

# Resistance Exercise Device for Strengthening Swallow Muscles

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## Technology description

Swallowing is a complicated multi-stage process that involves muscles of the tongue, lips and mouth, pharynx and esophagus.. Damage to or weakness in the muscles and motor control can result in difficulty in swallowing, i.e.Dysphagia occurs following stroke and traumatic brain injury, Parkinson's disease, multiple sclerosis, amyotrophic lateral sclerosis, head, neck and esophageal cancer, and during normal aging. Oropharyngeal dysphagia affects 30-40% of the population > 65 years old, affecting nutrition and the quality of life. Nonetheless, the standard of care for the majority of patients with dysphagia is very poor. Many are not diagnosed or treated at all. Two practicing gastroenterologists have invented a novel device that uses resistance to strengthen the muscles involved in swallowing by making these muscles . The Resistance Exercise Device (RED) is an inflatable concave cushion that molds over the larynx. As part of the exercise regimen, the collar is in order to apply graded amounts of pressure on the swallow muscles each time the subject swallows. This pressure places resistance on the critical muscles involved in swallowing, inducing fatigue (documented by manometry), and strengthening the muscles involved.

## Advantages

- Safe and effective, non-invasive approach to treat swallowing deficits
- Utilizes proven resistance methods to strengthen muscles
- Exercise regimen actually involves swallowing
- Exercises all of the muscles involved, not just the tongue, lips, jaw or neck
- No vibrating or electrical components
- Device and exercise regimen can be used at home or while traveling
- Device easily paired with lap-top/hand-held/mobile devices to track performance

## Institution

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