The Cervical Revolution:

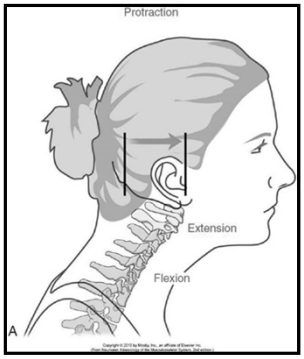
The Role of Cervical Structure and Function in Re-establishing Airway Function

AAPMD Airway Summit
November 10, 2018
Las Vegas, NV

Ron Hruska, MPA, PT

Postural Restoration Institute®

Overview of the conventional sagittal plane <u>view</u> of the cervical and airway anatomical relationships



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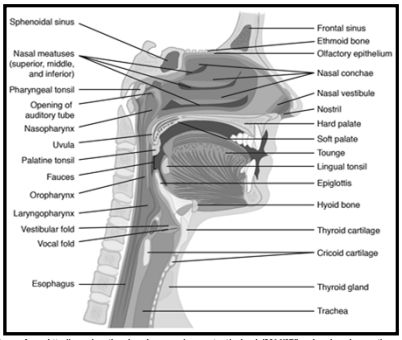

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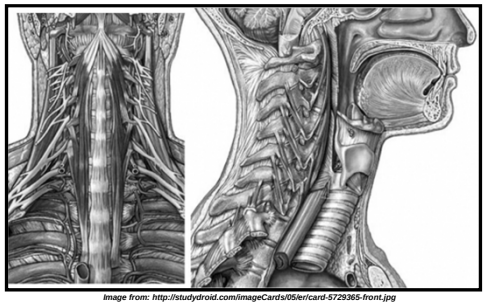

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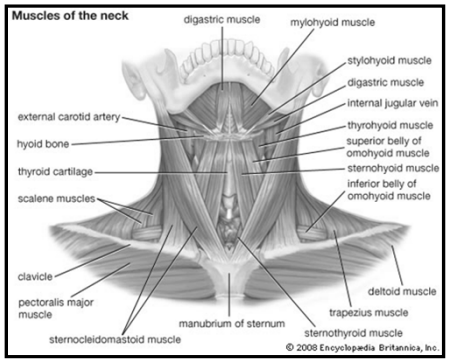
Overview of the conventional frontal plane <u>view</u> of the cervical and airway anatomical relationships



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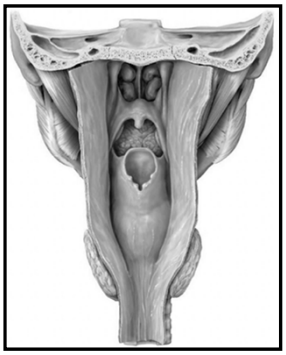

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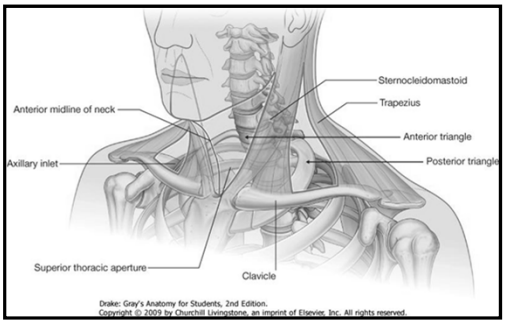

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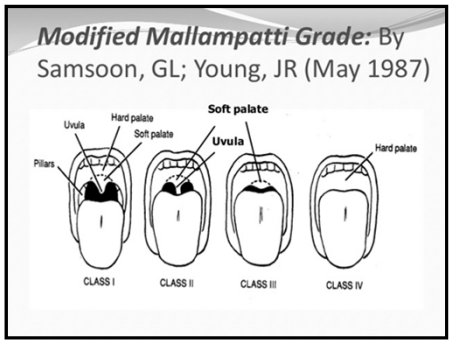

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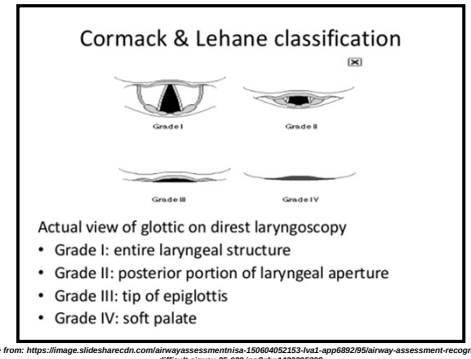

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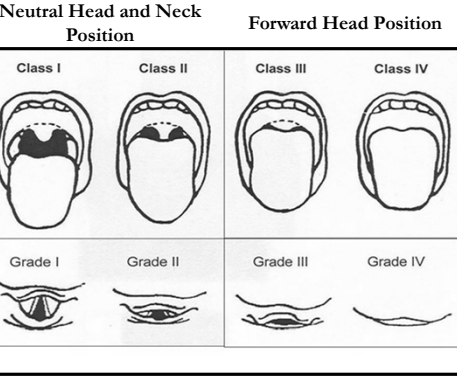

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There is very little discussion in the literature, post-graduate course material, and disciplinary didactics on the relationships that exist between human tri-planar asymmetrical patterns and respiratory function associated with head, neck and dental occlusion.

Oropharyngeal airway as related to mandibular (neck) sagittal position:

- **El and Palomo observed that the oropharyngeal and nasopharyngeal airway volume in Class II patients is significantly lower than other patients, and that mandibular position with respect to the cranial base has an impact on the oropharyngeal airway.**

  (El H, Palomo JM. Airway volume for different dentofacial skeletal patterns. Am J Orthod Dentofacial Orthop. 2011 Jun;139(6):e511-21)

- **While Ceylan and Oktay found that there are no appreciable variations of pharyngeal size in different skeletal morphologies.**

  (Ceylan I, Oktay H. A study on the pharyngeal size in different skeletal patterns. Am J Orthod Dentofacial Orthop. 1995 Jul;108(1):69-75.)

Articles on oropharyngeal airway opening as related to rotation of the maxillomandibular complex (frontal plane) can only be found in the literature where surgery was involved.

- **Choi, et al. concluded that clockwise rotation of maxillomandibular complex through orthognathic surgery did normalize posterior airway space postoperatively.**

  (Choi JW, Park YJ, Lee CY. Posterior pharyngeal airway in clockwise rotation of maxillomandibular complex using surgery-first orthognathic approach. Plast Reconstr Surg Glob Open. 2015 Aug 20;3(8):e485.)

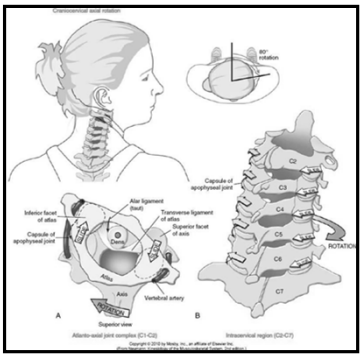
- **Coleta, et al. reported that surgical maxillo-mandibular advancement with counter-clockwise rotation of 47 patients produced immediate increase in oropharyngeal airway dimension, which was influenced by long term changes in head posture, and remained stable over the follow-up period.**

  (Coleta KE, Wolford LM, et al. Maxillo-mandibular counter-clockwise rotation and mandibular advancement with TMJ concepts total joint prostheses: part II-airway changes and stability. Int J Oral Maxillofac Surg. 2009 Mar;38(3):228-35.)

Counter-clockwise facial rotation reflects occipital rotation to the left on a neck that is laterally flexed to the left and oriented (rotated) to the right.

So, in essence, every time you see facial counter-clockwise or clockwise rotation, there will also be accompanying cervical transverse and frontal plane non-compensatory motion. Cervical lateral flexion to the right and axial rotation to the left is often seen and limited.

(Magoun HI. Osteopathy in the cranial field. 3rd Ed. Northwest printing, Inc. 1976. Boise.



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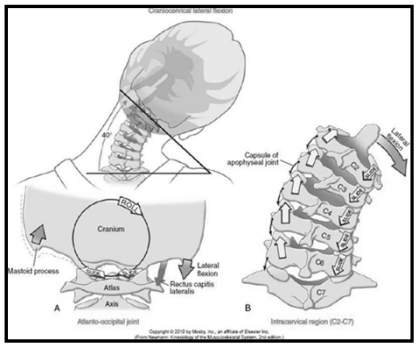

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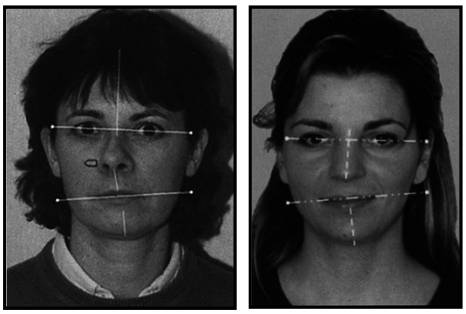
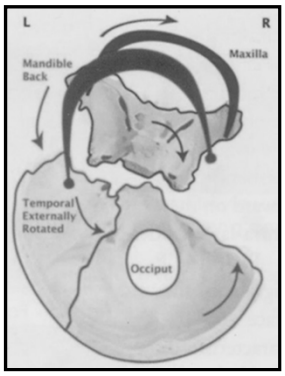


Images from: James G, Strokon D. Cranial strains and malocclusion; International Journal of Orthodontics; Vol 17 (1-3) 2006

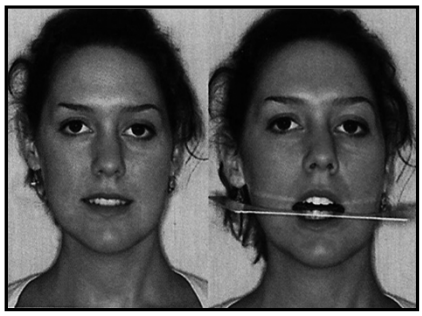
Same Picture



Left Sidebend, vertex view (viewed from above)

Images from: James G, Strokon D. Cranial strains and malocclusion: V. Side-Bend – Part I. International Journal of Orthodontics; Vol 17 (2) 2006.

Clockwise facial rotation reflects occipital sphenoid temporal torsion, usually referred to as a right torsion by osteopaths.

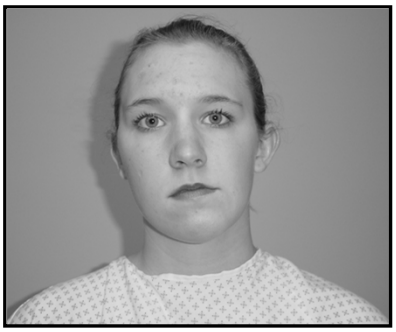


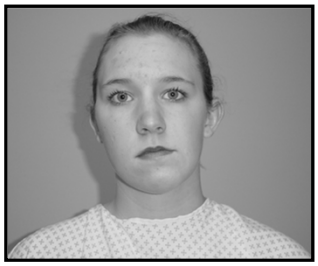
Clockwise Facial Rotation

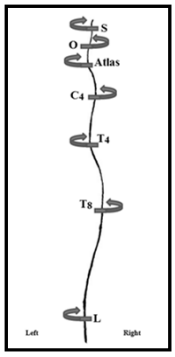
Images from: James G, Strokon D. Cranial strains and malocclusion; International Journal of Orthodontics; Vol 17 (1-3) 2006

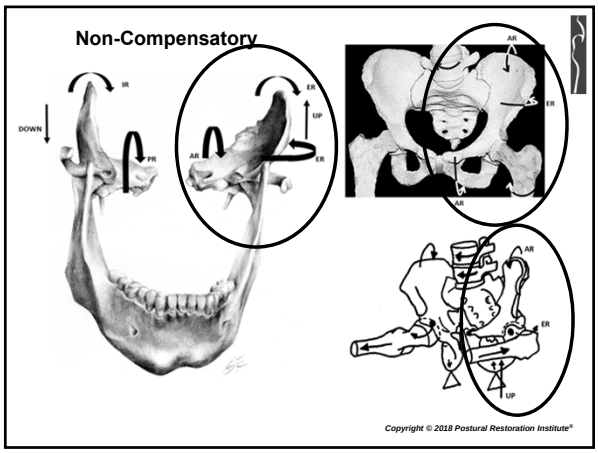
Facial rotational relationship to neck and mandible

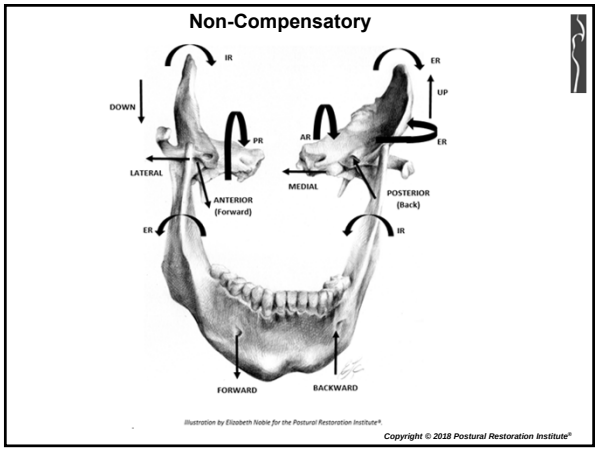
Non-Compensatory

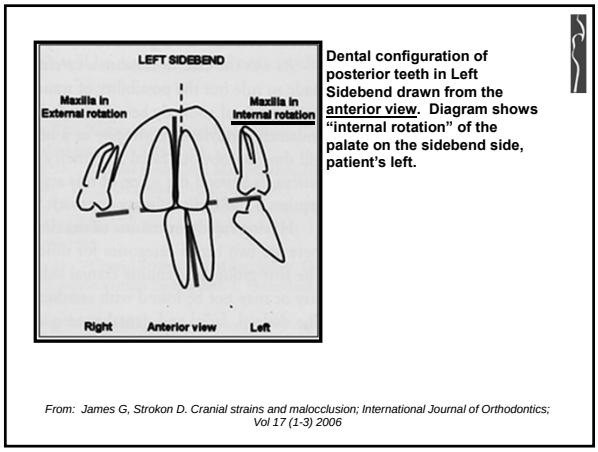






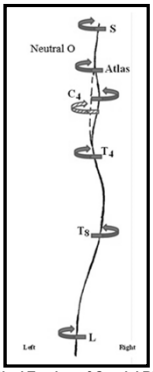






Dental configuration of posterior teeth in Left Sidebend drawn from the anterior view. Diagram shows "internal rotation" of the palate on the sidebend side, patient's left.

From: James G, Strokon D. Cranial strains and malocclusion; International Journal of Orthodontics; Vol 17 (1-3) 2006



Vertical Torsion of Cranial Right Torsion Position

Standing Cervical-Cranial Repositioning

Designed to position Right BC in right rotation and Right TMCC in right flexion. Cervical and cranial neutrality will be encouraged with co-activation of left abdominals with right SCM and co-activation of left lateral pterygoid with left gaze, occlusion and ground.

Place your right leg ahead of the left and most of your body weight on the left foot.

Reach forward with your left hand as you slightly bend your left knee, while keeping a majority of weight going through your left foot.

Bring your left upper and lower teeth together. As you sense your left bite turn your head to the right. Look straight ahead.

Sense your right head, neck and trunk rotation as you feel the left foot on the floor and your left upper teeth on the lower teeth for 10-15 seconds before advancing to the next step.

While keeping your left teeth and foot, on teeth and the floor, turn your head to the left without the right shoulder coming forward. Your line of vision should be straight ahead.

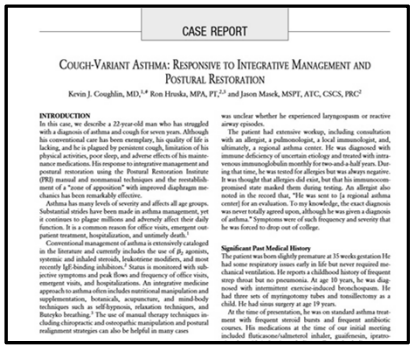
You are learning how to feel independent movement of the head on a neck that is now supporting a head that is rotated to the left; without using the right anterior neck muscle to simultaneously achieve right trunk rotation.

Sense the left teeth, left floor and left abdominal wall work with the right anterior neck for 10-15 seconds before advancing to the next step.

Sense and feel your left teeth, floor and abdominals as you move your head and jaw bone to the left so they are facing straight ahead.

<u>Now look to the left.</u> Hold this position for 10 to 15 seconds as you breathe.

Without losing your sense of the left teeth, left floor, left abdominals and gaze, consider turning your head to the right (L SCM), then to the middle, then to the left, then to the middle, then to the right, then to the middle, etc. for 10 to 15 seconds.



CASE REPORT

COUGH-VARIANT ASTHMA: RESPONSIVE TO INTEGRATIVE MANAGEMENT AND POSTURAL RESTORATION

Kevin J. Coughlin, MD,[1,4] Ron Hruska, MPA, PT,[2,3] and Jason Masek, MSPT, ATC, CSCS, PRC[2]

INTRODUCTION

In this case, we describe a 22-year-old man who has struggled with a diagnosis of asthma and cough for seven years. Although his conventional care has been exemplary, his quality of life is lacking, and he is plagued by persistent cough, limitation of his physical activities, poor sleep, and adverse effects of his maintenance medications. His response to integrative management and postural restoration using the Postural Restoration Institute (PRI) manual and nonmanual techniques and the reestablishment of a "zone of apposition" with improved diaphragm mechanics has been remarkably effective.

Asthma has many levels of severity and affects all age groups. Substantial strides have been made in asthma management, yet it continues to plague millions and adversely affect their daily function. It is a common reason for office visits, emergent outpatient treatment, hospitalization, and untimely death.[1]

Conventional management of asthma is extensively cataloged in the literature and currently includes the use of β_2 agonists, systemic and inhaled steroids, leukotriene modifiers, and most recently IgE-binding inhibitors.[2] Status is monitored with subjective symptoms and peak flows and frequency of office visits, emergent visits, and hospitalizations. An integrative medicine approach to asthma often includes nutritional manipulation and supplementation, botanicals, acupuncture, and mind-body techniques such as self-hypnosis, relaxation techniques, and Buteyko breathing.[3] The use of manual therapy techniques including chiropractic and osteopathic manipulation and postural realignment strategies can also be helpful in many cases

was unclear whether he experienced laryngospasm or reactive airway episodes.

The patient had extensive workup, including consultation with an allergist, a pulmonologist, a local immunologist, and, ultimately, a regional asthma center. He was diagnosed with immune deficiency of uncertain etiology and treated with intravenous immunoglobulin monthly for two-and-a half years. During that time, he was tested for allergies but was always negative. It was thought that allergies did exist, but that his immunocompromised state masked them during testing. An allergist also noted in the record that, "He was sent to [a regional asthma center] for an evaluation. To my knowledge, the exact diagnosis was never totally agreed upon, although he was given a diagnosis of asthma." Symptoms were of such frequency and severity that he was forced to drop out of college.

Significant Past Medical History

The patient was born slightly premature at 35 weeks gestation He had some respiratory issues early in life but never required mechanical ventilation. He reports a childhood history of frequent strep throat but no pneumonia. At age 10 years, he was diagnosed with intermittent exercise-induced bronchospasm. He had three sets of myringotomy tubes and tonsillectomy as a child. He had sinus surgery at age 19 years.

At the time of presentation, he was on standard asthma treatment with frequent steroid bursts and frequent antibiotic courses. His medications at the time of our initial meeting included fluticasone/salmeterol inhaler, guaifenesin, spirame-

Coughlin KJ, Hruska R, Masek J. Cough-variant asthma: Responsive to integrative management and postural restoration. EXPLORE September 2005; 1(5):377-379.

Thank You!

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