

IS YOUR BOY'S VOICE "CHANGING"?

BY

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If your boy's voice is changing, he is undergoing a transition which is experienced by nearly every adolescent boy.¹ For some boys this change results in but few problems. Other adolescents are confronted by speech and psychological difficulties which seem insurmountable to them at the moment. Parents would be better able to understand and guide their boys during this period if they were familiar with recent scientific information about the nature of voice change.

Probably the individual most concerned with this matter of voice change is the teen-ager himself. Parents and teachers may be asked to help the boy whose voice is "breaking". Curious as it may seem, growing interest in this characteristic peculiar to adolescence has been shown by research workers in the fields of medicine, psychology, anthropology, music and speech. There are at least three specific questions which vex parents and teachers about this phenomenon. We will make it the purpose of this brief article to point out what has been learned by the investigators with regard to these three questions:

First. How do we recognize voice change?

Second. When can we expect this change to commence?

Third. What are the reasons for this change?

Then for the parent who would be prepared to meet this problem wisely, we will suggest very briefly how this change may be handled psychologically.

How do we recognize voice change?

The onset of voice change is evident to parents and teachers (particularly instructors of speech and music) because of the wide deviations from the normal voice pattern. These deviations have been categorized and analyzed by investigators in speech and music. Most of these observers were impressed first by the loss of vocal control, and second, by the general instability of the voice undergoing change.

1. Note. Some small number of boys will have achieved voice change before adolescence. A few others do not have change of voice until after maturity. In fact, some voices never do achieve this change.

Jerome, an investigator using both acoustic and anthropometric techniques, gives us a very picturesque and accurate description of these deviations:

"Change of voice may be technically described as a normal loss of control of voice, occupying an undetermined length of time in the pre-adolescent stage or during some period of adolescence. The loss of control is usually evidenced by instantaneous, unpredicted, and involuntary changes of pitch, the reasons for which are not readily apparent. Occasional concomitants of this loss of control of the voice are double resonance, restricted range of pitch, and the appearance of a tremolo".²

Other speech authorities have reported further that during this time the voice may become raucous, hoarse and tend to "break" into falsetto notes higher than those which were normal before the change of voice commenced.

Professor Grant Fairbanks at the University of Southern California has been responsible for extensive studies in the determination of vocal pitch. He and his graduate students have learned many fascinating things about the voice of the adolescent male. Dr C.P. Pedrey has also contributed valuable information from his studies at Louisiana State University.

The specific analytical techniques developed and utilized by these investigators have contributed much to our present day knowledge of voice change. One of the most indicative findings of these studies has been that when voice change is completed the voice will be about an octave lower than it was before the change. Many investigators have verified this extent of lowering of the voice level.

To summarize these characteristics of voice change we can say that the voice is husky before change, unstable during change, and an octave lower in pitch after change. Now that we know what is likely to take place with our teen-ager - we would like to know when this change can be expected to occur.

When may we expect this change to commence?

The earliest reported work generally recognized on this problem was that done by Paulsen, a German, in 1887. Paulsen reported that 50% of boys began to experience voice change at age 13. The more recent work of Pedrey has indicated that 88% of the males in his study at age 13 had begun the change. In addition to the views of Paulsen and Pedrey,

2. Jerome, Eldon K. Change of Voice in Male Adolescents. Quarterly Journal of Speech, XXIII: 648-653, 1937.

many other investigators have reported a wide range of ages when the voice change may be expected to commence. These wide differences are perhaps due to the deviations in standards among different workers used in defining exactly what is meant by voice change.

The anthropometrists have long utilized an objective technique for very accurate measures of the skeletal age of an individual. Such skeletal age, determined by the bone structure of typical parts of the body, more nearly measures the actual development of a child than does the child's chronological age. One recent study related time of voice change to the skeletal age of the adolescent boy. Even this work has indicated that this relatively restricted anthropometric measure gives a rather wide range for the time of onset of voice change.

All of these objective studies indicate that there is no narrow range of age during which the voice change can be expected to commence. The very large range in chronological age is probably due to the variation in skeletal age for a group of a given chronological age. Our best information would indicate that the average time for change is near or slightly less than 14 years of chronological age.

What are the reasons for this change?.

Rapid growth changes in the larynx at about the time of voice change most likely explain the sudden change of voice level. This rapid growth, approximately at the time of puberty, represents the culmination of a long period of development in the organ of voice. Before puberty, the voices of boys and girls are rather similar. The larynx has grown rapidly in both sexes until the age of six. At this age growth of the larynx nearly stops and the vocal bands neither lengthen nor thicken appreciably until the time of change of voice about eight years later.

Near puberty the vocal bands enlarge in mass and increase in length. Investigations indicate that the vocal bands in the boy double their length; those of the girl meanwhile increase about 40% in length. All the growth apparently takes place in a limited period of time. This sudden enlargement in the larynx usually means that for a period the boy is unable to consciously manipulate the more massive voice muscles upon which his control of pitch depends. The result is, therefore, that while the voice is being lowered an octave in pitch level - pitch control is greatly lessened.

The "voice break", so characteristic of this period, has been defined by one writer as a "sudden and uncontrollable rise or fall from the characteristic pitch of the individual - a rise or fall which is definite enough to be heard by a

listener".³ The voice break - typically one octave in extent - is usually a break down from the pre-adolescent pitch level to the level which the voice will assume after the period of change is completed. Somewhat less frequent are the breaks from the post-change level up to the pre-adolescent pitch. This break is a completely uncontrollable variation in the vocal pitch.

All of these investigations have indicated that voice change is related to: (1) pubic development in the male, (2) a general physical growth pattern indicated by skeletal measurements and (3) specific growth patterns within the larynx itself.

From our present knowledge we are apparently justified in summarizing these investigations as follows:

- First. Perceptually, voice change is characterized by:
- (1) Loss of vocal control.
 - (2) Vocal instability.
 - (3) Voice 'breaks', which are one octave in extent.
 - (4) Certain symptoms, including huskiness, which precede the actual change.
- Second. The average age for these changes is approximately 14 years on a chronological age scale.
- Third. Certain skeletal and muscular enlargements take place within the larynx near the time of change of voice.
- Fourth. Scientific investigations have related change of voice to pubic development and certain anthropometric skeletal measures.

Now a further word to the parent. How is this problem to be met psychologically? What should be the parent's attitude toward these obvious changes? What may we tell the boy to help him as best we can?.

The research which has been done to discover the extent and magnitude of the boy's embarrassment over this change of voice has indicated that perhaps writers and teachers have tended to overestimate the actual psychological problem which this change in itself causes. Perhaps any real problems

3. Pedrey, Charles P. A Study of Voice Change in Boys Between the Ages of 11 and 16. Speech Monographs, XII: 30-36, 1945.

at this age come from the whole pattern of rapid growth and rapid change of the whole personality rather than the change of his voice alone. At any rate the study of Pedrey on this phase of the problem has indicated that the embarrassment experienced is strictly limited.⁴

The knowing parent will be able to prepare the adolescent beforehand about the change which will one day arrive. He can explain that the boy might reasonably expect some sign of the change as early as twelve years - but that most likely it will not occur until slightly before the age of fourteen. This change will last for an indefinite period - perhaps six months to a year. During this time of change the voice will probably show considerable instability. Voice control will not always be predictable. However the boy may be assured with certainty that this is simply a natural normal change which he is experiencing - and that in a short while his voice will be significantly lower in pitch. Even after the voice has assumed the lower pitch level - and the change has apparently been completed - some brief recurrences of the instability and breaks may occasionally evidence themselves. It can be further explained that most of these changes are due to the rapid growth changes taking place within the larynx itself.

4. Pedrey, Charles P. Op. cit., page 35.