

# ISO-CTAR Throat Exerciser Relevant Research

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The **ISO Swallowing Exercise Device** was designed as a more convenient, less strenuous alternative to the Shaker exercise for dysphagia. Like the Shaker exercise, it targets the suprahyoid muscles (Geniohyoid, Mylohyoid, Stylohyoid, and the Digastric). These muscles primarily assist in elevating the hyolaryngeal complex and opening the upper esophageal sphincter (UES) during the swallow. The Mylohyoid also functions to elevate the tongue and the floor of the oral cavity.

**In a study conducted in April of 2016 (Sze, Yoon, Escoffier, Rickard Liow)**, researchers evaluated the efficacy of the Chin Tuck Against Resistance (CTAR) and the Shaker exercise. The results indicated that the Chin Tuck Against Resistance (CTAR) exercise was more specific in targeting the suprahyoid muscles than the Shaker exercise and that the sternocleidomastoid muscles were significantly less activated and fatigued during the CTAR exercise than the Shaker exercise. (14)

**In 2012, Feng et al conducted a study of the relationship between atrophy of the Geniohyoid muscle, which is one of the suprahyoid muscles, and the occurrence of aspiration in older adults.** The study authors concluded, "In summary, using head and neck CT scans, we found that decreased CSA (cross-sectional area) of GH (Geniohyoid) muscle was associated with aging and was greater in aspirators compared with nonaspirators in older men.... These findings may indicate an association between GH muscle atrophy and decreased swallowing safety and aspiration in older adults and warrants further investigation." (13).

**In 2015 Kraaijenga conducted a study using a Swallowing Exercise Aid device in connection with three exercises: Chin Tuck Against Resistance (CTAR), Jaw Opening Against Resistance (JOAR) and effortful swallow with resistance.** They measured outcomes with a dynamometer (IOPI), MRI and VFSS, for the following: maximum chin tuck and jaw opening strength, maximum tongue strength and endurance, suprahyoid mass, and hyoid bone displacement. They concluded, "Outcomes measured following 6 weeks of exercise indicated a significant increase in all of the above along with increased mouth opening and no pain." (1).

**In a study conducted in the year 2002, by Dr. Shaker,** 27 out of 27 patients who were tube-fed before the study and performed the Shaker exercise three times a day for six weeks, were able to tolerate a soft p.o. diet by the end of the six weeks of treatment (11).

**In 2009, seven institutions participated in a clinical trial to compare the Shaker exercise with traditional therapy.** Each patient received a modified barium swallow study pre- and post-therapy. The authors concluded that although there were several improvements in the traditional therapy group, there was significantly less aspiration post-therapy in patients in the Shaker group (12).

**In the year 2000 a study was conducted to evaluate surface EMG activities in the suprahyoid, infrahyoid, and sternocleidomastoid muscles groups during the Shaker exercise.** The findings suggested that all three muscle groups were fatigued during the Shaker exercise (9). A similar study in 2008 indicated that the Shaker exercise fatigued all three muscle groups (10).

**In 2013 Watts used surface EMG to compare the Shaker exercise to a jaw opening exercise.** He measured the activation of the geniohyoid, mylohyoid, and anterior digastric muscles. He concluded that activation in these muscles was significantly greater when participants performed the jaw opening exercise than when participants performed the head-lift (Shaker) exercise (7).

**A study conducted in 2012 by Satoko Wada investigated the effects of the jaw opening exercise.** Significant improvements were observed in the upward movement of the hyoid bone, the amount of upper esophageal opening, and the time of pharynx passage. (8).

**In a 2013 study by Wai Lam Yoon, the surface EMG activity of the suprahyoid muscles was compared between the Chin Tuck Against Resistance (CTAR) exercise and the Shaker exercise.** The results showed significantly greater maximum SEMG values during the Chin Tuck Against Resistance isokinetic and isometric exercises than during the equivalent Shaker exercises. The authors concluded that Chin Tuck Against Resistance exercises appear to be effective in exercising the suprahyoid muscles and therapeutic effects could be comparable to those of the Shaker exercise (5).

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## Price List

\*Note: Two device sizes are available. Regular is appropriate for most adults. Small is appropriate for children and small adults. Chin pad covers are the same for both sizes.

ISO-CTAR Device Item # ISO-001  
**\$169.99** includes 1 ISO-CTAR device (specify device size - regular or small)

ISO-CTAR Device Pro Pack Item # ISO-002  
**\$199.99** includes 1 ISO-CTAR device with carrying case, 100 pack chin pad covers, alcohol wipes (specify device size - regular or small)

ISO-CTAR Device Facility Pack Item # ISO-003  
**\$249.99** includes 1 ISO-CTAR device with carrying case, 400 pack chin pad covers, alcohol wipes (specify device size - regular or small)

ISO-CTAR Duo Pack Item # ISO-DP2  
**\$329.99** includes 2 ISO-CTAR devices (1 of each size - regular and small)

ISO-CTAR Duo PRO Pack Item # ISO-DPP200  
**\$389.99** includes 2 ISO-CTAR PRO Packs (1 of each size - regular and small with carrying cases, 200 pack chin pad covers, alcohol wipes)

400-Pk Chin Pad Covers Item # ISO-CPC400  
**\$69.99**

Purchase orders or Credit Cards Accepted

## How to use disposable chin pad covers with the ISO-CTAR Throat Exerciser:



1. Separate the adhesive chin pad cover from the protective paper
2. Place on chin pad with adhesive side down, lining up corners of the cover with the corners of the chin pad, and wrapping it around to the underneath
3. After use with one patient, peel the chin pad cover off and dispose
4. Clean the entire device (including the chin pad) with a disinfectant wipe

# ISO-CTAR Throat Exerciser Instructions

## Chin Tuck Against Resistance Exercise (CTAR)

Hold the ISO-CTAR Throat Exerciser with the red handle pointing away from your chest, with the red chest pad pressed against your chest, and the black chin pad pressed firmly into the soft area directly behind the chin bone. Begin with your chin slightly elevated, back straight, ears directly over your shoulders. Slowly nod your head up and down like you are nodding "YES", with good range of motion, up and down. Do not let your head lean forward. Keep your ears directly over your shoulders throughout the exercise.



For more exercises, including the Jaw Opening Against Resistance (JOAR) exercise, vocal cord adduction exercises, and how to combine the ISO-CTAR Throat Exerciser with other oropharyngeal exercises, visit our website for instructional videos:

[www.alternativespeech.com](http://www.alternativespeech.com).

## Some of Our Valued Customers

The Mayo Clinic	Healthsouth
Visiting Nurse and Hospice Care	Regional One Health
Genesis Health System	Landspitali Hospital
Choctaw Regional Medical Center	Azdelta
Valdosta State University	Bothwell Regional Health Center
McLaren Northern Michigan Hospital	Meridian Health
Sir Charles Gairdner Hospital	Select Rehab
Saint Simeons	Rehab Solutions
Fremantle Hospital	Hansen Family Hospital
Palmetto Health Baptist Parkridge	Biron Health Group
St John of God Health Care	Fiona Stanley Hospital, Allied Health Dept
Palmetto Health Baptist	Columbine Health Systems
Bunbury Regional Hospital	Cedar County Memorial Hospital
Houston Methodist St. Catherine Hospital – LTAC	Fairmount Rehab
Franklin Health and Rehab	Allied Services Integrated Health System
Sault Area Hospital	Sprenger Health Care Systems
Good Samaritan Home	Presbyterian Homes and Services
Liberty Village of Maryville SN & Rehab Center	HealthSouth Bakersfield Rehabilitation Hospital
University of Tennessee Health & Science Center	Doctor's Hospital at Renaissance

## Comments

"I know this device is going to help many people." - Steve Blackburn, M.D.

"Seeing so much benefit from other therapists' raving reviews! I would love to add this to my toolbox, and I love, and appreciate, your initiative, and thinking outside the box!" - Charissa Skinner, SLP

"We love our CTAR and our patients do too!! We could certainly use a second as they always request one to keep in their room for exercises overnight!" - Jessie Madden, SLP

"I've used this product before, and I love it!" - Sarah Kathryn Alexander, SLP

"Very Nice EBP device." - Kris Torres, SLP

"I use this and it is awesome!" - Speech Language Pathologist

"I am a Speech Pathologist in Australia working in adult rehabilitation. Another Speech Pathologist has mentioned your device and that she is having success using it with patients..." - Speech Language Pathologist

"...I have previously purchased several of your devices and have allowed colleagues to "borrow" them; needless to say, I never got them back :( I need to be a little more stern with the terms "borrow". Thanks again for creating this! Take care!" - Speech Language Pathologist

"...We highly recommend (this) as an essential device to regain the ability to swallow properly." - Customer

"...I should also share that clinically speaking, this device has allowed two of my patients to have their PEG tubes removed!" - Speech Language Pathologist

"I want to congratulate you on the ISO. It has done wonders for my wife, who had acute dysphagia problems due to radiation treatments. It has helped to greatly improve her swallowing, and her doctor is very pleased with her progress. She is also pleased, considering the fact that her first Speech Therapist wanted to put in a feeding tube..." - Customer

"I am an SLP in Palm Bch. County, FL who has a home health pt. equipped with an iso-S. He loves exercising with it and I have felt that this tool can benefit dysphagia pts." - Speech Language Pathologist

"..I think that you have a great product and it has been very helpful to me." - Customer

"I was curious if you had a wholesale price so as to purchase ISO devices for the outpatient center where I work to resale to patients. Often times patients after trying the device that I have on site want to be able to leave with one..." - Speech Language Pathologist

"...A few months ago, we had recommended to a friend of ours in Appleton, WI, whose husband had dysphagia and she bought an ISO from you. They are very pleased with the results from using it. He is now eating after passing the swallowing test." - Customer