DPNS
DEEP PHARYNGEAL NEUROMUSCULAR STIMULATION

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What is DPNS?

DPNS stands for Deep Pharyngeal Neuromuscular Stimulation.

This form of indirect therapy is based on a theory that was developed from 1991 to 1993 by Karlene H. Stefanakos at Mease Hospital.

A speech pathologist must pay to take a class and become certified in order to use this method.

With this method, the therapist stimulates certain areas of the oral cavity with a frozen lemon swab. Stimulating these areas triggers reflexes in the muscles used for swallowing. This should increase muscle strength, endurance, and range of movement.

This technique was first developed due to problems resulting from traditional methods of dysphagia management and treatment, such as:

- Weight loss
- Dehydration
- Aspiration Pneumonia
- Physical deterioration, and/or death
Is it invasive?

DPNS is a non-invasive, though somewhat uncomfortable, procedure.

It is simply conducted by stimulating certain areas of the oral cavity with a frozen lemon swab to illicit a response from the reflexes.

The areas stimulated with the swab include:

- Tongue base and bitter taste buds
- Soft palate musculature
- Superior and Medial pharyngeal constrictor musculature

There are many techniques used to elicit different muscle responses, based on the etiology of the swallow dysfunction.
By stimulating 9 different parts of the oral cavity, SLPs record any of the resulting actions:

- Tongue Cup
- Lingual Grove
- Palatal Reflex
- Pharyngeal Wall Contraction

Ideally, by cycling through each of the 9 stimulations multiple times each therapy session, the SLP starts to see increased reactions, which leads to improved swallowing.
WHERE does DPNS focus?

On **THREE** reflex sites:

- Tongue base and bitter taste buds for improving the tongue base retraction reflex

- Soft palate musculature for improving the palatal reflex and velopharyngeal closure

- Superior and medial pharyngeal constrictor musculature to improve the pharyngeal constrictor reflex
TREATMENT
TECHNIQUES

Bilateral soft palate glide: across the palatal pharyngeal musculature

Triple soft palate stimulation: anteriorly-posteriorly from nasal spine region, stimulate bilaterally on soft palate, first on weakest side then strongest. Then down palatal raphe

Lingual Glide: across bitter taste buds from weakest side to strongest side

Lateral lingual stimulation: stimulate anterior to posterior on lateral sides of tongue to medial bitter taste bud region

Lingual Septum Stimulation: along lingual septum
Bilateral posterior pharyngeal constrictor stimulation: stimulate directly on posterior pharyngeal wall

Lateral pharyngeal stimulation: Directly on lateral pharyngeal wall

Tongue base retraction reflex rate: on uvula and monitor secondary tongue base retraction response

Uvula Stimulation: distal palatopharyngeus area across soft palate rim down side of the uvula.

Nasal spine response: nasal spine position and assess palatal reflex response.

Foley stimulation technique: inferior lateral side of tongue to anterior faucial area.
Who is a candidate?

DPNS may help people with swallowing disorders affecting the pharyngeal stage of the swallow related to:

- Stroke
- Multiple sclerosis
- Parkinson’s Disease
- Neuromuscular insufficiency
- Traumatic Brain Injury

The patient must not have problems with cranial nerves since they are used to stimulate muscle reflexes.

The patient must be fully conscious and in a non-agitated state during the procedure.
5 Phases of Swallowing

1st Anticipatory

2nd Oral preparatory

3rd Oral

4th Pharyngeal- Medulla controls this stage. Innervation CNXI (11) Accessory with CNX Vagus. Bolus reaches valleculae and swallow becomes involuntary.

- Nasopharynx closes off
- Pharyngeal constrictors contract
- Breathing stops
- Larynx closes
- Epiglottis pulls down and covers larynx, larynx is pulled up
- Cricopharyngeus muscle relaxes and top of esophagus pops open

5th Esophageal
Is this an accepted therapy technique?

Yes and No

No-There is no evidence-based research for this therapy technique. Therefore an SLP cannot bill for this treatment.

Yes-Many SLP’s and rehabilitation establishments do use this technique for dysphagia, hence the training required. Many endorse that it works.

However...