

# From Brain to Vocal Cord: The Laryngeal Nerve's Journey

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## Introduction

The human voice is a remarkable instrument, allowing us to communicate, express emotions, and convey our thoughts and ideas. Behind this seemingly effortless ability lies a complex network of structures and processes, with the laryngeal nerve playing a pivotal role in the production of sound. In this article, we will embark on a journey through the human body, following the path of the laryngeal nerve, and explore its vital role in our ability to speak and sing. The laryngeal nerve, or more precisely, the recurrent laryngeal nerve, is a branch of the vagus nerve (cranial nerve X). It is responsible for innervating the intrinsic muscles of the larynx, the voice box, which controls the tension and position of the vocal cords. To fully grasp the significance of this nerve, we must begin our journey at its origin.

## Description

Our journey begins in the brain, where the intricate process of speech and voice production is orchestrated. The primary areas responsible for this are the motor cortex and the Broca's area, located in the frontal lobe. These regions are responsible for generating the neural signals that will eventually reach the laryngeal nerve. The journey of communication starts here, as thoughts and ideas are translated into electrical impulses [1]. The vagus nerve, or cranial nerve X, is the longest of all the cranial nerves. It originates in the brainstem and has multiple branches, each serving various functions throughout the body. The recurrent laryngeal nerve is one such branch. From the brainstem, the vagus nerve descends down into the neck, connecting with numerous vital structures along the way. The term "recurrent" in its name reflects its looping pathway, a unique feature that contributes to the nerve's intricate journey [2].

As the recurrent laryngeal nerve descends through the neck, it takes a rather circuitous route. In the left side of the body, it loops around the aorta, one of the body's main arteries, before making its way back up to the larynx. In contrast, on the right side of the body, it loops around the subclavian artery. This looping pattern, while seemingly inefficient, has an intriguing evolutionary history. One of the most fascinating aspects of the laryngeal nerve's journey is its connection to our evolutionary ancestors. In fish, the precursor of the vagus nerve served as a gill arch nerve, controlling the movement of gill slits. As life evolved and organisms adapted to terrestrial environments, the laryngeal nerve underwent a series of incremental changes. However, the nerve's connection to the aortic arches remained, leading to the circuitous route we observe today. The persistence of this seemingly convoluted path can be attributed to the principle of evolution [3].

Finally, the recurrent laryngeal nerve reaches its destination—the larynx, or voice box. It innervates the intrinsic muscles of the larynx, including the cricothyroid, posterior cricoarytenoid, lateral cricoarytenoid and thyroarytenoid

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muscles. These muscles work together to control the tension and position of the vocal cords, allowing us to produce different pitches and modulate our voice as we speak or sing. The fine-tuned coordination of these muscles is what enables us to articulate speech sounds and express emotions through our voice. Whether it's the softest whisper or a thunderous roar, the laryngeal nerve's precise control is the key to vocal versatility [4]. While the laryngeal nerve primarily facilitates vocalization, it also plays a crucial role in protecting the airways. It is responsible for initiating the cough reflex when foreign objects or irritants enter the airway. This protective function is essential to prevent aspiration and maintain the integrity of the respiratory system. Despite the remarkable precision and adaptability of the laryngeal nerve, it is not immune to challenges and disorders. Nerve injuries, compression, or disorders can disrupt its normal function, leading to voice problems and difficulties in swallowing. Nerve injuries can occur during surgery in the neck or chest, and medical conditions such as vocal cord paralysis can impact the nerve's function [5].

## Conclusion

In our journey from the brain to the vocal cords, we've encountered the intricate pathway of the laryngeal nerve, with its fascinating evolutionary history and vital role in human communication. While the laryngeal nerve's route may seem circuitous, it reminds us of the evolutionary legacy we share with all living creatures. It also underscores the extraordinary precision and adaptability of our nervous system, allowing us to speak, sing, and protect our airways. The laryngeal nerve is indeed an unsung hero in the realm of human speech, a reminder that the most complex processes often have humble origins. As we continue to explore the wonders of our own biology, we gain a deeper appreciation for the intricate mechanisms that make us who we are.

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## Conflict of Interest

None.

## References

- Doikov, I. Y., I. P. Yovchev and S. S. Konsulov. "Microsurgical technique as a method for prevention of recurrent laryngeal nerve injury in thyroid surgery. Review of seven consecutive cases." *Folia Med* 43 (2001): 5-9.
- Cavallaro, G., G. Taranto, M. G. Chiofalo and E. Cavallaro. "Usefulness of microsurgery to isolation of recurrent laryngeal nerve and parathyroid during thyroidectomy operations." *Eur J Micro Surg* 18 (1998): 460-461.
- Kocatürk, Sinan and Unsal Erkam. "Approach to the recurrent laryngeal nerve in thyroid surgery." *Kulak Burun Bogaz Ihtis Derg* 11 (2003): 46-51.
- Dralle, H., C. Sekulla, K. Lorenz and M. Brauckhoff, et al. "Intraoperative monitoring of the recurrent laryngeal nerve in thyroid surgery." *World J Surg* 32 (2008): 1358-1366.
- Higgins, Julian PT, Jonathan AC Sterne, Jelena Savovic and Matthew J. Page, et al. "A revised tool for assessing risk of bias in randomized trials." *Cochrane Database Syst Rev* 10 (2016): 29-31.

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