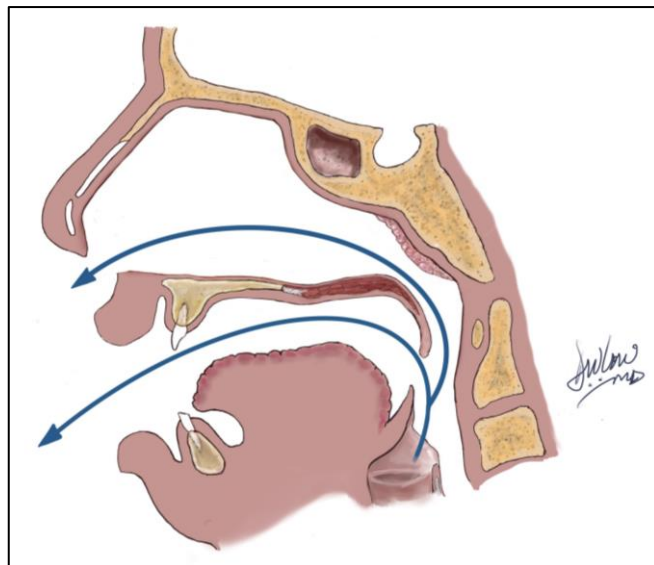


Velopharyngeal Dysfunction: Introduction and Causes

What is Velopharyngeal Dysfunction (VPD)?

- **Velopharyngeal dysfunction (VPD)** is a condition in which the **velopharynx (VP)**; the back of the palate and the throat) cannot close the space that connects the mouth and the nose (see diagram on the right).
- Symptoms include (but are not limited to):
 - Air coming out of the nose when talking
 - Hypernasal speech
 - Weak pressure on consonants
 - Compensatory speech sound disorders
- VPD occurs in about 70% of patients with 22q11.2 deletion syndrome (22q11.2DS) and varies in severity.
- Although speech therapy is essential to the treatment of articulation errors in 22q11.2DS, velopharyngeal surgery is often necessary to treat velopharyngeal dysfunction.



Velopharyngeal dysfunction

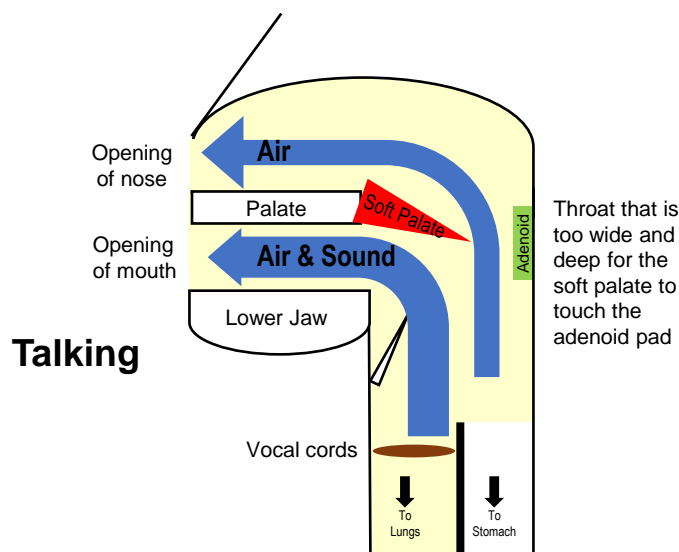
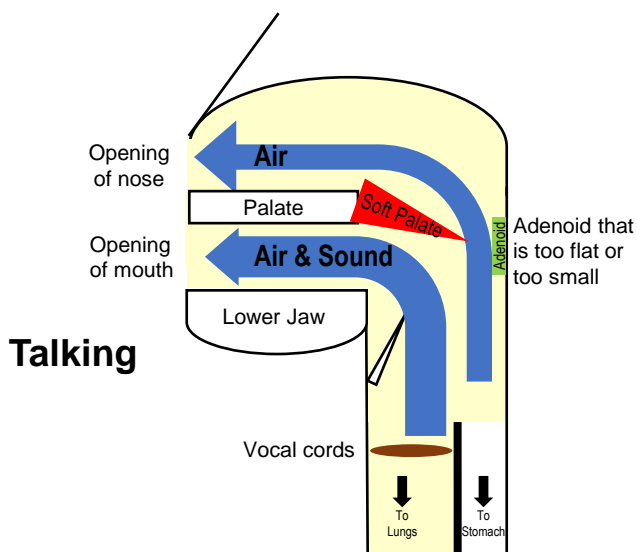
Causes of VPD in Children with 22q11.2DS

The causes of VPD are varied and complex in children with 22q11.2DS. There can be more than one cause in a child, **so proper diagnosis is of the utmost importance**. Because of the multiple variables, the treatment of VPD in children with 22q is also more difficult compared to children without 22q. It is important to understand the causes of VPD so that medical professionals can effectively plan the treatment for the child. Here are the known causes.

1. **Cleft palate***
 - Cleft palate is a split in the roof of the mouth. It is impossible to close the area between the mouth and the nose when the palate is clefted.
2. **Submucous cleft palate***
 - Submucous cleft palate is a split in the muscles of the soft palate. The palate muscles, are malpositioned and cannot close the space between the oral and nasal cavities.
3. **Hypodynamic velopharynx**
 - The soft palate and the walls of the throat are weak and do not move well. The VP valve does not close effectively.

*See our sheet on “Cleft Palate and Submucous Cleft Palate”

Velopharyngeal Dysfunction: Introduction and Causes (continued)



4. Adenoidal hypoplasia

- The VP valve normally closes at the level of the adenoid pad on the back of the throat.
- An adenoid that is very small or very flat creates a larger gap that needs to be closed by the soft palate.

5. Velopharyngeal disproportion

- The throat in children with 22q is often too wide and deep to allow the soft palate to reach the back of the throat.
- The disproportion can be caused by skull structure differences or cervical spine abnormalities.

Children with 22q who have **adenoidectomy** (removal of adenoids) are at risk of developing VPD. **Keep the adenoids** unless it's medically necessary to remove them. The decision should be made with an interdisciplinary team. If adenoidectomy is necessary, a **partial adenoidectomy** is recommended if medically feasible.

Factors making VPD complex to treat in children with 22q

- Hypodynamic velopharynx
- Velopharyngeal disproportion
- Submucous cleft palate

For more info, see the video [22q11.2 VPD AND HYPER-NASAL SPEECH](#) from the 22q Family Foundation.