

Star Wars and Obstructive Sleep Apnea

By
Arthur M. Strauss, DDS

© Arthur M. Strauss 2015

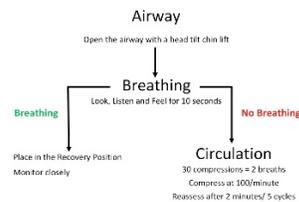
What do Star Wars and obstructive sleep apnea have in common? The relationship and influence of one seemingly small part of the system to the whole! Here the comparison is between Star Wars character, Jabba-the-Hut, to the human tongue.



In Stars Wars, Jabba-the-Hutt is described in the following way, “Jabba the Hutt was one of the galaxy’s most powerful gangsters, with far-reaching influence in both politics and the criminal underworld. There were no second chances with Jabba, something Han Solo would find out – -- though the slug-like alien would ultimately fall victim to his own hubris and vengeful ways.”



Since your tongue structurally controls your airway, thus airflow that allows for breathing, it has the greatest influence upon your ability to survive, as validated by the A-B-C priority sequence of CPR which begins with ensuring airway patency. Therefore, it is the most immediate influencer upon our body’s reaction to threat of death which is the fight or flight response, commonly referred to as the stress response.



Why Did the Steps for CPR Change from A-B-C to C-A-B?

The change from A-B-C to C-A-B only applies to adult victims of **sudden** cardiac arrest.

In an adult, who has been breathing normally there is enough oxygen in the blood to supply the heart and the brain for several minutes following cardiac arrest.

Chest compressions are needed, however, to circulate the oxygen and ensure that it is distributed quickly.

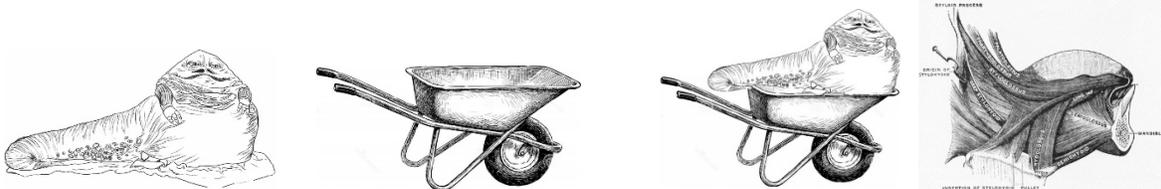
For children and in cases of asphyxial arrest, drug overdose, or near-drowning among adults, rescuers are still recommended to follow the A-B-C sequenc

Physiological or biological stress is an organism's reaction to a stressor as an unanticipated stimulus. The body reacts to a survival challenge utilizing stress, adrenaline type hormones. The body's way to respond to these threats is through the sympathetic nervous system activation which results in the fight-or-flight, referred to as the stress response. The body cannot remain in this state for long periods of time; afterwards the parasympathetic system returns the body's physiological conditions to normal. In humans, stress typically describes a positive or a negative attribute that can have an impact on a person's mental and physical well-being.

Just like Jabba, the tongue is with us round the clock not just while we are asleep. Ignoring this is perilous as it results in erroneous conclusions of what we are filtering through our observations. An obvious example of this is concluding that a tonsillectomy in children with large tonsils diagnosed with ADHD and obstructive sleep apnea resulting in reversal of the ADHD behavior and, therefore, diagnosis because they are getting a better night's sleep, with no recognition of the daytime impact. Failure to consider the awakened state impact is a scientific travesty of ignoring reality!

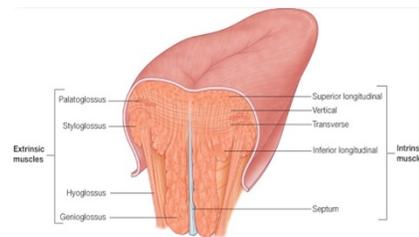
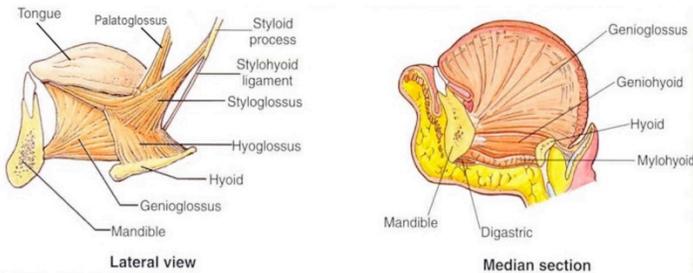
Now, let us explore some anatomic similarities of Jabba to that of the human tongue and how, the ignoring the details of a complex relationship that exists in this leads down a blind alley in understanding of both Jabba and the human body.

Anatomically consider Jabba-The-Hutt as a slug (shell-less snail) merged or integrated with a wheelbarrow. All of this is muscle. As the tongue the, slug section, is composed of intrinsic muscles with fibers going right/left, up/down and back/forth. They make the tongue curl up/down and right/left.



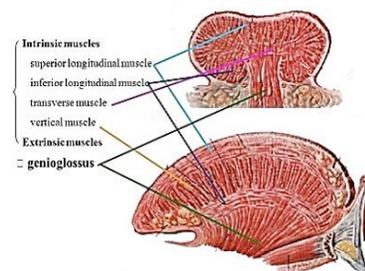
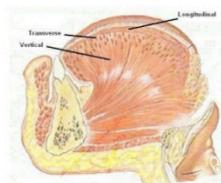
Both Extrinsic and Intrinsic Muscles

Extrinsic Muscles



Intrinsic Muscles

- Confined to tongue
- No bony attachment
- Consist of:
 - Longitudinal fibers
 - Transverse fibers
 - Vertical fibers
- Function: Alter the shape of the tongue

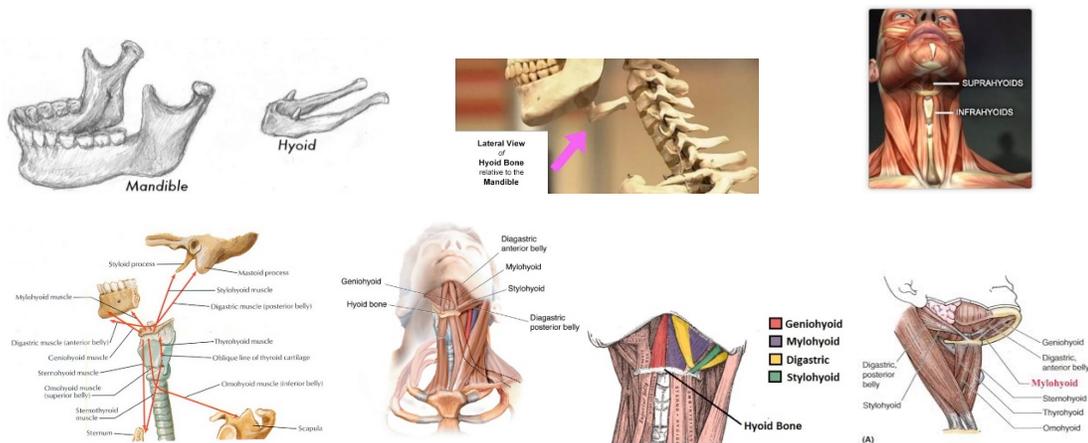


Jabba appears to be within what acts as the tray of the wheelbarrow. The extrinsic muscles of the tongue are analogous to the wheelbarrow's component parts. They help suspend the tongue within the jaw-neck-throat space, connecting it to the rest of the body.

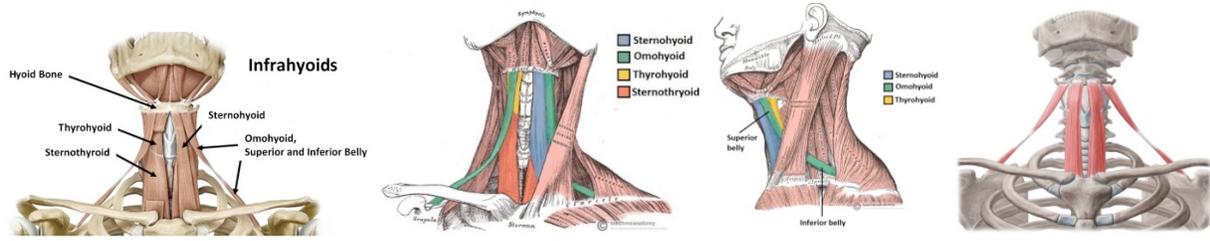


This is unique, as if Jabba is connected to a hammock. Except, it is more complicated as the hammock is tethered to two stable trees, where one's tongue is suspended from and tethered to numerous anatomic locations, all of which are able to move in multiple directions both independently and co-dependently as I illustrate and describe here:

- In the front, where the wheelbarrows front wheel is located, it attaches, like a towing rope, to the inside of the lower jaw (mandible) behind the chin.
- In the back, there are actually the equivalent to, as many as, three handles on each side with:
 - One connected to a boney protuberance inside the skull behind and below the ears.
 - A second becomes the sides and top of the back of the soft palate as it forms an arch framing the entranceway to one's throat.
 - The third integrates with muscles of the sides wrapping into the back of one's throat.
- The legs do not rest on “terra firma” as do trees that suspend a hammock. Instead, they merge into the sides of a miniature (1 ½” long) mandible shaped hyoid bone. The hyoid lies within the confines and slightly below the mandible, however, it too, like a hammock, is suspended by and tethered by supra-hyoid muscles to the same and additional skull and jaw bones from above and by infra-hyoid muscles to other bones and structures from below. These attach to:



- The shoulder blades from behind,
- The collar bone, breast bone, some upper ribs in front, and,
- The sides of the thyroid cartilage of our “voice box” just below it.



One can see the mutual interdependence of the anatomic influences of the posture and position of the tongue and head, neck and total body posture. Anatomy suggests that a huge degree of coordination is required to maintain stability that supports the function of easy, effortless airflow.

To the degree we appreciate and understand this, we can improve the anatomy to reduce the structural instability. Only through being aware of the multiple players here and how they are aligned and react in a behind-the-scenes way to keep us alive and “going” can we help them anatomically function more advantageously, in harmony and at peace.

In Star Wars, Jabba’s ignorance of his interrelationships with others led to his demise. In life our ignorance of the tongue and associated structures can lead us to ours.

