

# **Device-Facilitated Oropharyngeal Strengthening For Swallowing Rehabilitation with Seniors**

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## **Session Outline**

1. Aging and Dysphagia – Prevalence and Impact
2. Aging and Muscle Strength
  - a. Sarcopenia
  - b. Functional Reserve
3. Principles of Strength Training
4. Protocol Options – Creating the Optimal Protocol for Your Patient
5. Device Comparisons
6. Evidence Supporting Oropharyngeal Strengthening
  - a. Healthy
  - b. Stroke
  - c. VA Clinic
7. Unique Environment of Skilled Nursing
8. Skilled Nursing Pilot Project
  - a. Inpatient
  - b. Outpatient/home health
9. Data Collection
  - a. MoCA and Allen Cognitive Levels
  - b. Effort
  - c. Diet
  - d. Rehab Outcome Measure (ROM)
10. Lessons Learned in Early Phase of Pilot
11. Outcomes/Results
12. Future Plans

## Identifying the Optimal Oropharyngeal Strengthening Protocol for Your Patient

Identifying the optimal protocol for oropharyngeal strengthening is dependent on patient needs and therapy goals. Understanding basic skeletal muscle physiology and strengthening principles will guide clinicians in developing an optimal therapy plan.

### Oropharyngeal muscle fiber types:

**Type I (slow twitch):** Slower to contract, more resistant to fatigue; lower capacity for force generation; smaller in diameter; more predominant in the anterior tongue for rapid, repetitive low force movements

**Type II (fast twitch):** Faster to contract; less resistant to fatigue; higher capacity for force generation; larger in diameter; more predominant in the base of tongue and pharyngeal constrictors where more force is required

### Principles of Strength Training

**Resistive Load:** Tasks must exceed usual levels of activity; defined as pressure targets that are a percentage of the maximum; must be progressively adjusted every few weeks to build strength.

**Repetition:** Repetitions (reps) refer to the number of times an individual performs a task. There is an inverse relationship between intensity and repetitions, indicating that as the intensity increases the repetitions should decrease.

**Sets:** Sets refer to how many times the patient repeats the prescribed number of repetitions.

**Frequency:** Frequency refers to how often a patient completes the prescribed sets. Muscle fiber requires a rest day to recover and build. Strength training on the same muscle groups every day is less beneficial than every other day.

**Maintenance:** Significant decreases in strength gains can occur in only a few weeks following training. Continued strength training one time per week has been shown to maintain strength.

Clinical Concern	Goal	Load	Repetitions	Sets	Frequency
Fatigue during mealtime (s/s of aspiration toward end of meal; weight loss)	Increased strength	High (80% of max)	Low (6-8)	1-2	Alternating Days
General weakness (s/s of aspiration with any intake and/or after swallowing)	Increased strength and endurance	Medium (60% of max)	High (8-12)	2-3	Alternating Days

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