

AN ABSTRACT OF THE THESIS OF

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Title A COMPARATIVE STUDY OF PHYSICAL DISORDERS OF  
EDUCABLE MENTALLY RETARDED CHILDREN AND OF  
CHILDREN OF NORMAL INTELLIGENCE

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The purpose of this study was to compare the number and type of physical disorders of two hundred educable mentally retarded students and two hundred normal intelligence students. The relationship of physical disorders to sex and age was also investigated.

The descriptive survey method was chosen for the study. Data were collected by use of a tabulation record which listed 20 categories of broad general physical disorders. Each classification was calculated as to frequency in each student group. The sample for the educable mentally retarded group consisted of data obtained from the current physical examination record of 100 male students and 100 female students selected at random from Fairview Hospital and Training Center. There were 32 in the 7 to 12

year age group, 31 in the 13 to 15 year age group and 37 in the 16 to 18 year age group for each sex. The sample for the normal student group consisted of data obtained from the current Oregon Pupil Medical Record of 100 male students and 100 female students selected at random from three schools in the Salem Public School system. There were 32 in the 7 to 12 year age group of each sex, 31 in the 13 to 15 year age group of each sex and 37 in the 16 to 18 year age group of each sex.

In agreement with other studies, the incidence of total disorders was higher in subnormals but an analysis of the data revealed the incidence was higher only in certain categories. These were nervous system disorders, musculo-skeletal disorders, foot disorders, heart disorders, nose and throat disorders, eye disorders, gait disorders, mouth disorders, genital disorders, ear disorders, endocrine disorders and other disorders.

In other categories there was no appreciable difference in incidence. These were tooth disorders, vision disorders, nutrition disorders, skin disorders, hearing disorders, lymph node disorders, abdomen disorders and lung disorders.

The older age groups of both the educable mentally retarded students and normal students had a higher incidence of tooth, nutrition and skin disorders. The educable mentally retarded

7 to 12 year age male group had a higher incidence of genital disorders. In the remaining categories, no noticeable progressive or regressive change was noted.

The extent to which preventive and corrective services were available was important in the general incidence. Also, accommodation facilities and programs for students with nervous system disorders and resulting musculo-skeletal disorders appeared to influence the incidence.

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EDUCABLE MENTALLY RETARDED CHILDREN AND  
OF CHILDREN OF NORMAL INTELLIGENCE

by

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# A COMPARATIVE STUDY OF PHYSICAL DISORDERS OF EDUCABLE MENTALLY RETARDED CHILDREN AND OF CHILDREN OF NORMAL INTELLIGENCE

## CHAPTER I INTRODUCTION

The basic needs of children should be fulfilled to promote maximum growth and development. The mentally retarded child is not excepted from these needs. Several authorities have suggested that we should refer to "the person with mental retardation" rather than "the mentally retarded person." This would serve as a reminder that the retarded are, first of all, children or adults with the same needs and feelings which we all have. Because of retardation, they may have special needs. In addition to physical needs for such things as food and shelter, they have requirements and needs for training and learning. Emotionally they need to feel accepted or liked by others; to feel worthwhile; and to feel confident to try new things.

Children's needs have varying import at different ages and under differing circumstances. The infant needs love, care and an opportunity to learn. Dependence on others for love and care is

the primary need, and insofar as this need is met freely the child reaches out spontaneously to learn to cope with the environment. There is also a major need for motor activity and for opportunities to utilize other emerging capacities such as speech and play. Later there is a need for a stimulus to the development of acceptable social skills and further intellectual maturity. All of these needs are initially provided for within the family framework and depend to a critical degree on the adequacy of the mother or mother figure.

If the child's needs have been met during the early years of life and development is normal, the school-age child is less dependent, both physically and emotionally, on adults in the environment than at an earlier age. At this point, the child experiences the first major separation from the security of the home and from the dependence on parents, with particular dilution of the mother-child relationship. It is during this time that many children are initially identified as retarded when the elementary teacher finds they have difficulty reading and problem solving. After comprehensive evaluation and diagnosis, the primary concern is to place these school-age children in situations where their learning potential will be realized. Special classes for retarded children in public or private schools should be utilized. Group activities, socialization and recreation programs are required to maintain early gains

and provide meaningful programs.

With adequate instruction, educable mentally retarded children can become literate and attain grade four, five or six before leaving school at 16 to 18 years of age. Non-academic school activities have not been fully explored to permit participation. Physical disabilities long associated with mental retardation has precluded consideration or planning.

#### Statement of the Problem.

Great emphasis was placed upon unusual physical characteristics in the early studies of the mentally retarded because other modern means of diagnosis were not available. Many of these deviations were called the stigmata of degeneracy, which in itself indicated a poor philosophy toward the problem. As a group, Baker (1953) described the mentally retarded as being of smaller stature than the average with some correspondence between intelligence quotient and size. However, there is known to be great overlapping between and among groups and with the average, so that any diagnosis based on size alone would be most hazardous.

In addition, Baker (1953) felt, that as a group the mentally retarded tended to have more physical deviations than the average, with asymmetry of the head and face, unusual size of the head

either in the direction of being either large or small, crowded and poorly formed teeth, ears of many shapes, and various other unusual conditions. He also stated that in the case of the mentally retarded there are likely to be two or more of these defects per child whereas the normal seldom have more than one. Goldstein and Seigle (1958) contended that, as a group, the mentally retarded are somewhat inferior in size and weight as compared with children of the same age, that they are more prone to illness and that the prevalence of physical handicaps is greater. Justification for this conclusion was described as difficult to determine.

While various conclusions indicate a high correlation between mental retardation and physical disorders, it is possible that in the educable retarded group the incidence is similar to the incidence in the normal school age group.

### The Purpose

The purpose of this study was to compile and compare the number and type of physical disorders by sex and age from the current physical examination records of two hundred students from Fairview Hospital and Training Center and two hundred students from the Salem Public Schools.

If it could be demonstrated that a proportionate number and

type of physical disorders existed in both groups, this would serve as one guide to be considered in teaching methods, referrals and curriculum planning. This information might also have implications for planning shared non-academic educational activities for the mentally retarded and normal students.

### Definition of Terms

Mental retardation. Subaverage intellectual functioning which usually originates during the developmental period and is associated with impairment in adaptive behavior.

Educable mentally retarded student. An individual with subaverage intelligence who can profit from limited academic instruction.

Normal intelligence student. An individual who can profit from standard academic instruction.

Physical disorder. Organic or functional conditions that deviate from the norm.

### Limitations of the Study

Fairview Hospital and Training Center required a physical examination upon admission to the institution and thereafter as indicated. The physical examinations were performed by a variety

of staff physicians.

Salem Public Schools required a physical examination only for the first and seventh grade students. The physical examinations were performed by a variety of private physicians.

Although the time requirements for physical examinations in both schools were different and limited, it was possible to compare the time span.

### Elaboration of the Study

A review of the literature is presented in Chapter II to point up specific physical disorders associated with mentally retarded groups as compared to groups of normal intelligence. Chapter III presents methodology of the study. Chapter IV is devoted to presentation and analysis of data. The summary, conclusions and recommendations appear in Chapter V.

## CHAPTER II REVIEW OF LITERATURE

Literature was reviewed to determine specific physical disorders associated with subaverage intelligence groups as compared to average intelligence groups.

Goldstein and Seigle (1958) signified that in terms of their general physical growth and maturation, educable mentally retarded children follow the same sequence as their normal peers. They contended that, as a group, the mentally retarded are somewhat inferior in size and weight as compared with children of the same age, that they are more prone to illness and that the prevalence of physical handicaps is greater. They further stated that of the first two, inferiority in physical development and proneness to illness, it is difficult to determine whether these characteristics are directly associated with mental handicap or with environmental conditions or both. Environmental conditions should merit considerable attention since studies have shown that, at least in large metropolitan districts, a sizable proportion of educable mentally retarded children come from substandard homes. In some instances, the existence of a physical handicap and mental handicap may have a direct relationship as seen in some brain-injured children. In other instances, the mental handicap may be

independent of the source related to the physical handicap.

Numerous studies concerning the physical status of children, who are mentally retarded, were reviewed by Blatt (1960). His analysis contended:

Although there was disagreement among researchers, the consensus seems to indicate that there is a positive relationship between intelligence and various indices of physique. However, this relationship is not invariable and appears to be too minor to be useful for predictive or educational purposes. This relationship does not appear to be linear in character and it may be more significant in the more severely retarded group.

Bensberg (1965) described children and adults whose intelligence quotients are below 20 as having marked physical handicaps demonstrated in cerebral palsy, blindness or deafness. These individuals are known as profoundly retarded. He further states that the severely retarded or those with intelligence quotients of 20 to 35 and the moderately retarded or those with intelligence quotients of 35 to 50 are likely to have physical and medical problems associated with their retardation, just as in the case of the profoundly retarded. However, the number having such problems and the severity of the problems are less than in the case of profoundly retarded. The mildly retarded with a general intelligence quotient range of 50 to 70 have very few physical handicaps as a group and appear to be quite normal.

A report of the American Medical Association Conference

on Mental Retardation (1964) stated that three of every four retarded individuals have significant medical problems and that they seem especially susceptible to infections and other illnesses, but especially to the complications of respiratory illness. It was further stated that some of the retarded are subject to seizures and in addition to acute episodes, they often suffer from multiple physical handicaps, i. e., speech, gait, arm-hand use, vision and hearing. Of these, speech handicaps are the most common.

The staff of the Training School at Vineland, New Jersey (1961), one of the world's oldest research and demonstration centers for the care and treatment of the mentally retarded, declares that retarded children often have physical defects which are associated with their condition. Defects commonly seen include poor hearing, motor incoordination, seizures and visual defects. They suggest, however, that there is not a retarded child "type."

Mussen and Conger (1956) signified that there seems to be a slight relationship between physical and mental development among physically normal children. In studies in this area, positive relationships were obtained between intelligence and a number of physical measures of all ages from 2 to 17 years. These correlations were not large, however, the greatest (between height and intelligence quotients of boys) being only .26.

Gesell (1948) contended that a physician diagnosing mental retardation should not rely on intuition, casual inspection, or even on physical stigmata. He states that the physical examination should be directed chiefly toward the discovery of somatic stigmata, anomalies and neurologic abnormalities. He further states that in mongolism, cretinism, microcephaly and hydrocephaly, the physical signs may be so characteristic and well defined as to establish a secure basis for a diagnosis. However, these types have a way of defying the textbooks, and they are subject to many variations which lead to error and confusion. Infants who look mongoloid not infrequently prove to be normal. Infants who look unquestionably normal prove to be defective. If a doctor is psychoallergic to an epicanthic fold, he may overreact with an erroneous diagnosis. Moreover, a diagnosis on the basis of physical stigmata gives little more than a classificatory label. An interpretive diagnosis demands an investigation of the concealed anatomy of the central nervous system which makes itself manifest only in the patterns and modes of behavior.

Kugel and Mohr (1963) investigated the relationship between mental retardation and physical growth as measured by height and weight. They concluded that while there is an association between physical development and mental development, it is not clear

whether this is a cause and effect association.

Physical disorders related to intelligence groups were described in the literature reviewed. A greater prevalence of physical disorders in the subaverage intelligence group was identified. Broad categories of physical disorders rather than specific disorders was the focus. The methodology of the study was largely determined by information from the literature described.

## CHAPTER III METHODOLOGY

### Method

The descriptive survey method was chosen to determine the number and type of physical disorders of the educable mentally retarded student as compared to students of normal intelligence. A tabulation record was devised which contained 20 items.<sup>1</sup> All items were broad general classifications of physical and functional disorders. Items were compiled from different sources of the literature but primarily from the Fairview Hospital and Training Center physical examination record<sup>2</sup> and the Salem Public School medical record.<sup>3</sup>

All items were given equal weight and each item was calculated to demonstrate the relative frequency distributions for interpretation of data. Two general social factors were obtained from each student's record:

1. Sex
2. Age (7-12, 13-15, 16-18)

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<sup>1</sup> Appendix A

<sup>2</sup> Appendix B

<sup>3</sup> Appendix C

### Procedure

Fairview Hospital and Training Center, a school for the mentally retarded, located in Salem, Oregon was selected for the study of the educable mentally retarded group because it is coeducational and admits students from age 7 through 18 years.

Four Corners Elementary School, Parrish Junior High School and North Salem Senior High School were selected for the study because they were representative of the normal student group from the Salem Public School System. They were coeducational and included students from age 7 through 18 years.

The sample consisted of data obtained from the current physical examination record of 100 male students and 100 female students selected at random from Fairview Hospital and Training Center. There were 32 in the 7 to 12 age group, 31 in the 13 to 15 age group and 37 in the 16 to 18 age group for each sex.

The sample for the normal student group consisted of data obtained from the current Oregon Pupil Medical Record of 100 male students and 100 female students selected at random from three schools in the Salem Public School System. There were 32 in the 7 to 12 age group of each sex from Four Corners Elementary School, 31 in the 13 to 15 age group of each sex from Parrish Junior High School and 37 in the 16 to 18 age group of each sex

from North Salem Senior High School.

The investigator contacted the Superintendent of each school with an introductory statement that she was a student enrolled at the Oregon State University and that the school might possible incorporate the conclusions of the study in their curriculum planning, teaching methods and referrals. A copy of the proposed research problem was presented to each Superintendent with an interpretation to prevent any possible misunderstandings. Permission to review the student records was obtained.

The results and analysis of data follow in Chapter IV.

## CHAPTER IV PRESENTATION AND ANALYSIS OF DATA

The study included data obtained from current physical examination records of 100 male and 100 female students from Fairview Hospital and Training Center and 100 male and 100 female students from Salem Public Schools. All records were selected at random. These data were recorded on a tabulation form which contained 20 broad general classifications of physical and functional disorders.

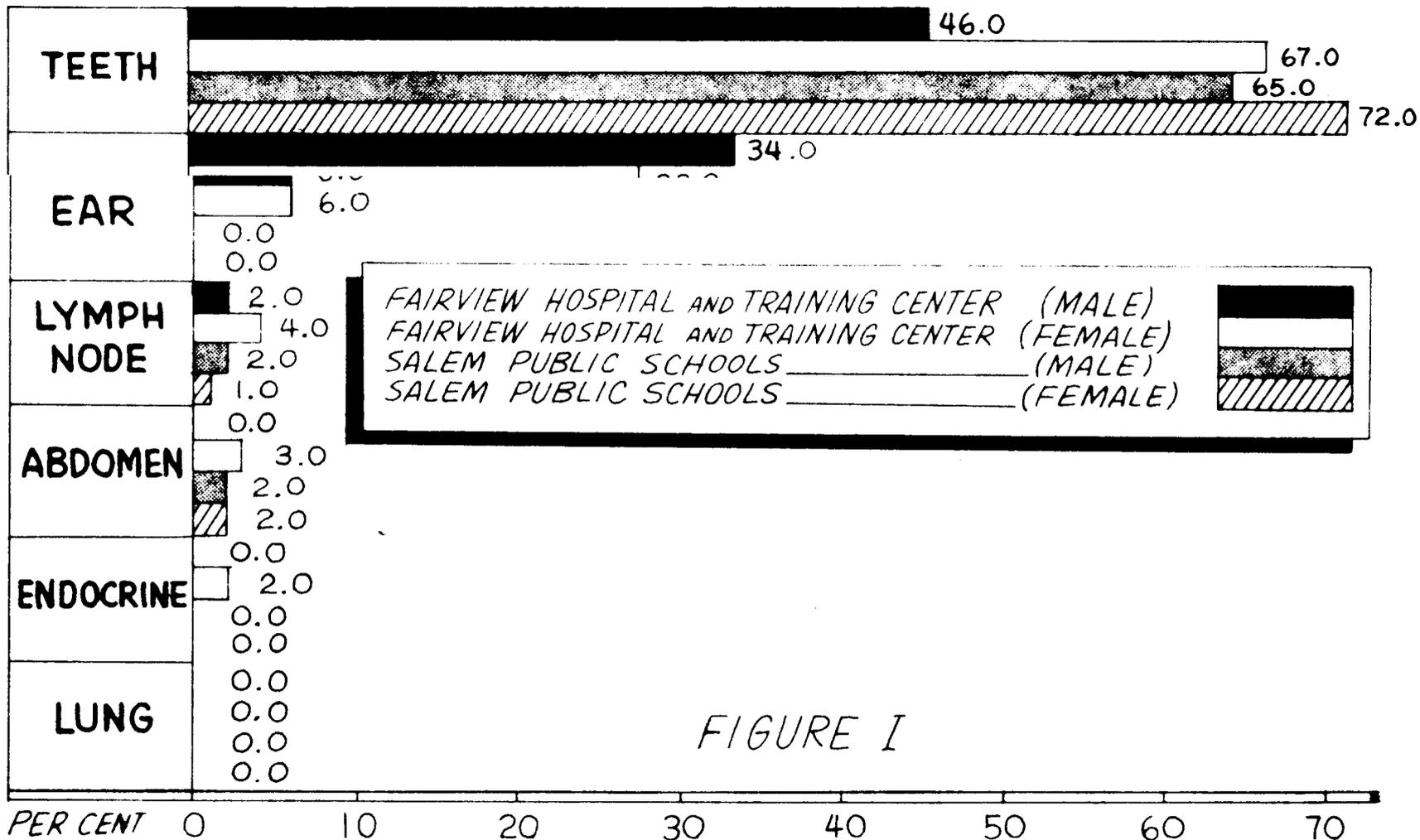
Data were analyzed by comparison of the number and type of physical disorders in the educable mentally retarded and normal student group. Physical disorders were then isolated for further consideration in regard to sex and age.

### Comparison of Physical Disorders

Recorded specific disorders<sup>1</sup> were tabulated to determine the frequency distribution for the broad general categories of physical disorders as shown in Figure 1, page 16. All categories were selected for discussion to focus on the physical disorder rank of high frequency to low frequency in all student groups.

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<sup>1</sup> Appendices D, E, F, G.



FAIRVIEW HOSPITAL AND TRAINING CENTER (MALE)  
 FAIRVIEW HOSPITAL AND TRAINING CENTER (FEMALE)  
 SALEM PUBLIC SCHOOLS (MALE)  
 SALEM PUBLIC SCHOOLS (FEMALE)

FIGURE I

FREQUENCY DISTRIBUTION OF PHYSICAL DISORDERS

## Tooth Disorders

This category rated the highest for all groups with a range of 46 to 72 percent. The compared frequency did not exceed 26 percent. The greater incidence occurred in the female groups. Caries and malocclusions were the primary disorders in this category. Although no age is immune to dental decay, caries are primarily associated with childhood and adolescence. The two periods of greatest carious activity are in the deciduous dentition, i. e., five to eight years, and in the permanent dentition, i. e., 12 to 18 years. The periods of increased carious activity coincide closely with the childhood and adolescent spurts in body growth. The most important factor contributing to dental decay in children is the excessive ingestion of refined carbohydrates between meals. Reduction of between-meal sugars contributes to an arrest in caries activity. Children benefit in other ways from a sugar-control program, including a marked improvement in eating habits, especially in the adolescent age group.

Another factor contributing to dental decay is poor oral hygiene which provides bacteria with food debris. Fluorine reduces the progress of caries if present at the site of action in sufficient concentration. Appreciable alteration of the enamel may be

brought about as a result of ionic exchange and results in an increase in hardness and insolubility. Fluorine may be ingested in small amounts in the communal drinking water, administered as a supplement in liquid or tablet form or may be applied topically by the dentist.

Because new carious lesions appear suddenly and in numerous areas and since the lesions progress rapidly, the usual six month interval between dental examinations is inadequate for the rapidly growing child. Examinations, particularly of the teen-age child, should be made at least at two to three month intervals. In addition to early and adequate care of new carious lesions, between-meal eating of all foods, candies and the like, containing refined sugars should be discouraged and every child should be encouraged to brush or at least rinse his mouth immediately after each meal. The application of topical fluorides on newly erupted teeth should be encouraged and fluoridation of the communal water supply as a public health measure should be advocated.

Not all malocclusions have a similar etiologic history. Because of the variance in origin, the prognoses are not the same. However, it is much easier to correct tooth malpositions and functional malrelationships due to muscle reflexes than it is to overcome inherent genetic patterns of bone growth. Early

diagnosis is the first step in minimizing the effects of malocclusion. In case of doubt an orthodontist should be consulted.

Fairview Hospital and Training Center maintains a dental department and all residents receive dental care. The school age child and adolescent groups are given priority over other age groups. Preventive examinations are scheduled with care as indicated. Programmed tooth brushing after meals are accomplished by electric and hand tooth brushes and are closely supervised. Fluoride is added to the water supply.

Salem Public Schools also have fluoridation of the water supply in some areas. Dental examinations are required for the first and seventh grade students. Teachers and school nurses check students' teeth periodically and refer as indicated. Students also receive instruction regarding care of teeth.

The opportunity to obtain between-meal foods containing refined sugars might account for the slightly higher incidence of tooth disorders in the Salem Public School group. Most of the Fairview Hospital and Training Center students do not carry money or have access to facilities to purchase snack foods as readily as Salem Public School students, therefore, their opportunity to eat refined sugars between meals could be somewhat limited.

### Vision Disorders.

These disorders rated second highest for all groups with a range of 28 to 46 percent. The compared frequency did not exceed 18 percent. Salem Public Schools had a greater incidence than Fairview Hospital and Training Center. The majority of these disorders were not specifically identified and could be considered as correctable defects. Vision disorders of this type can be corrected by classroom adjustments, corrective lenses and, in some instances, surgery.

Historically, the human eyes were used for outdoor, distant seeing to which they became more naturally adapted. In the past century great changes have occurred in the use of the eyes with close indoor work, reading at close range, television, movies, etc. The human eye does not change quickly in two or three generations to meet these rapid changes, and hence, a great number of eye disorders is the logical result. In young children, particularly of elementary-school age, the eyeball is relatively short and the lens does not bring the focus on the retina but at a point behind it, so that many young children seem to be farsighted. The close work of the schoolroom tires their eyes unless there are periods of rest and an opportunity to look at objects some distance

away.

Although the number of children with vision disorders is alarmingly large and the possible results are very ominous if uncorrected, methods of diagnosis and treatment are quite definite and effective when actually used. The chief discouragement comes from an inadequate program of eye examination and a failure to recognize the gravity of neglect rather than from ignorance of what should be done.

The general physical examinations at Fairview Hospital and Training Center include eye examinations. Physical examinations are performed upon admission to the institution and thereafter as indicated. Periodic screening tests for vision, i. e., Snellen test, and observations by nurses and teachers are conducted. An Optometrist is available for all referrals.

Salem Public School general physical examinations also include eye examinations. The teachers conduct periodic screening tests of vision and observations. All students are referred as indicated.

Salem Public School students had a higher incidence of vision disorders. Since the genetic factor is extremely important it might be speculated that a significant genetic difference existed in the two groups. It would be mere speculation to assume that

the fact that the Salem Public School group did more reading would account for the higher incidence of vision disorders. A detailed study of each case of vision disorder would be necessary to establish reasons for this difference in disorders of vision.

### Other Disorders

This category included speech disorders, blood disorders and asthma. These disorders were the next highest classification with a range of 4 to 27 percent. Fairview Hospital and Training Center students had the greater incidence of these disorders. Speech disorders was the primary specific disorder. There are many types of speech disorders and also many causes. The more common causes are hearing defects, defective intelligence, physiological defects, central nervous system disturbances and psychogenic disorders.

A speech therapist is available at Fairview Hospital and Training Center who conducts individual and group classes for students with speech disorders.

Salem Public Schools also have a similar program.

Fairview Hospital and Training Center students had the highest incidence of speech disorders. The incidence of hearing

disorders did not correspond closely. Perhaps central nervous system disturbances could be considered a factor.

### Nervous System Disorders

The incidence range of these disorders was 1 to 24 percent. The highest incidence occurred in the Fairview Hospital and Training Center groups. The specific disorder was convulsive disorder. The important prophylactic measures for convulsive disorders are the avoidance of psychologic trauma because of the attitudes of others toward the disorder and the prevention of accidents during an attack.

Fairview Hospital and Training Center students with convulsive disorders do not attend school until their seizure activity is well controlled by anticonvulsant drugs. Some students who have severe seizures wear helmets as a protective device. Psychologically, the Fairview Hospital and Training Center students probably suffer less trauma than students in the public schools as seizures are more prevalent at Fairview than in the public schools.

Fairview Hospital and Training Center students had the greater number of these disorders. This poses the question of mental development related to convulsive disorders or to mental deterioration in older victims of the disorder.

### Musculo-skeletal Disorders

This category had an incidence range of 1 to 21 percent. The Fairview Hospital and Training Center group had a higher percentage of disorders as compared to the Salem Public School group. It is possible to correct many of these musculo-skeletal disorders surgically or by other assistive devices. The primary importance of correction is for ambulation and cosmetic effect.

A medical staff, including an orthopedic surgeon, is available at Fairview Hospital and Training Center to evaluate, diagnose and prescribe treatment for musculo-skeletal disorders. Physical therapists are also available for any assistive devices or treatment indicated.

Private medical and health resources are available in the community.

As most of these disorders appear to be of a congenital nature, remedial intervention is possible during the pre-school period. However, these disorders suggest a relationship with mental retardation.

### Nutrition Disorders

This disorder with a 7 to 13 percent range occurred in all groups and the compared frequency did not exceed six percent. The primary disorder was obesity. Obesity in childhood is not rare and there seems to be a general tendency for parents to overlook this condition in a young child. Obesity, however, becomes an urgent problem when it operates as a social handicap. Children gain weight when they persistently eat more than they need. At the same time, there is usually marked physical inactivity.

Extensive studies have been made of the sociologic and psychologic factors related to obesity. Excessive eating and avoidance of activity are intricately interwoven with an obese child's personality development and life experiences. The interpersonal relationships within the family may be such that they do not afford sufficient emotional security. Eating not only serves to appease bodily hunger but also is charged with high emotional significance. In the past, endocrine imbalance has often been incorrectly blamed for obesity. Thyroid deficiency may at times lead to obesity, particularly in the older child who continues to eat the usual amount even when the basal metabolic rate and total caloric expenditure have decreased. However, the diagnosis should offer little

difficulty as other features of hypothyroidism are usually conspicuous. The delay in skeletal maturation is particularly marked.

The real problems in the treatment of obese children are concerned not so much with details of diet as with the appraisal of whether or not a weight-reducing program is indicated and, if so, how to insure cooperation over a long period. Mere weight reduction without attention to underlying problems will almost invariably be followed by another increase in weight. An obese child needs aid in finding new sources of satisfaction and self-respect. Otherwise, the restriction of food may be an impossible task for a child who in overeating has sought comfort and compensation for anxiety and unhappiness.

For the past four to five years, Fairview Hospital and Training Center has implemented and maintained a weight reduction program for all overweight children and adults. Each overweight individual is placed on a prescribed weight reduction diet and is weighed on a monthly basis to ascertain weight loss or gain. Various social and recreational activities serve to complement the weight reduction program. Grooming classes have proven to be a stimulating and sustaining factor for the girls at Fairview Hospital and Training Center. Psychologists and a consulting psychiatrist also aid in the weight reduction program when a need is indicated.

Salem Public Schools provide health instruction for all students which could increase their awareness of nutritional needs. Adequate diets are also provided through the school lunch program. However, many students do not eat at school. In either case, there appears to be little or no supervision of caloric intake. Some Salem schools have developed weight control programs as a part of physical education programs. Their approach is increased physical activity with a related caloric intake plan. Salem Public School teachers make referrals for medical assistance as indicated. Counselors or other staff are available as the need arises.

A high familial incidence of obesity has been found in many studies. To what extent this is the result of genetic factors in metabolic mechanisms and to what extent it depends on environmental conditioning is not clear.

#### Foot Disorders

Fairview Hospital and Training Center students had the highest number of foot disorders. The incidence ranged from 0 to 18 percent for the two school groups. The highest incidence in this category occurred in the Fairview Hospital and Training Center male group. Salem Public School females had no foot disorders. The primary specific disorders were talipes planus and talipes

varus. True talipes planus does not develop until some time after weight-bearing begins. The individual often complains of fatigue or pain in the feet and, in addition to the conspicuous planus position, the heel and sole of the shoe are unduly worn down on the medial side. The treatment may consist of effective exercises, i. e., climbing and walking games, picking up marbles with the bare toes, and an inner support in the shoe. When pronation is excessive, an orthopedist should be consulted for further therapeutic measures.

Talipes varus developing after birth is caused by local disease, trauma or neurologic disturbances such as poliomyelitis, myelodysplasia, or peroneal muscular atrophy. Treatment of this condition is invariably an orthopedic problem.

Fairview Hospital and Training Center employes a podiatrist and an orthopedic surgeon who evaluate, diagnose and prescribe treatment for all children and adults with foot problems. Physical therapists also assist in treatment of foot disorders by implementing effective exercise programs and other assistive devices.

Salem Public Schools refer as indicated.

The causes of talipes planus and talipes varus are probably congenital peculiarities of structure in most instances. Diseases which lead to muscular weakness and relaxation of ligaments in

general are doubtless responsible for some instances.

### Heart Disorders

The incidence of heart disorders ranged from 0 to 15 percent. Fairview Hospital and Training Center students had the highest occurrence with the female group having the greater incidence. There were no heart disorders in the Salem Public School female group. The majority of heart disorders were recorded as congenital heart disease and were not identified as to type. The importance of making an accurate diagnosis of congenital cardiac lesions has increased since the development of surgical procedures effective for some of them. Frequently, the diagnosis can be established from the history, physical findings and roentgenographic and electrocardiographic examinations. When some doubt exists, cardiac catheterization, angiocardiology and aortography often supply the necessary information.

The specific management of individuals with congenital heart malformations varies with the nature of the malformation. General health measures, such as prophylactic inoculations and vaccination, should generally be applied in accordance with the usual age schedules. The teeth should be kept in good condition. There is no need for routinely limiting the activity of children with

congenitally malformed hearts. In the presence of considerable cardiac enlargement, marked hypertension or electrocardiographic evidence of ventricular strain, competitive sports and all other activities which would cause strenuous effort should be avoided.

Fairview Hospital and Training Center maintains a staff of physicians who prescribe treatment for students with congenital heart disease. Some of the students are admitted to the University of Oregon Medical School Hospital for evaluation, diagnosis or surgery. An immunization program is also provided to assure prophylactic inoculations and vaccination.

Salem Public Schools follow directions of the attending physician and limit the student's activity as indicated. The need for immunization is also strongly advocated in the Salem Public Schools.

Community health programs have reduced the incidence of congenital heart disease by the preventive measures previously described.

#### Nose and Throat Disorders

These disorders occurred in all student groups. The greater number occurred in the Fairview Hospital and Training Center students. Fairview Hospital and Training Center females had the

highest number of disorders and Salem Public School females had the lowest number. The incidence for all groups ranged from 2 to 12 percent. The specific disorders were primarily enlarged tonsils and deviated septum. The tonsils and lymphoid tissue generally serve as valuable defense mechanisms against infection, particularly during the early years of life. Uncomplicated hypertrophy of the tonsils probably indicates an active defense mechanism. The extent to which a hypertrophied tonsil will decrease in size is often surprising. It is possible to see tonsils during an attack of acute tonsillitis that meet in the midline and for tonsillectomy to be recommended for a later date, only to find some weeks later that the tonsils have retrogressed to unimpressive size. While adenotonsillectomy is still widely practiced, sharp differences of opinion prevail as to the benefit to be derived from this operation.

Deviation of the nasal septum is usually due to unequal growth of the various growth centers of the septum and hence makes its appearance during the period of active facial development after four years of age.

Removal of tonsils is justified only if they constitute a menace to health which outweighs their value and the risk of their removal. Medical opinion and a trend toward conservative medical

intervention could account for the incidence in the Fairview Hospital and Training Center group. Also, surgical correction of the septum is best delayed until after puberty and this incidence could have been influenced by the same factors.

### Eye Disorders

The incidence of eye disorders ranged from 0 to 13 percent. This category occurred only in the Fairview Hospital and Training Center groups. The primary specific disorder was epicanthus, a vertical semilunar skin fold extending down the side of the nose with the concavity directed toward the inner canthus. Epicanthus is a conspicuous finding in mongolism but is also found in normal individuals, often as a familial characteristic.

The incidence of eye disorders in the Fairview Hospital and Training Center groups was influenced by mongoloid students in the study.

### Skin Disorders

Skin disorders occurred in all student groups with a frequency range of one to ten percent. Fairview Hospital and Training Center groups had the higher incidence. Acne was the primary specific skin disorder. Characteristically, acne is a disease of

pubescence, adolescence and young adulthood, but it may commence in late childhood, i. e., eight to twelve years. All gradations of acne may occur, from a few transient comedones to a progressive and disfiguring process which lasts for years. The face, upper chest and back are the commonest sites of involvement. The cause of acne is complex. Basically the process seems to be bound up with endocrine changes occurring at the time of sexual maturation. Menstruation is not infrequently accompanied by the appearance of acne. The treatment of acne at present consists of keratolytic preparations containing resorcin and sulfur. If a sensitivity to these agents prevent their use, washing the face with crude laundry soap may provide adequate keratolysis. X-ray therapy is also effective. Endocrine therapy does not yet have an established place in this condition, although some success has been reported.

The incidence in the Fairview Hospital and Training Center groups was not indicative of etiological factors.

### Hearing Disorders

All student groups had hearing disorders and the range was four to eight percent. Salem Public School students had the highest incidence. All hearing disorders were recorded as defective

hearing or hearing loss. There were no specific types identified. There was no record of any of the students requiring a hearing aid. Effective treatment of hearing impairment is dependent upon early detection. The two most important methods of detection are the routine testing of the hearing of school children and of preschool children as a part of their regular health examinations.

Fairview Hospital and Training Center routinely includes hearing as part of the general physical examination. Referrals are made as indicated.

Salem Public Schools also include testing of hearing as part of the general physical examination. The Oregon State Board of Health has an organized program of casefinding and medical follow-up in which audiometric screening of school children is conducted on a state-wide basis.

Hearing disorders in the Salem Public School male group could be attributed to the general population incidence rate.

### Gait Disorders

These disorders ranged in frequency from zero to nine percent. Fairview Hospital and Training Center groups had a greater incidence than Salem Public School groups. Fairview Hospital and Training Center females had the highest occurrence. There were

no gait disorders in the Salem Public School females. Gait disorders are related to musculo-skeletal disorders and the incidence followed a similar pattern.

### Mouth Disorders

These disorders occurred only in the Fairview Hospital and Training Center groups. The female group was 11 percent and the male group was five percent. Most of these were maldevelopment of the palate which is often associated with harelip but may occur without it. All degrees are seen. The fissure may involve only the uvula and soft palate, or may extend forward to the nostril, involving the hard palate and the maxillary alveolar ridge. It may be unilateral or bilateral. Operation on cleft palate is usually undertaken at about 18 months of age.

Since these disorders occurred only in the Fairview Hospital and Training Center groups, a higher tendency associated with mental retardation might exist.

### Genital Disorders

Genital disorders occurred only in the Fairview Hospital and Training Center male group. The specific disorder was cryptorchidism. Failure of the testes to descend may be due to some

hormonal deficiency or to a mechanical defect along the path of descent. Spontaneous descent may take place at any time before puberty, the chances, however, steadily lessening as age advances. In any abnormal position it probably will not develop properly and may never produce sperm. Male hormone production is unimpaired, however, so that body development is normal.

Since this disorder occurred only in the Fairview Hospital and Training Center male group, a higher tendency associated with mental retardation might exist.

#### Ear Disorders

This category occurred only in the Fairview Hospital and Training Center groups. The incidence was the same for both males and females. The ear disorders consisted primarily of minor abnormalities of the external ear. Large protruding ears was the primary specific disorder. Correction of markedly protruding ears, if indicated for psychologic reasons, can be accomplished by plastic surgery. The cosmetic results are good.

Since these disorders occurred only in the Fairview Hospital and Training Center groups, a higher tendency associated with mental retardation might exist.

### Lymph Node Disorders

A low frequency of one to four percent was found in lymph node disorders. This disorder occurred in all groups. Fairview Hospital and Training Center females had the highest incidence. Lymph nodes are important elements in defenses of the body against infection by bacteria and other pathogens. During infancy and early childhood, lymphoid tissue characteristically responds to infection by rapid and excessive swelling and hyperplasia. Occasionally, a node or a group of nodes may harbor infection long after the original site has been cleared.

A low infection rate could account for the low frequency of lymph node disorders.

### Abdomen Disorders

A low frequency of zero to three percent existed in these disorders. The Fairview Hospital and Training Center male students had no abdomen disorders and the numbers were somewhat evenly distributed among the remaining three student groups. Hernia was the primary disorder in this category. Hernias of various types may be present at birth or develop subsequently, often because of congenital defects.

## Endocrine Disorders

The Fairview Hospital and Training Center female group was the only group having this disorder which involved disorders of the thyroid gland. Symptoms of hypothyroidism, which can become manifest at any age, may be due to primary disturbances of the thyroid by infections, particularly the contagious diseases, by operative removal of a lingual or a normally situated thyroid, or by unknown causes. Thyroid deficiency may also be secondary to deficiency of thyrotropin in generalized or selective pituitary disturbances. Diagnostic techniques to identify the latter have only recently become available. Normal thyroid glands are not often affected by infections, but in regions of endemic goiter, contagious diseases are more likely to result in hypothyroidism.

There frequently is seen at puberty a rather pronounced enlargement of the thyroid gland due to hypertrophy and hyperplasia of the acini. Normally, this is followed by involution of the gland to its former status but occasionally the clinical picture of true hyperthyroidism results, with all of its manifestations, including exophthalmos.

A congenitally hypoplastic thyroid gland may furnish amounts of hormone sufficient for the early periods of life, but a deficiency

may develop when the demands on the gland are increased by changes within the organism such as rapid growth, adolescence and the like.

### Lung Disorders

There were no lung disorders present in any group. The annual Tuberculin skin test and annual chest X-ray lends itself to early detection and subsequent treatment of lung disorders and could have reduced the incidence.

### Physical Disorders Related to Sex and Age Factors

Twenty broad categories of physical disorders as shown in Tables I, II, III, pages 40, 41 and 42, were related to sex and age.

### Tooth Disorders

7 to 12 Year Age Group. Salem Public School students had a greater incidence of tooth disorders than the Fairview Hospital and Training Center students. Salem Public School females with 68.75 percent had a higher incidence than Fairview Hospital and Training Center females with 43.75 percent. Salem Public School males with 59.38 percent had a higher incidence than Fairview

TABLE I. Relative frequency distribution of two social factors to physical disorders of the 7-12 year age group.

Physical Disorders	Fairview Hospital & Training Center		Salem Public Schools	
	Sex		Sex	
	Male N=32	Female N=32	Male N=32	Female N=32
Tooth	50.00	43.75	59.38	68.75
Vision	28.13	21.88	37.50	50.00
Other	37.50	9.38	6.25	9.38
Nervous system	18.75	25.00	3.13	3.13
Musculo-skeletal	18.75	31.25	3.13	0.00
Nutrition	9.38	3.13	3.13	3.13
Foot	15.63	18.75	6.25	0.00
Heart	12.50	12.50	6.25	0.00
Nose and throat	15.63	12.50	3.13	3.13
Eye	25.00	18.75	0.00	0.00
Skin	9.38	6.25	0.00	0.00
Hearing	3.13	0.00	3.13	6.25
Gait	15.63	9.38	3.13	0.00
Mouth	9.38	12.50	0.00	0.00
Genital	21.88	0.00	0.00	0.00
Ear	12.50	9.38	0.00	0.00
Lymph node	0.00	0.00	3.13	0.00
Abdomen	0.00	0.00	0.00	0.00
Endocrine	0.00	0.00	0.00	0.00
Lung	0.00	0.00	0.00	0.00

TABLE II. Relative frequency distribution of two social factors to physical disorders of the 13-15 year age group.

Physical Disorders	Fairview Hospital & Training Center		Salem Public Schools	
	Sex		Sex	
	Male N=31	Female N=31	Male N=31	Female N=31
Tooth	48.39	83.87	48.39	74.19
Vision	41.94	32.26	29.03	25.81
Other	25.81	19.35	3.23	3.23
Nervous system	25.81	35.48	3.23	0.00
Musculo-skeletal	19.35	16.13	0.00	3.23
Nutrition	6.45	9.68	6.45	3.23
Foot	22.58	12.90	3.23	0.00
Heart	19.35	12.90	3.23	0.00
Nose and throat	9.68	19.35	0.00	0.00
Eye	6.45	12.90	0.00	0.00
Skin	3.23	9.68	0.00	6.45
Hearing	0.00	3.23	6.45	3.23
Gait	3.23	9.68	3.23	0.00
Mouth	0.00	16.13	0.00	0.00
Genital	19.35	0.00	0.00	0.00
Ear	3.23	3.23	0.00	0.00
Lymph node	6.45	3.23	3.23	0.00
Abdomen	0.00	9.68	0.00	6.45
Endocrine	0.00	6.45	0.00	0.00
Lung	0.00	0.00	0.00	0.00

TABLE III. Relative frequency distribution of two social factors to physical disorders of the 16-18 year age group.

Physical Disorders	Fairview Hospital & Training Center		Salem Public Schools	
	Sex		Sex	
	Male N=37	Female N=37	Male N= 37	Female N= 37
Tooth	40.54	72.97	83.78	72.97
Vision	32.43	29.73	29.73	59.46
Other	18.92	8.11	2.70	0.00
Nervous system	10.81	13.51	0.00	0.00
Musculo-skeletal	13.51	16.22	5.41	0.00
Nutrition	5.41	24.32	13.51	18.92
Foot	16.22	2.70	2.70	0.00
Heart	2.70	18.92	0.00	0.00
Nose and throat	5.41	5.41	5.41	2.70
Eye	8.11	5.41	0.00	0.00
Skin	10.81	13.51	2.70	8.11
Hearing	8.11	8.11	13.51	2.70
Gait	2.70	8.11	0.00	0.00
Mouth	5.41	5.41	0.00	0.00
Genital	0.00	0.00	0.00	0.00
Ear	2.70	5.41	0.00	0.00
Lymph node	0.00	8.11	0.00	2.70
Abdomen	0.00	0.00	5.41	0.00
Endocrine	0.00	0.00	0.00	0.00
Lung	0.00	0.00	0.00	0.00

Hospital and Training Center males with 50.00 percent.

13 to 15 Year Age Group. Fairview Hospital and Training Center students had a higher number of tooth disorders than the Salem Public School students in this age group. Fairview Hospital and Training Center female students had the highest incidence, 83.37 percent as compared to 74.19 percent for the Salem Public School female students. Fairview Hospital and Training Center males and Salem Public School males had the same occurrence, 48.39 percent.

16 to 18 Year Age Group. The incidence of tooth disorders was the same for the Fairview Hospital and Training Center females and Salem Public School females, 72.97 percent. Salem Public School males had an incidence of 83.78 percent as compared to 40.54 percent for Fairview Hospital and Training Center males.

The incidence of tooth disorders gradually increased with age in three groups with a greater increase in the Salem Public School males. The incidence for Fairview Hospital and Training Center males remained relatively constant. It can be concluded that age influenced tooth disorders and that sex was not a determining factor.

## Vision Disorders

7 to 12 Year Age Group. Salem Public School students had a greater incidence of vision disorders than Fairview Hospital and Training Center students. Salem Public School females, 50.00 percent, had a higher incidence than Fairview Hospital and Training Center females with 21.88 percent. Salem Public School males with 37.50 percent had a higher incidence than Fairview Hospital and Training Center males with 28.88 percent.

13 to 15 Year Age Group. Fairview Hospital and Training Center females with 32.26 percent had a greater incidence of vision disorders than Salem Public School females with 25.81 percent. Fairview Hospital and Training Center males with 41.94 percent had a greater incidence than the Salem Public School males with 29.03 percent.

16 to 18 Year Age Group. The greater incidence of vision disorders occurred in the Salem Public School group. Salem Public School females had the highest incidence with 59.46 percent as compared to 29.73 percent for Fairview Hospital and Training Center females. Among males, 32.43 percent of the Fairview Hospital and Training Center males had vision disorders as

compared to 29.73 percent for Salem Public School males.

A greater incidence of vision disorders occurred in the Salem Public School male and female groups 7 to 12 years of age with a decrease in the 13 to 15 year age group. This could indicate correction after elementary school enrollment. However, the incidence increased in the 16 to 18 year age group. Visual changes and demands might have influenced this increase. Fairview Hospital and Training Center male and female students had a greater incidence of vision disorders in the 13 to 15 year age group with a slight decrease in the 16 to 18 year age group. Visual demands might have influenced the increase in the older age groups. It can be concluded that age and sex were not determining factors in vision disorders.

#### Other Disorders

Speech disorders, blood disorders and asthma were included in the category of other disorders.

7 to 12 Year Age Group. A higher incidence of these disorders occurred in the Fairview Hospital and Training Center group than in the Salem Public School group. Fairview Hospital and Training Center females and Salem Public School females had the same incidence, 9.38 percent. Fairview Hospital and

Training Center males with 37.50 percent had a higher incidence than the Salem Public School males, 6.25 percent.

13 to 15 Year Age Group. The highest incidence of disorders occurred in the Fairview Hospital and Training Center students. Some 19.35 percent of the Fairview Hospital and Training Center females had disorders as compared to 3.23 percent of the Salem Public School females. Fairview Hospital and Training Center males had 25.81 percent as compared to 3.23 percent for the Salem Public School males.

16 to 18 Year Age Group. Fairview Hospital and Training Center students had the greater number of these disorders. There were none of these disorders in the Salem Public School females compared to 8.11 percent for the Fairview Hospital and Training Center females. Fairview Hospital and Training Center males with 18.92 percent had a greater incidence than Salem Public School males with only 2.70 percent.

Although these disorders occurred in all four groups, they were predominant for the Fairview Hospital and Training Center males and females in all age groups. While the Salem Public School males and females showed a marked decrease in incidence in the succeeding age groups, normal growth and development of

the Salem Public School groups as compared to the special training and medical needs of the Fairview Hospital and Training Center groups could have accounted for these changes.

### Nervous System Disorders

7 to 12 Year Age Group. Fairview Hospital and Training Center students had a greater incidence of nervous system disorders than Salem Public School students. Fairview Hospital and Training Center females with 25.00 percent had a greater number than Salem Public School females with only 3.13 percent. Fairview Hospital and Training Center males with 18.75 percent had a greater number than Salem Public School males with only 3.13 percent.

13 to 15 Year Age Group. A greater number of nervous system disorders occurred in the Fairview Hospital and Training Center students than in the Salem Public School students. While 35.48 percent of the Fairview Hospital and Training Center females had disorders Salem Public School females had none and while 25.81 percent of the Fairview Hospital and Training Center males had disorders only 3.23 percent of the Salem Public School males had disorders.

16 to 18 Year Age Group. Fairview Hospital and Training Center students had the only incidence of nervous system disorders in this age group. The female group with 13.51 percent had a greater incidence than the male group with 10.81 percent.

In this category, the Salem Public School male and female incidence was minimal to non-existent in all age groups possibly because children with this disorder are not usually accommodated by any program or facility in the public schools. The higher occurrence in the Fairview Hospital and Training Center males and females would show this accommodation in a special school.

#### Musculo-skeletal Disorders

7 to 12 Year Age Group. The largest number of musculo-skeletal disorders occurred in the Fairview Hospital and Training Center males and females. While 31.25 percent of the Fairview Hospital and Training Center females had disorders there was none among the Salem Public School females. About 18.75 percent of the Fairview Hospital and Training Center males had disorders compared to 3.13 percent of the Salem Public School males.

13 to 15 Year Age Group. Fairview Hospital and Training

Center students had a greater incidence of musculo-skeletal disorders. Fairview Hospital and Training Center females with 16.13 percent had a greater incidence than Salem Public School females with 3.23 percent. Fairview Hospital and Training Center males had an incidence of 19.35 percent compared to none for the Salem Public School males.

16 to 18 Year Age Group. Fairview Hospital and Training Center students had the greater number of musculo-skeletal disorders. About 16.22 percent of the Fairview Hospital and Training Center females had disorders as compared to none in the Salem Public School females. About 16.22 percent of the Fairview Hospital and Training Center males had disorders as compared to 5.41 percent of the Salem Public School males.

These disorders which involve ambulation are closely related to the nervous system disorders and show a similar incidence. The Salem Public School male and female incidence was minimal to non-existent in all age groups possibly because children with these disorders are not usually accommodated by program and facilities in the public schools. The higher incidence in the Fairview Hospital and Training Center student groups would show this accommodation in a special school.

### Nutrition Disorders

7 to 12 Year Age Group. Fairview Hospital and Training Center students had a greater incidence of nutrition disorders. The greatest incidence occurred in the Fairview Hospital and Training Center male group with 9.38 percent. An incidence of 3.13 percent was the same for the remaining three groups.

13 to 15 Year Age Group. A greater incidence of nutrition disorders occurred in the Fairview Hospital and Training Center students than in the Salem Public School students. Fairview Hospital and Training Center females with 9.68 percent had a greater incidence than the Salem Public School females with 3.23 percent. Fairview Hospital and Training Center males and Salem Public School males had the same incidence, 6.45 percent.

16 to 18 Year Age Group. Salem Public School students had a greater number of nutrition disorders than Fairview Hospital and Training Center students. Fairview Hospital and Training Center females had an incidence of 21.32 percent compared to 18.92 percent for Salem Public School females. Salem Public School males had an incidence of 13.51 percent to 5.41 percent for Fairview Hospital and Training Center males.

In three groups, the incidence increased with age but the Fairview Hospital and Training Center male group decrease was minimal. It was demonstrated that age influenced nutrition disorders and that sex was not relevant. Tooth disorders showed a similar relationship and could possibly be correlated.

### Foot Disorders

7 to 12 Year Age Group. Foot disorders had a higher incidence in the Fairview Hospital and Training Center male and female groups. Fairview Hospital and Training Center females had the greatest incidence, 18.75 percent while the Salem Public School females had no foot disorders. Fairview Hospital and Training Center males had an incidence of 15.63 percent compared to 6.25 percent for Salem Public School males.

13 to 15 Year Age Group. The greatest incidence of foot disorders occurred in the Fairview Hospital and Training Center group. Here, 12.90 percent of Fairview Hospital and Training Center females had disorders while there were no disorders in the Salem Public School females. About 22.58 percent of Fairview Hospital and Training Center males had foot disorders compared to 3.23 percent of the Salem Public School males.

16 to 18 Year Age Group. Fairview Hospital and Training Center males and females had the highest number of foot disorders. Fairview Hospital and Training Center females had an incidence of 2.70 percent while the Salem Public School females had none. Fairview Hospital and Training Center males with 16.22 percent had a higher incidence than Salem Public School males with 2.70 percent.

Although the occurrence of these disorders was greater in the Fairview Hospital and Training Center male and female groups, they were not disabling for ambulation. The smaller number in the Salem Public School student groups might show a difference only in number but similar in type.

### Eye Disorders

7 to 12 Year Age Group. Eye disorders occurred only in the Fairview Hospital and Training Center student groups. The male group with 25.00 percent had a greater incidence than the female group with 18.75 percent.

13 to 15 Year Age Group. Fairview Hospital and Training Center students had the only occurrence of eye disorders. Female students had a higher incidence, 12.90 percent, than male

students with 6.45 percent.

16 to 18 Year Age Group. The incidence of eye disorders occurred only in the Fairview Hospital and Training Center students. Male students had an incidence of 8.11 percent and female students 5.41 percent.

These disorders occurred only in the Fairview Hospital and Training Center male and female groups. The incidence decreased with age. Age or sex cannot be considered factors, however, as the inclusion of mongoloid students in the study explains the influencing factor in this physical disorder category.

### Skin Disorders

7 to 12 Year Age Group. Students at Fairview Hospital and Training Center had the only incidence of skin disorders. Male students had an incidence of 9.38 percent and female students 6.25 percent.

13 to 15 Year Age Group. The greatest incidence of skin disorders occurred in the Fairview Hospital and Training Center group. Fairview Hospital and Training Center females with 9.68 percent had a greater incidence than the Salem Public School females with 6.45 percent. Fairview Hospital and Training Center

males had an incidence of 3.23 percent but the Salem Public School males had none.

16 to 18 Year Age Group. Fairview Hospital and Training Center had the highest incidence of skin disorders. About 13.51 percent of Fairview Hospital and Training Center females had skin disorders as compared to 8.11 percent of Salem Public School females. About 10.81 percent of Fairview Hospital and Training Center males had skin disorders as compared to 2.70 percent of Salem Public School males.

In three groups, the incidence increased with age. The Fairview Hospital and Training Center male group decreased in the 13 to 15 year age group but increased in the 16 to 18 year age group. Only age seemed to influence skin disorders.

### Hearing Disorders

7 to 12 Year Age Group. A greater incidence of hearing disorders occurred in the Salem Public School student group. Salem Public School females with 6.25 percent had the highest number of disorders while Fairview Hospital and Training Center females had no hearing disorders. Salem Public School males and Fairview Hospital and Training Center males had the same number of hearing disorders of 3.13 percent.

13 to 15 Year Age Group. Salem Public School students had a greater incidence of hearing disorders. Salem Public School females and Fairview Hospital and Training Center females had the same incidence of 3.23 percent. The greatest incidence, 6.45 percent, occurred in the Salem Public School males while the Fairview Hospital and Training Center males had no hearing disorders.

16 to 18 Year Age Group. Salem Public School students and Fairview Hospital and Training Center students had the same incidence of hearing disorders. Fairview Hospital and Training Center females had an incidence of 8.11 percent compared to 2.70 percent for Salem Public School females. Salem Public School males had a higher incidence, 13.51 percent, than Fairview Hospital and Training Center males with 8.11 percent.

The incidence of hearing disorders increased with age in three groups with a greater increase in the Salem Public School males. Fairview Hospital and Training Center female decrease was minimal. It can be concluded that age influenced hearing disorders and that sex was not a determining factor.

#### Gait Disorders

7 to 12 Year Age Group. Gait disorders rated highest in the

Fairview Hospital and Training Center students. About 9.38 percent of the Fairview Hospital and Training Center females had gait disorders while Salem Public School females had no disorders. Some 15.63 percent of the Fairview Hospital and Training Center males had gait disorders compared to 3.13 percent of the Salem Public School males.

13 to 15 Year Age Group. Gait disorders occurred in only three student groups. Fairview Hospital and Training Center had the greater incidence. Females at Fairview Hospital and Training Center had the greatest incidence, 9.68 percent, while Salem Public School females had no gait disorders. Fairview Hospital and Training Center males and Salem Public School males had the same incidence of 3.23 percent.

16 to 18 Year Age Group. Fairview Hospital and Training Center students had the only incidence of gait disorders. The female student group had a higher incidence, 8.11 percent, than the male student group with 2.70 percent.

In this category, the Salem Public School male and female incidence was minimal to non-existent in all age groups possibly because children with these disorders, which are closely related with the nervous system and musculo-skeletal disorders, are not

usually accommodated by programs and facilities in the public schools. The higher occurrence in the Fairview Hospital and Training Center students would show this accommodation in a special school. Sex and age did not appear to be influencing factors.

### Mouth Disorders

7 to 12 Year Age Group. The incidence of mouth disorders occurred only in the Fairview Hospital and Training Center males and females. The female group had a higher incidence, 12.50 percent, than the male group with 9.38 percent.

13 to 15 Year Age Group. Mouth disorders occurred only in the Fairview Hospital and Training Center females with an incidence of 16.13 percent.

16 to 18 Year Age Group. Fairview Hospital and Training Center males and females were the only groups with incidence of mouth disorders. Both groups had the same incidence of 5.41 percent.

Mouth disorders occurred only in the Fairview Hospital and Training Center student groups. Sex and age did not appear to be influencing factors.

### Genital Disorders

7 to 12 Year Age Group. Fairview Hospital and Training Center males with an incidence of 21.88 percent had the only recorded genital disorders.

13 to 15 Year Age Group. Male students at Fairview Hospital and Training Center had an incidence of genital disorders of 19.35 percent. These were the only recorded cases.

16 to 18 Year Age Group. No genital disorders were recorded in this age group.

Genital disorders occurred only in the Fairview Hospital and Training Center male student group. The incidence decreased with age. It can be concluded that age and sex had a direct influence on genital disorders in this student group.

### Ear Disorders

7 to 12 Year Age Group. Ear disorders occurred only in the Fairview Hospital and Training Center student groups. Males had a greater incidence, 12.50 percent, than females.

13 to 15 Year Age Group. Fairview Hospital and Training Center males and females had the only occurrence of ear disorders.

The incidence was the same for both groups at 3.23 percent.

16 to 18 Year Age Group. Ear disorders occurred only in the Fairview Hospital and Training Center groups. Females had a higher incidence with 5.41 percent than males with 2.70 percent.

Ear disorders occurred only in the Fairview Hospital and Training Center male and female students. Age and sex were not considered determining factors.

#### Lymph Node Disorders

7 to 12 Year Age Group. Lymph node disorders occurred only in the Salem Public School male students with an incidence of 3.13 percent.

13 to 15 Year Age Group. Fairview Hospital and Training Center students had a greater incidence of lymph node disorders. Fairview Hospital and Training Center females had a greater incidence, 3.23 percent, than Salem Public School females who had none. Fairview Hospital and Training Center males had a greater incidence, 6.45 percent, than Salem Public School males with 3.23 percent.

16 to 18 Year Age Group. Lymph node disorders occurred only in the female student groups. Fairview Hospital and

Training Center females had a higher incidence, 8.11 percent, than Salem Public School females with 2.70 percent.

In this category, the incidence was minimal to nonexistent in all age groups and all student groups. A low infection rate could account for the low frequency of lymph node disorders.

### Abdomen Disorders

7 to 12 Year Age Group. There were no abdomen disorders recorded in any student group.

13 to 15 Year Age Group. Abdomen disorders occurred only in the female student groups. Fairview Hospital and Training Center females had a higher incidence, 9.68 percent, than Salem Public School females with 6.45 percent.

16 to 18 Year Age Group. Salem Public School male students had the only cases of abdomen disorders with an incidence of 5.41 percent.

Abdomen disorders were minimal to nonexistent in all student groups. Sex and age were not considered influencing factors.

### Endocrine Disorders

Endocrine disorders occurred only in the Fairview Hospital and Training Center female group: age 13 to 15 years with an incidence of 6.45 percent.

### Lung Disorders

Lung disorders did not occur in any student group.

CHAPTER V  
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of this study was to ascertain the type and number of physical disorders of educable mentally retarded students as compared to normal students and to determine if sex and age were significant factors. Four hundred physical examination records were reviewed to secure the necessary information.

A greater prevalence of physical disorders in the subaverage intelligence group had been described in the literature but specific disorders were neither identified nor compared to the normal intelligence group.

Data were collected by use of a tabulation record which listed 20 categories of broad general physical disorders. Each classification was calculated as to frequency in each student group.

High frequency to low frequency classifications were considered for both student groups so that emphasis could be given to a comparison of the physical disorders. The highest percentage considered for both groups was 72 percent and the lowest frequency was zero. Generally the Fairview Hospital and Training Center groups had a higher incidence of physical disorders.

Three age groups (7 to 12, 13 to 15, 16 to 18) by sex were related to 20 broad category physical disorders. The older age groups of both the Fairview Hospital and Training Center and Salem Public Schools had a higher incidence of tooth, nutrition and skin disorders. The Fairview Hospital and Training Center 7 to 12 year age male group had a higher incidence of genital disorders. In the remaining categories no noticeable progressive or regressive change was noted. With the exception of genital disorders in the Fairview Hospital and Training Center male group, and endocrine disorders in the Fairview Hospital and Training Center female group (13 to 15), categories considered by sex did not differentiate within the Fairview Hospital and Training Center group and the Salem Public School group. However, there was a higher incidence throughout for the Fairview Hospital and Training Center males and females.

### Conclusions

Physical disorders of educable mentally retarded students were compared with the normal intelligence students. Most of the physical disorders were present in both groups. In agreement with other studies, the incidence of total disorders was higher in subnormals but an analysis of the data revealed the

incidence was higher only in certain categories. These were nervous system disorders, musculo-skeletal disorders, foot disorders, heart disorders, nose and throat disorders, eye disorders, gait disorders, mouth disorders, genital disorders, ear disorders, endocrine disorders and other disorders.

In other categories there was no appreciable difference in incidence. These were tooth disorders, vision disorders, nutrition disorders, skin disorders, hearing disorders, lymph node disorders, abdomen disorders and lung disorders.

The extent to which preventive and corrective services were available was important in the general incidence. Preventive programs for tooth disorders, vision disorders, hearing disorders and lung disorders existed for both the Fairview Hospital and Training Center groups and Salem Public School groups, however, the corrective services were optional in the Salem Public School group but required in the Fairview Hospital and Training Center group. Also, accommodation facilities and programs at Fairview Hospital and Training Center for students with nervous system disorders and resulting musculo-skeletal disorders appeared to influence the incidence.

The described physical disorders should serve as one guide for observation and referral to secure medical supervision and

corrections when necessary; to obtain medical advice regarding any need that may exist for modification of the student's school environment or program; to determine the fitness of students to enroll or to engage in public school activities.

Consideration should also be given to planning shared non-academic activities for educable mentally retarded students and students of normal intelligence, e. g., physical education, Industrial Arts and Home Economics classes.

#### Recommendations for Future Studies

1. Investigate and compare adaptive behavior between the educable mentally retarded student group and students of normal intelligence.

2. Conduct a similar survey with a trainable mentally retarded group and a normal intelligence group.

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## APPENDICES

## APPENDIX A

## PHYSICAL DISORDERS

	School _____ Name _____ # _____ Sex _____ B. D. _____ Age _____ Date of Exam. _____ Wt. _____ H. _____
1. Eye	
2. Vision	
3. Ear	
4. Hearing	
5. Nose and throat	
6. Mouth	
7. Tooth	
8. Lymph node	
9. Heart	
10. Lung	
11. Abdomen	
12. Genital	
13. Foot	
14. Gait	
15. Nervous system	
16. Musculo-skeletal	
17. Skin	
18. Nutrition	
19. Endocrine	
20. Other	

# PHYSICAL EXAMINATION

Name ..... Case No. .... Age ..... Assigned to ..... Cottage .....

Date of Examination .....

Previous History: .....

General Condition: Temp. .... Height ..... Wt. n. .... Pr. .... Pulse: Rate .....

Char. .... B.P.: s. .... d. .... Resp.: Rate ..... Char. ....

Nutrition, etc. ....

Facies and General Appearance: .....

Physical Findings:

Head .....

Scalp .....

Skin .....

Ears .....

Eyes .....

Nose .....

Throat .....

Teeth .....

Neck .....

Lymph Nodes: Occipital ..... Submental ..... Cervical .....

Supraclav ..... Axillary ..... Epitrochlear ..... Inguinal .....

Chest .....

Heart: Rate ..... Murmurs .....

Rhythm ..... Apex .....

Best scan available for p.69-70. Text was trimmed off on left side when this thesis was bound.

Lungs .....

Abdomen .....

Upper Extremities .....

Lower Extremities .....

Locomotion .....

Spine .....

Genitalia .....

Reflexes: Biceps ..... Triceps ..... Knee .....

Achilles ..... Babinski ..... Romberg ..... Clonus .....

Abdominals ..... Sensation .....

REMARKS: .....

SUMMARY: .....

CHEST X-RAY FINDINGS: .....

Signed ....., M.D.

# Oregon Pupil Medical Record

BE FILLED IN BY PARENT BEFORE PHYSICAL EXAMINATION:

.....  
(Name of school) (Grade)

Child's Name ..... Sex M..... F..... Birth .....  
(Last) (First) (Middle) (Mo.) (Day) (Year)

Address ..... Home phone .....  
(Street or rural route) (Town or location)

Name of parent or guardian ..... Occupation: of Father ..... of Mother .....

Name of physician to be called in an emergency ..... Phone .....

**Information About Your Child—(Check in appropriate column)**

	Yes	No	Uncertain		Yes	No	Uncertain
Immature birth				Heart trouble			
Convulsions in infancy				Seizures			
"Epileptic Spells" in infancy				Tonsil and adenoid operation			
Stomach allergy				Serious accident			
Behavior difficulty				Exposure to tuberculosis			
Diabetes				Other illnesses			
Stuttering spells				Other operations			

Remarks: Describe below anything checked "yes" above:

.....

.....

**Notes—Give year in which your child had any of the following:**

German measles (3-day) . . . . . 19.....	Pneumonia . . . . . 19.....	"Running ear" . . . . . 19.....
Measles . . . . . 19.....	Diphtheria . . . . . 19.....	Hearing difficulty . . . . . 19.....
Mumps . . . . . 19.....	Scarlet fever . . . . . 19.....	Frequent colds . . . . . 19.....
Chickenpox . . . . . 19.....	Poliomyelitis . . . . . 19.....	Frequent sore throat . . . . . 19.....
Whooping cough . . . . . 19.....	Rheumatic fever . . . . . 19.....	Vision difficulty . . . . . 19.....

Immunizations	Initial	Boosters			Initial	Boosters			Tests and Other Immunizations			
Polio (oral)	19	19	19	19	Polio (oral)	19	19	19	19	Tuberculin test	19	Result
Diphtheria	19	19	19	19	Polio (injection)	19	19	19	19	Chest x-rays	19	Result
Whooping cough	19	19	19	19	Measles	19	19	19	19		19	19
Scarlet fever	19	19	19	19		19	19	19	19		19	19

**Habits:**

Hour of rising ..... How many times per day does your child have:

Hour of going to bed ..... Milk ..... Fruit ..... Vegetables .....

Appetite: Good  Fair  Poor  Bread and cereal ..... Meat, eggs, fish .....

**Personality and Behavior—Describe** .....

.....

.....

**NOTIFICATION FOR HEALTH DEPARTMENT**

.....  
(Name of school) (Grade)

Child's Name ..... Sex: M..... F..... Birth .....  
(Last) (First) (Middle) (Mo.) (Day) (Year)

Address ..... Home phone .....  
(Street or rural route) (Town or location)

Signed .....  
(Parent or guardian)

**ADDITIONAL HISTORY—By physician and/or dentist**

# Medical Examination

Information and specific recommendations on this record will guide teachers and nurses in the school health program  
Information for the HEALTH DEPARTMENT

Indicate condition by code and give details below.

Code	N=no defect	√=defect found	√√=requires immediate attention	
Eyes	6. Teeth	11. Hernia	16. Musculo-skeletal	21. General condition
Ears	7. Lymph nodes	12. Genitals	17. Skin	22. Other
Hearing	8. Heart	13. Posture	18. Endocrine	
Nose and throat	9. Lungs	14. Feet and gait	19. Urine	
Mouth	10. Abdomen	15. Nervous system	20. Nutrition	

**Positive Findings:**

.....  
 .....

**Recommendations for Health Department:**

.....  
 .....

Medical treatment planned? Yes  No  Completed

.....  
 (Signature of examining physician)

Is vision referral advised? Yes  No

### INFORMATION FOR THE SCHOOL

Immunizations given at this visit:	Check if given	Booster needed
Diphtheria		
Polio		
Polio (oral)		
Polio (injection)		
Tetanus		
Tuberculin Test		
Other		

Height ..... Weight .....

	<u>Right</u>	<u>Left</u>
Vision: with glasses	20/	20/
without glasses	20/	20/

Is medical treatment planned? Yes  No  Completed

Parent present during examination? Yes  No

Does the pupil's condition permit participation in all usual school activities? Yes  No

Recommendations for classroom adjustment and/or limitation of physical activities if indicated (please estimate duration):

.....  
 .....  
 .....

Is vision referral advised? Yes  No

.....  
 (Signature of examining physician)

### REPORT OF DENTAL EXAMINATION

No dental work is necessary.  
 Treatment is in progress.  
 All necessary dental work has been completed.

Recommendations: .....

.....  
 (Signature of Dentist)

### INSTRUCTIONS TO PHYSICIAN

This entire record should be sent directly to the local health department unless instructed otherwise.

Comments from Health Department .....

Signed .....

## APPENDIX D

FAIRVIEW HOSPITAL AND TRAINING CENTER MALES  
PHYSICAL DISORDERS

<u>PHYSICAL DISORDERS</u>	<u>AGE</u>			<u>TOTAL</u>
	7-12 N=32	13-15 N=31	16-18 N=37	
<u>TOOTH</u>	16	15	15	46
Cavities	13	11	15	39
Malocclusion	3	4	0	7
<u>VISION</u>	9	13	12	34
Unspecified	6	6	7	19
Strabismus	2	3	5	10
Nystagmus	1	1	0	2
Myopia	0	2	0	2
Peripheral vision restricted	0	1	0	1
<u>OTHER</u>	12	8	7	27
Speech disorder	12	7	6	25
Blood disorder	0	1	0	1
Asthma	0	0	1	1
<u>FOOT</u>	5	7	6	18
Talipes planus	5	2	1	8
Talipes varus	0	3	3	6
Hammer toe	0	1	1	2
Zyndactyly	0	1	1	2
<u>NERVOUS SYSTEM</u>	6	8	4	18
Convulsive disorder	5	5	2	12
Microcephaly (slight)	1	2	0	3
Cerebral Palsy	0	1	0	1
Tremor	0	0	1	1
Hydrocephaly (arrested)	0	0	1	1

## APPENDIX D continued

<u>PHYSICAL DISORDERS</u>	<u>AGE</u>			<u>TOTAL</u>
	<u>7-12</u> N=32	<u>13-15</u> N=31	<u>16-18</u> N=37	
<u>MUSCULO-SKELETAL</u>	6	6	5	17
Genu valgum	2	2	1	5
Asymmetry of face	1	0	1	2
Spasticity of legs	0	1	1	2
Ankle clonus	0	1	1	2
Fifth digit short and incurved	1	0	0	1
Muscular dystrophy	1	0	0	1
Lumbar lordosis	0	1	0	1
Skull asymmetry	1	0	0	1
Scoliosis	0	1	0	1
Congenital hip dislocation	0	0	1	1
<u>EYE</u>	8	2	3	13
Epicanthic folds	3	1	2	6
Anisocoria	2	0	1	3
Retinal pigmentosa	1	0	0	1
Blepharitis	1	0	0	1
Brushfield spots	1	0	0	1
Ptosis	0	1	0	1
<u>GENITAL</u>	7	6	0	13
Cryptorchism	4	6	0	10
Adiposogenital dystrophy	1	0	0	1
Hypospadias	1	0	0	1
Hydrocele	1	0	0	1
<u>HEART</u>	4	6	1	11
Congenital Heart Disease (unspecified)	3	5	1	9
Myocarditis	1	0	0	1
Hypertension	0	1	0	1
<u>NOSE AND THROAT</u>	5	3	2	10
Enlarged tonsils	4	2	0	6
Deviated septum	1	1	2	4

## APPENDIX D continued

<u>PHYSICAL DISORDERS</u>	<u>AGE</u>			<u>TOTAL</u>
	7-12 N=32	13-15 N=31	16-18 N=37	
<u>SKIN</u>	3	1	4	8
Acne	0	0	2	2
Multiple Nevus	0	0	2	2
Steatadenoma	1	0	0	1
Eczema	1	0	0	1
Atrophic Nails	0	1	0	1
Alopecia areata	1	0	0	1
<u>GAIT</u>	5	1	1	7
Limping	0	1	1	2
Festinating	2	0	0	2
Cow	1	0	0	1
Flat footed	1	0	0	1
Waddling	1	0	0	1
<u>NUTRITION</u>	3	2	2	7
Obese	2	2	2	6
Underweight	1	0	0	1
<u>EAR</u>	4	1	1	6
Malformations	2	1	1	4
Otitis Media	1	0	0	1
Mastoiditis	1	0	0	1
<u>MOUTH</u>	3	0	2	5
Cleft Palate	0	0	2	2
High arched palate	1	0	0	1
Scrotal tongue	1	0	0	1
Hypertrophied gums	1	0	0	1
<u>HEARING</u>	1	0	3	4
<u>LYMPH NODE</u>	0	2	0	2
Enlarged Cervical	0	1	0	1
Enlarged Inguinal	0	1	0	1
<u>LUNG</u>	0	0	0	0
<u>ABDOMEN</u>	0	0	0	0
<u>ENDOCRINE</u>	0	0	0	0

## APPENDIX E

FAIRVIEW HOSPITAL AND TRAINING CENTER FEMALES  
PHYSICAL DISORDERS

<u>PHYSICAL DISORDERS</u>	<u>AGE</u>			<u>TOTAL</u>
	7-12 N=32	13-15 N=31	16-18 N=37	
<u>TOOTH</u>	14	26	27	67
Cavities	14	17	22	53
Malocclusion	0	9	2	11
Pyorrhea	0	0	2	2
Missing (partial plate)	0	0	1	1
<u>VISION</u>	7	10	11	28
Strabismus	4	6	2	12
Unspecified	1	3	7	11
Nystagmus	0	0	2	2
Esophoria	1	1	0	2
Astigmatism	1	0	0	1
<u>NERVOUS SYSTEM</u>	8	11	5	24
Convulsive disorder	7	10	4	21
Microcephaly (slight)	1	0	1	2
Choreiform jerks of parts of body	0	1	0	1
<u>MUSCULO-SKELETAL</u>	9	5	6	20
Spasticity of legs	1	1	3	5
Genu valgum	3	0	0	3
Fifth digit short and incurved	1	1	0	2
Skull asymmetry	0	1	1	2
Lumbar Lordosis	0	1	1	2
Asymmetry of face	0	0	1	1
Brachycephaly	1	0	0	1
Pectus excavatum	1	0	0	1
Winged scapula	1	0	0	1
Scoliosis	0	1	0	1
Hypertelorism	1	0	0	1

## APPENDIX E continued

<u>PHYSICAL DISORDERS</u>	<u>AGE</u>			<u>TOTAL</u>
	7-12 N=32	13-15 N=31	16-18 N=37	
<u>HEART</u>	4	4	7	15
Congenital Heart Disease (unspecified)	2	2	4	8
Tetralogy of Fallot	1	1	0	2
Patent Ductus Arteriosus	0	0	2	2
Enlarged heart	1	1	0	2
Hypertension	0	0	1	1
<u>NUTRITION</u>	1	3	9	13
Obese	1	3	9	13
<u>EYE</u>	6	4	2	12
Epicanthic folds	3	0	1	4
Brushfield spots	2	1	0	3
Anisocoria	0	2	1	3
Retinal pigmentosa	1	0	0	1
Asymmetry	0	1	0	1
<u>NOSE AND THROAT</u>	4	6	2	12
Enlarged tonsils	3	4	2	9
Deviated septum	0	1	0	1
Tricho-esophageal fistula	1	0	0	1
Partial paralysis of pharyngeal muscles	0	1	0	1
<u>OTHER</u>	3	6	3	12
Speech disorder	3	5	1	9
Blood disorder	0	1	2	3
<u>MOUTH</u>	4	5	2	11
High arched palate	1	3	1	5
Scrotal tongue	2	1	0	3
Hypertrophied gums	1	1	1	3

## APPENDIX E continued

<u>PHYSICAL DISORDERS</u>	<u>AGE</u>			<u>TOTAL</u>
	7-12 N=32	13-15 N=31	16-18 N=37	
<u>FOOT</u>	6	4	1	11
Talipes varus	4	0	1	5
Talipes planus	2	2	0	4
Zyndactyly	0	2	0	2
<u>SKIN</u>	2	3	5	10
Acne	0	3	4	7
Steatadenoma	1	0	0	1
Multiple Nevus	0	0	1	1
Hemangioma	1	0	0	1
<u>GAIT</u>	3	3	3	9
Limping	0	1	3	4
Festinating	1	1	0	2
Toeing in	1	0	0	1
Cow	1	0	0	1
Flat footed	0	1	0	1
<u>EAR</u>	3	1	2	6
Malformations	3	1	1	5
Otitis Media	0	0	1	1
<u>HEARING</u>	0	1	3	4
<u>LYMPH NODE</u>	0	1	3	4
Enlarges cervical	0	1	2	3
Shotty axillary nodes	0	0	1	1
<u>ABDOMEN</u>	0	3	0	3
Umbilical hernia	0	3	0	3
<u>ENDOCRINE</u>	0	2	0	2
Hypothyroidism	0	1	0	1
Thyroid enlargement	0	1	0	1
<u>LUNGS</u>	0	0	0	0
<u>GENITAL</u>	0	0	0	0

## APPENDIX F

SALEM PUBLIC SCHOOL MALES  
PHYSICAL DISORDERS

<u>PHYSICAL DISORDERS</u>	<u>AGE</u>			<u>TOTAL</u>
	<u>7-12</u> N=32	<u>13-15</u> N=31	<u>16-18</u> N=37	
<u>TOOTH</u>	19	15	31	65
Cavities	19	14	29	62
Malocclusion	0	1	2	3
<u>VISION</u>	12	9	11	32
Unspecified	11	9	10	30
Color blindness	1	0	1	2
<u>HEARING</u>	1	2	5	8
<u>NUTRITION</u>	1	2	5	8
Obese	1	2	2	5
Underweight	0	0	3	3
<u>FOOT</u>	2	1	1	4
Talipes planus	1	0	1	2
Zyndactyly	1	1	0	2
<u>OTHER</u>	2	1	1	4
Speech disorder	1	1	0	2
Asthma	1	0	1	2
<u>NOSE AND THROAT</u>	1	0	2	3
Enlarged tonsils	0	0	1	1
Deviated septum	0	0	1	1
Allergic Rhinitis	1	0	0	1

## APPENDIX F continued

<u>PHYSICAL DISORDERS</u>	<u>AGE</u>			<u>TOTAL</u>
	<u>7-12</u> N=32	<u>13-15</u> N=31	<u>16-18</u> N=37	
<u>HEART</u>	2	1	0	3
Congenital Heart Disease (unspecified)	2	0	0	2
Tachycardia	0	1	0	1
<u>MUSCULO-SKELETAL</u>	1	0	2	3
Pectus excavatum	0	0	1	1
Spasticity of legs	1	0	0	1
Lumbar lordosis	0	0	1	1
<u>LYMPH NODE</u>	1	1	0	2
Enlarged cervical	1	1	0	2
<u>ABDOMEN</u>	0	0	2	2
Inguinal hernia	0	0	1	1
Ulcer	0	0	1	1
<u>GAIT</u>	1	1	0	2
Scissor	1	0	0	1
Toeing out	0	1	0	1
<u>NERVOUS SYSTEM</u>	1	1	0	2
Convulsive disorder	0	1	0	1
Cerebral palsy	1	0	0	1
<u>SKIN</u>	0	0	1	1
Acne	0	0	1	1
<u>EYE</u>	0	0	0	0
<u>EAR</u>	0	0	0	0
<u>MOUTH</u>	0	0	0	0
<u>LUNG</u>	0	0	0	0
<u>GENITAL</u>	0	0	0	0
<u>ENDOCRINE</u>	0	0	0	0

## APPENDIX G

SALEM PUBLIC SCHOOL FEMALES  
PHYSICAL DISORDERS

<u>PHYSICAL DISORDERS</u>	<u>AGE</u>			<u>TOTAL</u>
	<u>7-12</u> N=32	<u>13-15</u> N=31	<u>16-18</u> N=37	
<u>TOOTH</u>	22	23	27	72
Cavities	22	20	25	67
Malocclusion	0	3	1	4
Missing (partial plate)	0	0	1	1
<u>VISION</u>	16	8	22	46
Unspecified	16	8	22	46
<u>NUTRITION</u>	1	1	7	9
Obese	1	1	5	7
Underweight	0	0	2	2
<u>SKIN</u>	0	2	3	5
Acne	0	2	3	5
<u>HEARING</u>	2	1	1	4
<u>OTHER</u>	3	1	0	4
Asthma	2	0	0	2
Speech disorder	0	1	0	1
Blood disorder	1	0	0	1
<u>NOSE AND THROAT</u>	1	0	1	2
Enlarged tonsils	1	0	1	2
<u>ABDOMEN</u>	0	2	0	2
Umbilical hernia	0	1	0	1
Ulcer	0	1	0	1

## APPENDIX G continued

<u>PHYSICAL DISORDERS</u>	<u>AGE</u>			<u>TOTAL</u>
	<u>7-12</u> N=32	<u>13-15</u> N=31	<u>16-18</u> N=37	
LYMPH NODE	0	0	1	1
Enlarged cervical	0	0	1	1
NERVOUS SYSTEM	1	0	0	1
Convulsive disorder	1	0	0	1
MUSCULO-SKELETAL	0	1	0	1
Lumbar lordosis	0	1	0	1
EYE	0	0	0	0
EAR	0	0	0	0
MOUTH	0	0	0	0
HEART	0	0	0	0
LUNG	0	0	0	0
GENITAL	0	0	0	0
FOOT	0	0	0	0
GAIT	0	0	0	0
ENDOCRINE	0	0	0	0