CHAPTER I
INTRODUCTION
Growth of an organism in biological terms begins with the fertilized ovum, followed by the process of self multiplication of living substance (Malina, 1975). After the initial stages in the proliferation of cells, the generalized cells get involved in the process of differentiation and specialization as different functional units. This latter activity continues and the initial embryo begins to develop the species-specific bodily characteristics leading towards the birth and maturity of the individual. This process is usually referred to as development process.

Human physical growth is a dynamically changeable and inherently vital phenomenon. Growth of children and youth has been recommended as one of the best indices of health and nutritional status of a community (WHO, 1978). Although all variables of the human species have many physical characteristics in common, but there exist a significant degree of phenotypic variation among individuals and populations. This diversity exemplifies the plastic nature of the human form, which often serves to mirror past and present environmental stresses. The examination of human biological variation and its maintenance over time is the focal point for an increasing number of scientific endeavors. By observing and recording the influence of interacting forces of the physical, cultural and biological environments on the human organism, the human biologist attempts to assess the contribution of each to genetic structure and human constitution.

Highly reflective of the effects of physical, cultural, and biological forces upon a population is the variation displayed by individuals, especially those in the years of active growth and sexual maturation. Poor growth and development may have many health implications. It not only indicates poor nutritional status and poor physical performance and fitness level but also increased susceptibility to disease and decreased energy expenditure.

Growth is a tangible biological process in which body gains in size, volume, height and weight. There is an enlargement of cells, muscles and bones and these quantitative changes are perceptible. Various anthropometric measurements like
length of various body segments, breadth of bones, girth measurements help to assess the physical growth pattern of an individual.

Along with the measurements of physical growth, physiological variables also form an important aspect of the growth studies as it denotes functioning of the different systems of the body, some of the physiological attributes can be easily studied with out requirement of highly sophisticated equipments, and they give an account of important functions, as cardio-respiratory functions etc. Clinical decision-making relies on the history, examination, and result of selected investigation. As a part of general clinical examination, four vital signs are recorded: heart rate, respiratory rate, blood pressure and temperature (Wallis et al, 2005). These parameters exhibit maturation of concerned system with increment of age.

Physical fitness can be described as a condition that helps us for better look, feel better and perform up to our potentials, more specifically physical fitness can be defined as the ability to perform daily tasks vigorously and alertly, with energy left over for enjoying leisure-time activities and meeting emergency demands. It is the ability to endure, to bear up, to withstand stress, to carry on in circumstances where an unfit person could not continue, and is a major basis for good health and well-being (Singh et al, 2006). Fitness is the ability to perform moderate to vigorous levels of physical activity without undue fatigue and the capacity of maintaining such ability throughout life. Physical fitness characteristics can be expressed through various motor qualities as speed, strength, power, agility, balance, endurance etc. Performance of these parameters is depended on life style of individual as well as morphological and genetical factors. Motor ability are measured with the different test as vertical jump, standing broad jump, bend knee sit-up, sit and reach test and pull-up test.

Optimal health and a high level of fitness have long been recognized as the key to future of any human population and human resource development. Appropriate
education, nutrition, health care and stimulation during childhood are elements that encourage desirable morphologic, functional, metabolic and nutritional development of children. Specifically a proper diet and an adequate level of physical activity for all individual are essential factors for achievement of this aim. The standard of living and nutritional status of a population may be measured in terms of infant and child growth, which is not only a direct evaluation of the health and nutritional status of children but it is also an indirect measure of quality of life of entire society to which children belong. The scientific community should realize the importance of optimal level of diet and physical activity for proper growth and development. An understanding regarding interplay of genetic factors and the environment is the center point for growth and development.

It is obvious that difference in nutritional and physical fitness level of children can be studied by observing somatic, functional, motor, metabolic and nutritional development of children belonging to different environmental conditions and socio-economic status. Nutritional status of an individual or a country reflects the quality of life. There are evidences of incidence to point out that a nation is strong in terms of health and fitness of its people. When sedentary individuals are engaged in physical activity, the fitness of the nation improves. Physical activity in the life of sedentary individuals is necessary for their physical, mental and spiritual well-being. Optimum level of physical activity and nutrition helps to keep oneself away from modern day diseases specially hypo kinetic diseases.

Concern for the welfare of school children was the next impetus to the study of growth. The idea that too much cerebral activity might have an adverse effect on growth and development, by diverting the flow of blood from the organs to the brain, rapidly began to gain ground during the latter part of the 19th century (Voss, 2001). Health and physical education programs aid students in achieving their fullest potential through the acquisition of knowledge and skill necessary to attain healthy levels of
well being and to maintain active life styles through out life span. Healthy and physically active life style of a person helps to increase capacity for effective work, positive behavioral choices and increased academic success. The school children are the important part of the society, they are the citizens of tomorrow, they form the target group, because they are easily approachable for providing any kind of services, specifically nutritional services and physical education programme, can be provided to them very effectively, systematically and in an organized way. Keeping this view in mind boys of Jawahar Navodaya Vidyalaya (JNV) and Kendriya Vidyalaya (KV) were selected to investigate the growth pattern, physical and physiological aspect and nutritional status.

Navodaya Vidyalaya Samiti is a registered society under the Societies Registration Act, XXX of 1960. The objects for which the society is established are, to endow and manage school called Jawahar Navodaya Vidyalaya (JNV) and to do all acts and things necessary for or conducive to promotion of such school which have many objectives, and one of the objectives is "To provide good quality modern education-including a strong components of inculcation of values, awareness of the environment, adventure activities and physical education to the talented children predominantly from the rural areas without regard to their family's socioeconomic condition".

Kendriya Vidyalaya Sangathan is a registered society under the Societies Registration Act; XXX of 1960. In November 1962, the Government of India approved the scheme of Kendriya Vidyalaya (KV), non-residential schools to cater the educational needs to children of the central Government employees including defence personnel, which in exigency of their service are frequently transferred from one place to the other, and the students mainly belonged to urban areas.

The decision to carry out a physical fitness program cannot be taken lightly. It requires a lifelong commitment of time and effort. Exercise must become one of
those things that one do without question. Unless an individual is convinced of the benefits of fitness and the risks of being unfit one will not succeed in continuing the physical fitness programme. It has been realized that fitness adds not only years to one's life, but life to one's years (Singh et al, 2006).

The purpose of the present study is to investigate and compare physical growth, physiological component, physical fitness and health status of JNV and KV boys of 10+ to 18+ years. The specific aims and objectives are:

1. To assess the patterns of growth in terms of magnitude for various measurements.
2. To study somatotype changes with advancement of age.
3. To study fitness status of the Jawahar Navodaya Vidyalaya and Kendriya Vidyalaya boys.
5. To compare the patterns of growth, somatotype, fitness status and various physiological components between Jawahar Navodaya and Kendriya Vidyalaya Children. To assess the pattern of growth, in terms of magnitude, for various measurements.
6. To study the relationship of anthropometric parameter with different physical fitness component.
7. To compare the various groups under study among each other and adjoining population groups.

Delimitation’s:

The study was delimitated to boys of 10+ to 18+ years of age of JNV and KV boys and it was delimitated to various anthropometric, physiological, physical fitness
and nutritional variables, which were measured to assess physical growth, physiological component, physical fitness and health status, in the present study.

**Hypothesis :**

It was hypothesized that there shall be significant difference in physical growth, physiological component, physical fitness and health status of JNV and KV boys.