognition and a special status to the winning country. In fact, such achievements at international levels have become a means to decide the best-developed society and reflect the general awareness of its citizens towards health and fitness, which even the world’s leading philosophers had stressed. The Greek philosopher, “Aristotle” stated that the body is the temple of soul and to reach harmony of body, mind and spirit, the body must be physically fit. John Locke, an English philosopher wrote, “a sound mind in a sound body, is a short but full description of a happy state in this world.”

Sport scientists are making the best use of new research findings and technologies so as to maintain pace with the advances made by other professions, more so, when this ever advancing and conscious society fully realises the contribution of sports to mankind.

Water sports are gradually becoming as one of the most popular area in the world. Swimming itself has been very popular throughout the history of mankind. In earlier times, people learned to swim for the purpose of hunting and survival. In several countries Swimming was an integral part of the training of soldiers during wars. As an activity, Swimming is reputed by physical educators to be the best exercise for all round development of the individual. It conditions the cardiovascular system while placing minimum stress on joints. It

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employs all the major muscle groups of the body leading to a well developed supple musculature. The muscles develop optimum strength though, they remain supple, which is not possible through other physical activities. Because of this very special characteristic, Swimming is considered a boon for the old people. It has a great carry over value and is the best form of activity to slow down the degenerative processes in old age. Swimming is said to be a “Cradle to Grave” activity because people of all age groups can enjoy it. As a pastime Swimming has few equals. It is enjoyed by millions of people world over. Swimming is fun from the moment a learner first gets his feet off the bottom. When more than two-third of the world is water, the survival and safety aspects of Swimming are undeniable. It is often a means of protecting and saving lives. Swimmers are considered to be leading a safer life than non-swimmers. Knowing Swimming is also a passport to other aquatic sports. Once you know Swimming, all kinds of water sports lie ahead.

Swimming, as Aquatherapy, is perhaps the only activity which is acknowledged to be the ultimate form of physical rehabilitation for people suffering from certain disabilities and for those recovering from some accidental or sports injuries. Swimming is also the only competitive sport which people with disabilities can enjoy involving their whole body.2

In competitive field also Swimming occupies very important place. It is an Olympic sport since the beginning of the modern Olympic Games in 1896. It offers second highest number of medals after Track and Field. Consequently, performances in Swimming are continuously improving at international level.
and records are broken at almost every competition. A total of 15 records were broken at the 2000 Sydney Olympics alone. Gone are the days when only one country used to take almost all medals. U.S.A. dominated the world in Swimming in the early 19th Century and had a cake walk at every championship they participated, except in 1932 at Los Anglos where they were surprisingly beaten by Japan winning five golds out of six available. At 2000 Sydney Olympics, Australia and small countries like Holland gave them a tough fight.

Apart from breaking the monopoly of any one country, the improvement in times has been great. Take example of 100m Free Style men event where the timing in 1896 Athens Olympics was 1:22.2 sec. It came down to 46 - 47sec. in 1996 Atlanta Olympics indicating almost ninety percent improvement in a span of 100 years.

Although, Indian Swimming has also improved with the passage of time but, has not kept pace with the world. Johnny Weissmuller of America swam the 100m Free Style event in 59.0 sec. way back in 1924 Paris Olympics. It took another 45 years for Indian swimmers to reach that standard. This is the reason why this unsatisfactory pace of improvement in the performance of Indian swimmers has now become an issue of discussion with sports authorities in general and Swimming authorities in particular.

Even small nations are making headlines on the sports front. In the Beijing Asian Games the lowly placed Pakistan had displaced us from our more or less static fifth place. In comparison to such small countries we have more modern facilities, infrastructure, proper atmosphere, climate, good physical
education and sports institutes and a fairly good financial backing from the Government.

Every time after our misadventure in Asian and Olympic Games the most debatable point heard at every forum is that we are a country of more than one hundred million people, but still can not produce even one World Champion. The debate ends up with the blame being shifted from one to another. Nothing concrete comes out. The time has now come when every one connected with sports should take concrete steps in order to uplift the sagging standards, which is possible when we follow the trends being set up by other sport leading nations.

However, we must realise that raising the sagging standards is not an easy task which can be done overnight. Sports world has become so competitive today that best performances can only be achieved through a meticulously planned, executed and controlled training system which is spread over a number of years and is based on scientific knowledge, theoretical and methodical fundamentals of sports training. Sports scientists and physiologists had been of the view that human capacity of performance among athletes had its limits in the matter of standards of efficiency. However, this belief has been proved false and the barriers of performance have been surpassed by the athletes as a result of continued improvement in the techniques, method of training and coaching. The recent advancements in performance ability can also be attributed to the scientific selection of talents and testified scientific training methods supported
by sports psychology, sports medicine and to the newly innovated training gadgets.³

Hard competitions have eventually compelled Swimming coaches to pick up children at an early age and train them hard over a long period for optimum results. Starting Swimming at a younger age enables the child to be familiar with water early in order to be a good swimmer later. Swimming coaches world over now not only emphasise on starting the training early, but also equally emphasise on the development of required motor components especially on land.

Forsyth⁴ in his study found that the swimmers who started their competitive swimming early were most prevalent. This has also posed a problem to the sports scientists to find out methods for selection of potential sportsmen at an early age. Beside this, it has also been realised that selecting individuals with an extra ordinary inborn talent and training them hard along scientific lines can achieve outstanding performance. It is now established that talented sportsmen in comparison with less gifted players have a greater chance of success given the same amount of training under similar conditions.⁵

A prior knowledge of the ultimate achievements of a sportsman at the peak of his performance has also become of prime interest to anyone involved in the cultivation of young sportsman. In the recent past, in India also, there are attempts of searching talent and to determine various factors, which could be responsible for ultimate success. The sports scientists working with the top

coaches in the sport concerned are trying to find out the basic physical, physiological, and psychological characteristics that might be the performance limiting factors.

After the inception of Sports Authority of India in 1985-86, a scheme called “National Sports Talent Competition” (NSTC) was launched and the so-called talented children were selected and were put in Special Training Centres. The tests used for the selection led to lots of criticism from other experts and as expected the scheme collapsed after a decade of venture. The Swimming coaches, majority of whom are averse to the word “Scientific Training”, selected their potential swimmers from the children visiting their pools mainly on the basis of their performance in some or the other competition, some times even forgetting that such talents have already reached their peak performances with little scope for much improvement in spite of intense schedules. After the failure of this Government sponsored NSTC scheme there has been no other attempt either by the Sports Authority of India or by Indian Swimming authorities.

With the passage of time, the point of consensus that seems to be emerging among Indian Swimming organisers, coaches and researchers is that if our swimmers have to perform well, it is then necessary to catch them at an early age and nurture them systematically and scientifically. There has to be combination of talent and hard training, i.e., nature and nurture. Rahn and Rasch⁶ have suggested that as the amount of training in water increases, intermittent stressing on dry land exercises is necessary, particularly in fresh air

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and sun. Running in the woods, cycling, skiing, rowing and canoeing etc. will contribute considerably to maintain or improve the desired vitality of the swimmers.

Councilman\(^7\) in his book, "Science of swimming" has quoted an example of Duncan Scott's performance at the age of 12 years. His performance was considered as good at that time. Councilman attributes this to the fact that Scott did daily training for all the four strokes along with land conditioning, such as, rope climbing, push ups, work in the track. For general conditioning he participated in Football, Basketball, Tennis and Golf. Based on the theory of all round development Mark Spitz created history by winning 7 Golds with as many World Records at 1972 Munich Olympics. The available literature suggests that leading Swimming nations emphasise on all round physical fitness of their swimmers starting from the lower age group itself. The then East Germany had developed a complex test for their swimmers to train and test them. It was proved by Kristin Otto who won 6 golds at 1988 Seoul Olympics in three different strokes including relays, i.e., Free Style, Back Stroke and Butterfly Stroke.

At the moment the Indian Swimming coaches have no reliable test which can give them prior idea about the amount of fitness required to be a champion in a particular stroke at different age levels. Such a reliable test and the accompanying norms are of prime interests to everyone involved in Swimming since it would save lots of time, energy, and resources of the child, of the parents, of the coach and of the nation. Keeping this fact in mind, the

investigator, who is involved in competitive Swimming in different capacities for the last three and a half decades, considered it worthwhile to construct norms for specific fitness of Indian male and female swimmers in the age-groups of 11 to 14 years.

**Statement of the Problem**

The present study was undertaken with the purpose of construction of norms for specific physical fitness of Indian age-group swimmers.

**Delimitations**

1. The study was delimited to 800 (400 male and 400 female) Indian swimmers ranging in the age groups of 11, 12, 13 and 14 years who have had represented their respective states, union territories or districts in the National or State level Swimming competitions. Each age group consisted of 100 swimmers.

2. The study was delimited to a test battery being developed and widely used in Germany. The test battery included following test items:

**2.1. Swimming Performance:**

2.1.1. 50m Free Style
2.1.2. 50m Butterfly Stroke
2.1.3. 50m Back Stroke
2.1.4. 50m Breast Stroke

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2.2. General Athletic Ability:

2.2.1. Chin-Ups (60 sec)

2.2.2. Sit-Ups (60 sec)

2.2.3. Jumping Over the Bench (sideways for 30 sec)

2.2.4. Push-Ups (60 sec)

2.2.5. Upper Body Lifts (back raising for 60 sec)

2.2.6. Three Consecutive Broad Jumps

2.3. Speed and Endurance:

2.3.1. 60m Dash

2.3.2. 2000m Run

Limitations

1. It was not possible to control the psychological, physical and physiological conditions of the subjects at the time of administering the tests. Although, the subjects were encouraged to do their best, however, the differences that might have occurred during the tests due to lack of the same was considered as a limitation of the study.

2. Non-availability of some very sophisticated instruments was also considered as a limitation of this study.

3. No special motivational techniques were used to influence the performance of the subjects in various tests. Although, all of them were encouraged to do their best, however, the differences that might have been in the performance due to lack of the same was also recognised as another limitation of the study.
Definitions and Explanation of Terms

Physical Fitness

1. “Physical Fitness is the ability to reach high level of performance and the ability to withstand the stresses imposed on the sportsman by his participation.”

2. “Physical Fitness is the sum total of five motor abilities namely strength, speed, endurance, flexibility and coordinative abilities.” Sports performance to a great extent depends on these abilities and that is why improvement and maintenance of Physical Fitness is the most important aim of any sports training.

3. Physical fitness may be defined as the capacity of an individual to perform a given physical task involving muscular effort.

Specific Physical Fitness

Singh referred Specific Physical Fitness to the efficiency of the organism for performance of the activities to establish its superiority over others. It is the ability to carry out a specific task efficiently. It is a combination of basic physical qualities and technical aspect or skill of that sport. As the specific motor movements are different from sport to sport, specific physical fitness traits also differ from sport to sport.

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Norms

“Norms are values considered to be representative of specified population”.\(^\text{13}\) Norms enable the teacher to interpret student's scores in relation to a large group in a sample population. Their use enables the comparison of the performance of a pupil with other pupils and gives uniform meaning to the comparison of a student's score on one test with his or her score on another. In addition, norms provide a reliable and useful basis for interpretation and evaluation of test results. A test that has accompanying norms is definitely preferred to one that does not have them.

**Significance of the Study**

The researcher who is involved with the teaching and coaching of Swimming for more than two and a half decades also hears a lot about talent detection from different people in the sports community. The present study will enable the sport scientists, Swimming coaches and physical education teachers to accumulate the evidences for building a more scientific basis for selecting children with desirable fitness factors for shaping them into good swimmers through a sound training programme.

The present study might contribute to the field of Swimming in the following manner:

1. The study would yield norms to be used for the evaluation, classification and selection of Indian age group swimmers for various coaching camps and competitions.

2. The study would provide guidelines to the sports scientists, Swimming coaches and physical education teachers to develop a sound age group wise specific physical fitness programme for young swimmers.

3. The study would serve as a motivational force to the swimmers to improve upon their specific fitness in order to be good swimmers.

4. The constructed norms on Indian Age-Group swimmers will enable researchers in future to compare with the norms from other leading countries in order to find out the differences that exist between specific fitness levels of Indian and foreign swimmers.

5. The study might also motivate other Swimming loving people to take up similar research studies so that Swimming in India may become a more scientific sport.