Troubleshooting AOX Phonetic Complications

Phonetics complications may be experienced during the restorative process of full-arch All-On-X cases. Prior to moving to the final restoration, resolve all clinical and emotional issues.
The primary sounds affected by AOX cases are:

- Tongue to hard palate (D, N, T)
- Tongue to teeth (L, TH)
- Teeth to teeth (S, Z)
- Teeth to lip (F, V)
- Lip to lip (B, M, P)

Issue 1: D, N, T sounds. Tongue to Hard Palate

Second most common group, the implants are probably placed too far lingually which in result has the prosthesis cover the incisive papilla region. “D,” “N,” and “T” sounds are formed when the tip of the tongue lightly touches the palate at the incisive papilla.

To resolve this issue, follow these steps:

- Adjust the lingual of the temporary as much as possible while still keeping enough bulk for strength. Three to four millimeters of material lingual to the access hole should be adequate.
- You may want to replace your MU abutment in order to move the screw access hole closer to the teeth. However, this may create its own problem as you may not have enough material supporting the teeth.
- Manage the occlusion.
- Observe the patient for any sound improvement.
- Manage patient expectation by explaining to the patient that a thin metal support may be present in the final restoration.

Issue 2: L, TH Tongue to Teeth

The “L” sound is formed when the lingual tip of the tongue contacts the lingual of the maxillary anterior teeth.
When anterior teeth are placed too far forward or too far lingually, this sound may be affected.
“L” sound is more affected when the teeth are placed too far lingually.

To resolve this issue, follow these steps:

- Move the teeth facially.
- During the try-in, take the time to find the right position of the teeth to recreate a proper “L” sound
- If the teeth are placed too far facially, add composite to the lingual of teeth 7 through 10.
- Observe patient for any sound improvement.

The “TH” sound is formed when the tip of the tongue passes through the anterior teeth, having light contact with the maxillary teeth.

If too little freeway space (separation between the upper and lower teeth) is present, this may affect the “TH” sound by restricting tongue movement.

If the anterior teeth are too apically or coronal positioned, this sound may be affected. To resolve this issue, follow these steps:

- Check the freeway space. There should be a minimum of two to three millimeters between maximum intercuspation and the rest position.
- If you suspect that the maxillary teeth are set too coronal, them with a bur until the “TH” sound improves.
- Have the patient repeat “thirty-three” to assess the sound. If the teeth are set too apically, add composite to the maxillary anterior incisal.
- Observe patient for any sound improvement.

Issue 3: S, Z Teeth to Teeth

“S”, and Z are by far the sounds with the most issues as the prosthesis affects many aspects of these sounds. Spaces under the bridge, anterior tooth positioning and length must be accurate, while posterior arch width must not be too constrictive.
Fortunately, the most common “S” sound complications are also the easiest to fix.

Air flow:
As the soft tissue heals following surgery, a gap often opens up between the soft tissue and the intaglio surface of the maxillary provisional which can result in a whistling sound. This is not an issue with mandibular Provisionals since air minimally passes under the bridge during speech.

To resolve this issue, follow these steps:

- Remove the bridge and reline the intaglio until the temporary contacts the tissue, If the surgeon allows you to remove the bridge.
- If it is unsafe to remove the bridge, flow composite or acrylic under the temporary to create a tissue seal on the palatal side of the bridge until a more secure reline can be performed.

Anterior tooth position:
Too much contact often results in a lisp.

To resolve this issue, follow these steps:

- You may need to adjust the incisal length of the teeth.
- If the maxillary anteriors are esthetically in the correct position, then shorten the mandibular teeth.
- If the maxillary teeth appear too long, shorten them. Have the patient repeat "sixty-six" to find the ideal position.
- If the mandibular teeth are natural, they may supra-erupt and the lisp may return.

Tongue-to-teeth issue:
Patients who require these types of restorations have often lost their posterior teeth long ago and their tongues have gotten used to wide spaces.

To resolve this issue, follow these steps:

- Thin out the posterior area as the tongue is contacting the teeth.
- Create a slight overjet or crossbite to make more room, but do not widen the arches too far as the patients may bite their cheek.
- It is difficult for patients to detect these problems at try-in, so have them wear their PMMA for as long as 8 weeks to establish wanted results.
- When replacing teeth to the proper arch form, patient may just have to adapt to the slurring as the tongue feels constricted especially when the restorative dentist has minimal control If only restoring one arch.

Issue 4: F, V Teeth to Lip

"F" and "V" sounds are made with the incisal edges of the upper teeth lightly contacting the wet-dry line of the lower lip (vermillion border).
Maxillary anterior teeth that are set too apically or coronally will impact this sound.

To resolve this issue, follow these steps:

- Like the “TH” sound, you can improve it by reducing the length or adding composite to the incisal edge of teeth seven through 10.
- Have the patient repeat fifty-five.
- Observe patient for any sound improvement.

Issue 5: B, M, P Lip to Lip

Patients feeling like they can’t contact their lips properly do not have enough freeway space.
They will struggle with “B”, “M”, and “P” sounds, as these sounds require the lips to touch. Their faces may appear stretched and female patients may also complain that they can’t roll their lips together when applying lipstick.

To resolve this issue, follow these steps:

- Close patient’s VDO, which will increase freeway space.
- Grind the teeth on whichever arch until achieving adequate VDO.
- Observe the patient for any sound improvement.
- Request a new provisional made to fit the new position. (Extra cost)
- If you have a patient who is very concerned about speech complications, you may want to suggest a porcelain or porcelain-fused-to-metal (PFM) implant-supported bridge that does not require bone reduction. These are substantially more expensive restorations but may minimize speech issues.