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Human Vocalization is Degenerating to Vocal Texting

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HUMAN VOCALIZATION IS LIKELY to have had its origin in calling, a basic oral communication strategy we share with mammals and birds. The ability to be located (in the forest, at sea, or on the farm), to locate others, or to warn of danger over long to mid-range distances was once critical to survival. Today, calling is no longer a routine activity for humans. Electronic communication has changed that. When we call someone, it's usually by telephone or with other electronic assistance. At close range, we still signal our identity, our physical fitness, and our survival needs with sound, but with the increasing frequency of textual communication, we often utilize a smiley or frowny face caricature on our electronic device to communicate feelings and personality.

A large gathering of birds during migration is often accompanied by a chorus of sound. To the contrary, a city of a million people makes little vocal sound. People walk and text on their devices. Even vocalization on cell phones is becoming more subdued, primarily to respect privacy. Interestingly, high energy vocal combat is practiced in the media, but mainly to garner attention and ratings.

One wonders if the joy of vocalization is still experienced. Hearing one's echo from the face of a mountain, filling a cave with sound, calling an animal and getting a response, or laughing so hard that the whole body hurts, seem rare in today's social framework. Even the joy of a loud sneeze and the relief from a deep cough are socially unacceptable. While these occasional rattles of the skull and vibration of head and neck tissues feel good, they are suppressed for sanitary reasons. Evidence is still sketchy, but it is thought vibrations of tissue are health promoting. It is believed that tissue vibrations stimulate hormone production in the thyroid gland, allowing fluids to penetrate the blood-brain barrier, accelerating wound healing, and promoting tissue growth. A question of interest is: Would a person stranded on an island, living as a hermit forever, have a need to vocalize to preserve health in his organs?

A second question is: Does conversational speech alone fulfill the biological need to vocalize? In a recent article, I lay out some arguments that limiting vocalization to speech alone is not the most health-promoting exercise for the larynx.[1] On the order of 100,000 years ago, speech became a human adaptation to maximize information transmitted to a listener at close range. Using a large inventory of phonemes produced by articulatory gestures, humans were able to convey more information than by varying only the laryngeal

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sound source. There are two unfortunate consequences of this adaptation. The first is a low fundamental frequency that forces the larynx to operate in a restricted pitch range. On average, most mammalian species can produce a 3½ octave pitch range,[2] but speech is usually produced with about one octave variation. This restricts the muscles of the larynx and makes little use of the vocal ligament. The second consequence is a reduced range of loudness. Speech uses unvoiced segments that do not carry well acoustically over a distance. Hence, conversational speech is generally ideal at about 70 dB at a one meter distance. In combination, speech invites low overall intensity and low fundamental frequency.

Vocal fry is the ultimate lax vocalization, requiring minimal muscle use, low lung pressure, and little expiratory lung volume. Fry is becoming almost an epidemic in our texting age. Prosodic variations (melody, dynamics, and voice quality changes) are deemed "affected" in speech that focuses more on transmission of information than individuality. Thus, as "vocal texting" is becoming more and more fashionable, the voice and the articulators are not achieving much more than what two thumbs can do.

NOTES

1. I. R. Titze, "Human Speech: A Restricted Use of the Mammalian Larynx," *Journal of Voice* 31, no. 2 (March 2017): 135–141.
2. I. R. Titze, T. Riede, and T. Mau, "Predicting Fundamental Frequency Ranges in Vocalization across Species," *PLOS Computational Biology* 12, no. 6 (June 2016).