

## STRUCTURE OF THE VOCAL FOLD AS A SOUND GENERATOR

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The vocal folds, i.e. the sound generator, participate in differentiating voiced and voiceless speech sounds and in determining prosodic characteristics in speech. One single pair of vocal folds can cover great varieties of fundamental frequency and tonal qualities. This indicates that the vocal folds can become vibrators with many different mechanical properties. This paper presents some important aspects of the structure of the vocal folds which is adequate to the task.

Light and electron microscopic observations were conducted with human vocal folds. In addition, networks of the blood vessels of the vocal folds were investigated with an X-ray technique.

Histologically, the vocal folds consist of the mucosa and the muscle. The mucosa, in turn, consists of the epithelium and the lamina propria. The lamina propria has three layers: the superficial layer which is loose in fibrous component, the intermediate layer which is chiefly composed of elastic fibers, and the deep layer which is dense with collagenous fibers. From a mechanical point of view, we differentiate the layers into three sections: the cover consisting of the epithelium and the superficial layer of the lamina propria, the transition consisting of the intermediate and deep layer of the lamina propria, and the body, consisting of the vocalis muscle. The transition appears to be more closely connected to the body than to the cover as far as the histological evidence reveals. Based on the evidence of the networks of the blood vessels, the transition is more closely connected to the cover than to the body.

The cover and transition receives only passive adjustment, whereas the body is a subject to active and passive control.