CHAPTER - I
Chapter I
INTRODUCTION

In the highly competitive world of today, where Information Technology is emerging as the new ‘mantra’ of success, every endeavour of life is redefining its future role. The “World of Sports” cannot and should not afford to lag behind in 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 realizes contribution of sports to mankind.

Today, achievements in sports provide respect, recognition, and a special status to the winning country. Sports achievements 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”\(^1\).

Water sports are gradually blooming as one of the most popular sports areas 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. As an activity also, Swimming has long been recognised as learning a variety of values and considered as one of the best all round activity available. Apart from this, its survival and safety aspects are undeniable.

In competitive field also swimming occupies very important place. It has been 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 recently concluded Sydney Olympics alone. Gone are the days when only one country used to take almost all medals. U.S.A. dominated the world swimming in the early 19th Century and had a cake walk at every championship they participated, except in 1932 at Los Angeles where they were surprisingly beaten by Japan winning five golds out

---

of six available. At Sydney 2000, Australia and small countries like Holland gave U.S.A. a tough fight.

Apart from breaking the monopoly of any one country, the improvement in times has been great. Take the 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 it has not been able to keep pace with the world. Johny Weismullar 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 provided by the Government.

Each time after our misadventure in the Asian and Olympic Games the most debatable point heard in every forum is that we are a country of more than one billion people, but still cannot produce even one World champion. The debate ends up with the blame being shifted from one to other. Nothing concrete comes out. The time has come when every one who is 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.

Hard competitions have eventually compelled sport authorities to pick up children at an early age in order to train them 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. Forsyth \(^4\) 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. Besides, this, it has also been realised that selecting individuals with an extra ordinary inborn talent and training them 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.

The physical developments 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 have been attempts to search for 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.

With 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 was being expected the scheme collapsed after a decade of venture. 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. The swimming coaches, majority of whom are averse to the word "Scientific Training", select 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\(^6\).

So, with the passage of time, the point of consensus that seems to be emerging among Indian sports organisers, coaches and researchers is that if our sportsmen have to perform well, it is then necessary to catch them at an early age and nurture them systematically and scientifically. Early efforts should be made to find right type of talent to fit into the exact slot. One thing, however, needs to be remembered that talent always remains hidden. A lot of meaningful efforts and perseverance are needed to unearth it and then polish it for excellence.

At the moment the Indian coaches have no reliable test, which can give them prior information about their young swimmers' chances of success after years of training. Such a reliable test is of prime interest to anyone involved since it would save lot 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 the teaching and training of young budding

---

swimmers for more than a decade, considered it worthwhile to develop a model for the identification of talent in competitive swimming.

**Statement of the Problem**

The main purpose of the present study was to "identify and investigate such anthropometric, physical, and physiological variables, which might be largely contributing to the success in competitive swimming and therefore, to develop model for identification of talent at an early age".

**Delimitations**

1. The study was delimited to the 200 male swimmers ranging in the age group of 9 to 12 years and who were trained for competitive swimming at least for the last one year at different training centres and pools in India.

2. These 200 swimmers were selected under four age groups i.e. 9, 10, 11 and 12 years and each group consisted of 50 swimmers.

3. The study was further delimited to free style swimming.

4. The study was also delimited to the following anthropometric, physical, and physiological (Independent) variables, which were selected on the basis of discussions and written suggestions of the experts for which the opinionnaires were administrated.
*Anthropometric Variables*

a. Standing Height  
b. Body Weight  
c. Arm Length  
d. Hand Length  
e. Hand Breadth  
f. Leg Length  
g. Foot Length  
h. Foot Breadth  
i. Shoulder Width  
j. Hip Width

*Physical Variables*

a. Grip Strength  
b. Arm and Shoulder Strength  
c. Abdomen Strength Endurance  
d. Shoulder Flexibility  
e. Trunk-hip Flexibility  
f. Average Ankle Flexibility

*Physiological Variables*

a. Body Fat Percentage  
b. Vital Capacity  
c. Resting Pulse Rate  
d. Respiratory Rate
5. The dependent variable for the study was the performance in 50m front crawl swimming and the rating of the technique was given by the judges.

Limitations

1. Non-availability of some of sophisticated instruments was considered a limitation for the purpose of this study.

2. Certain factors like life style, daily routine of activities and the dietary habits of the subjects, which might have affected the results of the study, could not be controlled. However, the subjects were requested to participate whole-heartedly in the testing process. Moreover, it was assumed that the random selection of the subjects has assured the nullifying effect of other factors.

3. No special motivational techniques and aids were used to influence the subjects during the testing process. Though the subjects were encouraged to cooperate in testing process and do their best. However, the difference that might have on the performance due to lack of the same is also recognised as another limitation of the study.
Definition and Explanation of Terms

Free Style

The front crawl stroke is the stroke referred to as "freestyle" in competitive swimming and is presently the fastest stroke a man swims.²

In front crawl swimming the person appears to be crawling like a baby, reaching out with one hand at a time. The swimmer lies flat on the water with face down, the arms are pulled alternately from front to back down the imaginary centre line of the body up to thigh and are pulled out of the water to produce another pull. Both legs move up and down alternately. The number of leg beats to one arm cycle - left and right - varies from 2 to 6 as per the build of the swimmer and the distance he swims.³

The definition given by Spitz and Le Mond is found suitable and acceptable for the purpose of this study.

Anthropometric Variables

“Anthropometric variables are dimensions of the structure of the human body taken at specific sites to measures of length, girth and width."⁴

---


The descriptions of the specific anthropometric variables selected in the study are given in Chapter III.

**Physiological Variables**

The factors that involve the functioning of the circulatory, respiratory and related systems during an activity are defined as physiological variables\(^{10}\)

**Talent**

Talent is the sum total of all pre-requisites possessed by a person which will enable him to achieve high performance in a sport in future. The pre-requisites include motor abilities, technical skills, tactical efficiency, physique, personality traits, motives and interests etc.\(^{11}\)

**Model**

A model conveys information that is used to guide performance. It suggests an overall information pattern which would base on anthropometric, physical and physiological factors in order to help sport promising and potential children with the help of such criterion information.


Significance of the Study

Sport experts attribute the recent advancement in performance ability to the scientific selection of talents. The researcher who is involved with teaching and coaching of swimming for more than a decade also has heard a lot about talent detection from different people in the Sports community. The sports authorities also seem to be seriously considering the plight of our sportsmen at almost every international competition. The Sports Authority of India had also launched a National Sports Talent Contest where the children were screened at District, State and National level. However, the criteria adopted by the SAI seemed to be a tentative one, without having any sound scientific basis. The eight items selected for general fitness evaluation did not have much rational behind it and more over they formed a common evaluation criterion for screening children in almost ten disciplines which was not at all an appropriate approach because the anthropometric, physical and physiological demands/prerequisites of each sport vary in accordance with the specific nature of the game. Moreover, a good weightage in the final selection was given to only three test items namely floatability, gliding, and shoulder flexibility without testing them in any stroke and swimming efficiency. It was also experienced that some of the parents train their children only in those three-test items, without the child knowing any swimming skill, in order to get their children in. Therefore, such tests could not give true reflection of one's talent.
The present study will therefore, 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 endowments as early in their lives as possible for shaping them into good swimmers through a sound training programme.

At the moment the Indian coaches have no reliable test, which can give them prior information about their young swimmers' chances of success after years of training. Such a reliable test is of prime interest to anyone involved since it would save lots of time, energy, and resources of the child, of the parents, of the coach and of the nation.