Chapter I

INTRODUCTION

"The First and foremost question confronting a physical education teacher or coach when he assembles his prospective candidates at the beginning of a season is, which of these sportsmen possess the qualities, innate and acquired, that go to make a good sportsman in a particular sport."

In modern scientific age, in every field of human endeavour, systematic, objective and scientific procedures are followed in accordance with principles based on experience, understanding and application of knowledge of science. The field of sports & games is no exception to this.

In today's age of scientific knowledge man is making rapid progress in all walks of life including area of games and sports also. The progress in games and sports may be attributed to the scientific investigations for the performance of sportsmen/sports women, improved scientific and specific training methods and also to the better understanding of human organism.

Today research studies are undertaken in Biomechanics, Sports Psychology, Exercise Physiology, Training Methods, Sports Medicine and also in various
other areas related to sports, all over the world. Modern sport has developed with direct/indirect scientific assistance provided by various scientific disciplines. The scientific research in the field of Physical Education and sports is a boon to the athletes, trainers and coaches. Physical Education Scientists have been trying to attain higher level of performance in sports and games. Though research in Physical Education and sports is a new venture, this may be attributed to the use of scientifically sound study of interdisciplinary research.¹

Through research, coaches are being exposed to scientific knowledge about exercises, training methods and evaluative methods.

Until recently physical talent was considered an adequate recommendation for a player. The growth of sports technology has made available additional techniques for the assessment of a player's potential and performance.²


Sports have undergone a tremendous change in consequence. Sports are now dominated by a new breed of coaches. The new coaches are interested in a combination of physical talent with other qualities - qualities that not only influence performance, but also help sustain the athlete in his or her commitment to sport.

Dermatoglyphics (G-glyphe, carved work) means the surface markings of the skin, especially of the palmar and planter regions. It is the study of the patterns of ridges of the skin of the fingers, palms, toes, and soles, frequently found to be significant in genetic investigation.

Cummins in 1926 introduced this term "Dermatoglyphics" to describe the fine groove and ridges in epidermis. There are also creases and white lines which are only marginally included in the definition. The patterns formed by loops and deltas (triradii) are of great interest to anthropologist, genetics, criminologist and they are also of pathological importance.

3 Ibid.


Seeing the perfection of the human hand both in structure and endowments, we can hardly be surprised at some philosophers entertaining the opinion of Anaxagoras, that superiority of man is owing to his hand. The surface markings of the skin of the human hand comprise one of the endowments. The ridge patterns, which constitute dermatoglyphics develop in the third and fourth months of foetal life and are completed by 18th week.

In men and probably in other animals, dermal ridges are very stable morphologically. According to the studies conducted so far, they do not change their structure mostly. Once they are formed, are not changed in any way by superficial trauma, and they cannot be destroyed or changed. In Egyptian mummies the ridge patterns are clear even after 2,000 years.

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8 Ibid.
Purpose of the Present Study

Reading of palm has made so much progress in this age as it never did in the past. Scientific experiments and tests in advanced countries like America, France, Japan etc. which have been carried out in this subject Science of Palmprint study, are being given priority in their universities. In the fields of Medical Sciences, future telling and criminology it has been indispensable.⁹

By Seeing this much perfection of the human hand, both in structure and endowments, the medical man also considers dermatoglyphics as one of the factors for diagnosing diseases. So far very rare works have been done in sports especially in this area. In order to explore the use of this science (Dermatoglyphics) in the area of sports, this study was undertaken.

Statement of the Problem

The purpose of this study was to observe and analyse the Dermatoglyphics of Sportsmen.

⁹Dr. Narayan Dutt Shrimali, Practical Palmistry (Delhi Pustak Mahal, 1981) p.1
Delimitations

1. This study was delimited to the three selected sports only - Badminton, Soccer and Gymnastics.

2. The study was delimited to Darmatoglyphics of palm only.

Limitation

The configuration and variants exhibit different trends among races, between sexes and among constitutional types.\textsuperscript{10} It was not possible to control the effect of these factors, however precautions were taken to control these limits as far as possible.

Hypotheses

1. It was hypothesised that variables of dermatoglyphics will show difference between sportsmen/sportswomen than non sportsmen/non sportswomen.

2. It was also hypothesised that dermatoglyphics will differ amongst the three selected groups of sportsmen/sportswomen.

Definition and Explanation of Terms

Dermatoglyphics

Dermatoglyphics is patterns of specialized skins of the inferior surface of the hands and feet.\textsuperscript{11}

Dermatoglyphics (der-'mah - to - glif'iks) is the study of the patterns of ridges of the skin of the fingers, palms, toes and soles, frequently found to be significant in investigation.\textsuperscript{12}

Dermatoglyphics (derma, skin + glyphe, carve work) means the surface markings of the skin, especially of the palmar and planter regions. It is the study of the patterns of ridges of the skin of the fingers, palms, toes, and soles, frequently found to be significant in genetic investigation.\textsuperscript{13}

Sportsmen/Sportswomen

For the purpose of this study a sportsman/sportswomen was one who had participated minimum at National level competition (State team or Intervarsity) in Badminton, Soccer and Gymnastics.

\textsuperscript{11}Webster's Third New International Dictionary S.V. "Dermatoglyphics".


\textsuperscript{13}Cumins and Midlo, Finger Prints, Palms and Soles cited by, Warwick and Williams, ed. Grays Anatomy p.1161.
Non Sportsman/Non Sportswoman

For the purpose of this study a non sportsman/non sportswoman is one who does not participate in any game or sports.

Significance of the study

The use of fingerprints for the purpose of identifications is well known in the areas like Medicine, Criminology etc. and has led to the inference of their variation in human population. The science of dermatoglyphics is an advancement in our knowledge of human biology. The importance of dermatoglyphics for the genetic study in medicine is gaining ground. Because of relative ease with which epidermal ridges can be studied qualitatively and quantitatively, they provide a productive field for research in sports. As it has also been seen that traits of dermatoglyphics are in herited. These patterns may be established in the early life of sportmen showing the latent qualities regarding a specific sport. Thus the study may be helpful in scanning out the talent right from the birth for the purpose of training. This study may be further helpful for the coaches and sport scientists for the assessment of sportsman prior to preparation for higher levels of competition. Thus it was decided to take up this study to explore dermatoglyphics in sportsmen.