

1 **Clinical Practice Guideline:** **Oral Sensorimotor Therapy and Myofunctional**
2 **Therapy**

3
4 **Date of Implementation:** **July 20, 2017**

5
6 **Product:** **Specialty**

7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 Related Policies: CPG 149: Sensory Integrative (SI) Therapy CPG 165: Autism Spectrum Disorders CPG 166: Speech-Language Pathology/Speech Therapy Guidelines CPG 257: Developmental Delay Screening and Testing CPG 287: Stuttering Devices and Altered Auditory Feedback (AAF) Devices CPG 288: Augmentative and Alternative Communication (AAC) and Speech Generating Devices (SGD) CPG 289: Voice Therapy CPG 290: Auditory Integration Therapy – Facilitated Communication
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21 **GUIDELINES**

22 American Specialty Health – Specialty (ASH) considers oral sensorimotor therapy or
23 myofunctional therapy medically necessary for the treatment of tongue thrust, deviant or
24 reverse swallow, or oral myofunctional disorders in children who have a diagnosed
25 neuromuscular disease adversely affecting swallowing.

26
27 Oral sensorimotor therapy or myofunctional therapy is not medically necessary for the
28 treatment of tongue thrust, deviant or reverse swallow, or oral myofunctional disorders in
29 children who do not have a diagnosed neuromuscular disease adversely affecting
30 swallowing.

31
32 **DESCRIPTION/BACKGROUND**

33 According to the Academy of Orofacial Myofunctional Therapy (AOMT), Orofacial
34 Myofunctional Therapy is neurological re-education exercises to assist the normalization
35 of the developing, or developed, craniofacial structures and function. It is related to the
36 study, research, prevention, evaluation, diagnosis, and treatment of functional and
37 structural alterations in the region of the mouth (oro), face (facial) and regions of the neck
38 (oropharyngeal area).

39
40 Myofunctional disorder, or orofacial myofunctional disorder, including abnormal fronting
41 (tongue thrust) of the tongue at rest and during swallowing, lip incompetency, and sucking
42 habits, can be identified reliably. These conditions co-occur with speech misarticulations

1 in some individuals. Chewing and swallowing skills may also be affected. Atypical
2 swallowing is a myofunctional problem consisting of an altered tongue position during the
3 act of swallowing. Speech-language pathologists provide structural assessment including
4 observation of face, jaw, lips, tongue, teeth, hard palate, soft palate, and pharynx, as well
5 as perceptual and instrumental diagnostic procedures to assess oral and nasal airway
6 functions as they pertain to orofacial myofunctional patterns, swallowing, and/or speech
7 production (e.g., speech articulation testing, aerodynamic measures). Depending on
8 assessment results, intervention addresses the following:

- 9 • Alteration of lingual and labial resting postures
- 10 • Muscle retraining exercises
- 11 • Modification of handling and swallowing of solids, liquids, and saliva
- 12 • Speech sound production errors, if present

13
14 Sensorimotor therapy was the first exercise system proposed for treating pediatric
15 dysphagia in children with neuromuscular disorders such as cerebral palsy. The oral
16 sensorimotor therapy (OST) approach provides structured sensory and movement
17 experiences needed by the child to facilitate improved feeding and swallowing function
18 and acquisition of new feeding and swallowing skills. Historically, the sensorimotor
19 therapy in general has been used to describe a therapeutic approach that provided a
20 structured sensory environment (input). The aim of the sensory structure is to modify
21 specific abnormalities in the movement patterns exhibited by the patient during articular
22 functional task and, in children with disability, to facilitate acquisition of more mature
23 developmental skills. Structured sensory inputs are continued throughout the activity in a
24 manner that is responsive to the changing postural adjustments and task-oriented
25 movements of the patient. The interventions are used to improve task efficiency and quality
26 of performance, reduce the movement errors and involuntary movements that interfere with
27 task performance or inhibited acquisition, and elicit new movement components. The
28 sensory modalities include external input that is associated typically with the task, such as
29 food taste and temperature and contact sensations and resistance provided by utensil and
30 bolus, as well as other modalities, such as vibration and massage that are selected to alter
31 muscle tone for initiation and performance of the target task.

32
33 Nonspeech oral motor treatments (NSOMTs) are a collection of nonspeech methods and
34 procedures that claim to influence tongue, lip, and jaw resting postures; increase strength;
35 improve muscle tone; facilitate range of motion; and develop muscle control. In the case
36 of developmental speech sound disorders, NSOMTs are employed before or simultaneous
37 with actual speech production treatment. NSOMTs categories include active muscle
38 exercise, passive muscle exercise, and sensory stimulation.

39
40 Oropharyngeal dysphagia encompasses problems with the oral preparatory phase of
41 swallowing (chewing and preparing the food), oral phase (moving the food or fluid
42 posteriorly through the oral cavity with the tongue into the back of the throat) and

1 pharyngeal phase (swallowing the food or fluid and moving it through the pharynx to the
2 oesophagus). Populations of children with neurological impairment who commonly
3 experience dysphagia include, but are not limited to, those with acquired brain impairment
4 (for example, cerebral palsy, traumatic brain injury, stroke), genetic syndromes (e.g., Down
5 syndrome, Rett syndrome) and degenerative conditions (for example, myotonic
6 dystrophy). The speech-language pathologist (SLP) is the primary member of the
7 swallowing management team who will provide this type of dysphagia management. The
8 primary focus of the SLP for dysphagia management is first to eliminate or reduce
9 aspiration risk, as well as to improve or restore swallowing function. Ultimately, the
10 management plan will depend on the physiologic underpinnings of the disorder and patient
11 variables such as cognition, motivation, and ability to attend therapy sessions or participate
12 in therapy.

13 14 **EVIDENCE AND RESEARCH**

15 Much of the evidence on OST for children with neurological disorders is dated. According
16 to Sheppard (2005), research up to that point in time suggests that oral preparation, oral
17 initiation, and pharyngeal phases of swallowing may be improved by OST. However,
18 treatment effects appear to be specific for individual strategies. The patient population is
19 limited to children (and adults) with neuromuscular disorders. This includes disorders of
20 muscle tone and movement. In cases of multiple disability, OST has advantages for
21 working with children with cognitive and language limitations. It appears that
22 improvements from OST are dose-dependent for both frequency of practice and duration
23 of the treatment program. OST is, therefore, appropriate for use in settings in which
24 involvement of the speech-language pathologist and the interventions can be continued
25 over relatively long periods of time. Ruscello (2008) examined nonspeech oral motor
26 treatments (NSOMTs) in the population of clients with developmental speech sound
27 disorders. Results of the review of literature indicate that the application of NSOMTs is
28 questionable due to a number of uncertainties that include (a) the implied cause of
29 developmental speech sound disorders, (b) neurophysiologic differences between the limbs
30 and oral musculature, (c) the development of new theories of movement and movement
31 control, and (d) the paucity of research literature concerning NSOMTs. Clinically there
32 appears to be no substantive evidence to support NSOMTs as interventions for children
33 with developmental speech sound disorders.

34
35 Arvedson et al. (2010) completed a systematic review on the effects of oral-motor exercises
36 on swallowing in children. The aim was to determine the state and quality of evidence on
37 the effects of oral motor exercises (OME) on swallowing physiology, pulmonary health,
38 functional swallowing outcomes, and drooling management in children with swallowing
39 disorders. Sixteen studies of varying methodological quality were included. The included
40 studies incorporated a wide variety of OME, and mixed findings were noted across all of
41 the outcomes targeted in this review. Authors concluded that based on the results of this
42 evidence-based systematic review, there is insufficient evidence to determine the effects of

1 OME on children with oral sensorimotor deficits and swallowing problems. Lazarus et al.
2 (2011) systematically reviewed and examined the state and quality of the evidence for the
3 use of oral sensory-motor treatment (OSMT) in adults to improve swallowing physiology,
4 pulmonary health, functional swallowing outcomes, or drooling/secretion management. Of
5 the 23 studies identified, the majority (18/23) were classified as exploratory research. Many
6 of the studies had significant limitations and did not meet the standards of scientific rigor
7 needed for the American Speech-Language-Hearing Association’s National Center for
8 Evidence-Based Practice in Communication Disorders treatment research. Additionally,
9 there was a large degree of heterogeneity among the studies in terms of participants,
10 interventions, and findings. Authors concluded that few efficacy studies have been
11 conducted on the use of OSMT to improve swallowing in adults. Based on the results of
12 this review, there was insufficient evidence to draw any conclusions on the utility of OSMT
13 in dysphagia treatment.

14
15 Morgan et al. (2012) examined the effectiveness of interventions for oropharyngeal
16 dysphagia in children with neurological impairment, including oral sensorimotor therapy.
17 The review included randomized controlled trials and quasi-randomized controlled trials
18 for children with oropharyngeal dysphagia and neurological impairment. The data were
19 categorized for comparisons depending on the nature of the control group (for example,
20 oral sensorimotor treatment versus no treatment). Effectiveness of the oropharyngeal
21 dysphagia intervention was assessed by considering primary outcomes of physiological
22 functions of the oropharyngeal mechanism for swallowing (for example, lip seal
23 maintenance), the presence of chest infection and pneumonia, and diet consistency a child
24 is able to consume. Secondary outcomes were changes in growth, child's level of
25 participation in the mealtime routine and the level of parent or carer stress associated with
26 feeding. Only three studies met the inclusion criteria. Two studies were based on oral
27 sensorimotor interventions for participants with cerebral palsy compared to standard care
28 and a third studied lip strengthening exercises for children with myotonic dystrophy type
29 1 compared to no treatment. In this review, we present the results from individual studies
30 for four outcomes: physiological functions of the oropharyngeal mechanism for
31 swallowing, the presence of chest infection and pneumonia, diet consistency, and changes
32 in growth. However, it is not possible to reach definitive conclusions on the effectiveness
33 of particular interventions for oropharyngeal dysphagia based on these studies. Authors
34 concluded that this review demonstrates that there is currently insufficient high-quality
35 evidence from randomized controlled trials or quasi-randomized controlled trials to
36 provide conclusive results about the effectiveness of any particular type of oral-motor
37 therapy for children with neurological impairment.

38
39 Ferluga et al. (2013), in a comparative effectiveness report, states that evidence is
40 insufficient and inconsistent, with a paucity of comparative studies on oral sensorimotor
41 interventions. Poor quality studies had positive results; whereas those with more rigor show
42 no effect, but may have been underpowered. Studies providing effectiveness data for

1 feeding interventions in populations of any age with CP were included in the review.
2 Authors included studies focused on nonsurgical and surgical interventions for feeding and
3 nutrition difficulties. Nonsurgical interventions included positioning, oral appliances, oral
4 stimulation, sensorimotor facilitation, and caregiver training. The review included 21
5 studies with conflicting results related to the effects of sensorimotor interventions on short-
6 term improvements in feeding. One study (Snider et al., 2011) included in the comparative
7 effectiveness report stated there was conflicting evidence (level 4) that sensorimotor
8 facilitation techniques are more effective than alternative treatment or absence thereof in
9 enhancing feeding safety and efficiency. However, the [randomized controlled trials] RCTs
10 may have been underpowered (small sample sizes), and the less rigorously designed studies
11 indicated positive results.

12
13 Van Dyck et al. (2016) investigated the effects of OMT on tongue behavior in children
14 with anterior open bite (AOB) and a visceral swallowing pattern. The study comprised of
15 22 individuals age range of seven to ten years. Functional characteristics including tongue
16 posture at rest, swallowing pattern and articulation and presence of AOB were measured
17 at the beginning of treatment, at the end of treatment and six months after treatment. The
18 authors determined OMT did change tongue elevation strength, tongue posture at rest and
19 tongue position during swallowing of solid food. The authors concluded OMT can
20 positively influence tongue behavior however further research is recommended to clarify
21 the success of OMT as an adjunct to orthodontic treatment and to identify possible factors
22 influencing the outcome. Rhooms et al. (2019) examined the effect of sensorimotor
23 interventions on oral feeding outcomes and to determine whether multimodal interventions
24 lead to better oral feeding performances than unimodal interventions. The search identified
25 35 articles. Twenty-six studies examined a unimodal intervention, with the majority
26 focusing on oral sensorimotor input and the others on tactile, auditory, and olfactory input.
27 Nine studies assessed multimodal interventions, with the combination of tactile and
28 kinesthetic stimulation being most common. Results varied across studies due to large
29 differences in methodology, and caution is warranted when interpreting results across
30 studies. The heterogeneity in the studies made it difficult to make any firm conclusions
31 about the effects of sensorimotor interventions on feeding outcomes. Overall, evidence on
32 whether multimodal approaches can lead to better oral feeding outcomes than a unimodal
33 approach was insufficient.

34
35 Merkel-Walsh (2020) sought to 1) define variations in terminology and treatment
36 methodology for orofacial myofunctional disorders (OMDs) in children 0-4 years of age
37 and in special populations, and 2) compare and contrast service delivery models for
38 children ages 0-4 and individuals with special needs versus older children and children who
39 are neurotypical. A literature review of scholarly articles, professional presentations, poster
40 presentations, blogs, and social media were analyzed using three tiers of evidence-based
41 practice to include: 1) clinical expertise/expert opinion; 2) external and internal evidence
42 and 3) client/patient/caregiver perspectives. The author concluded that professional texts

1 and publications used consistent language when discussing treatment of OMDs in young
2 children and children with special needs. Terminology and treatment approaches for young
3 children and/or children with special needs who present with OMDs were inconsistent in
4 social media and professional presentations. The treatment modalities used in orofacial
5 myofunctional therapy to stimulate oral motor responses depend upon age and cognitive
6 status. OMDs should be treated in infants, young children and individuals with special
7 needs according to the methods of the pediatric feeding specialist. Orofacial myofunctional
8 therapy requires volitional control and self-monitoring; as such, it is contraindicated for
9 infants and toddlers as well as those individuals who cannot actively engage in therapeutic
10 techniques.

11
12 Shortland et al. (2021) reviewed the existing evidence for OMT and myofunctional devices
13 (MDs) used by SLPs. Twenty-eight studies met the criteria for inclusion in the review. Two
14 thirds were published in the last decade and involved the use of OMT/MDs targeting
15 multiple areas of speech pathology intervention within the same study, that is, swallowing,
16 breathing, oral hygiene, and speech production. Majority of studies were rated as low level
17 of evidence. All studies used OMT, with very few using MDs. While the assessment,
18 treatment protocols, and outcome measures were highly variable, all of the studies reported
19 an improvement in the function of the orofacial systems posttreatment. Few studies
20 reported long-term follow-up data. Almost half of the studies recommended the use of
21 OMT/MDs in a multidisciplinary/interdisciplinary team or in conjunction with other
22 therapy. Authors concluded that there has been an increase in literature over the last decade
23 in SLPs' use of OMT; however, there are only a small number of studies to date that explore
24 the use of MDs. There is a growing body of evidence to support the use of OMT and MDs
25 within a multidisciplinary team for people with communication and swallow difficulties.
26 However, development of future research should consider investigating assessment and
27 outcome measures, optimal dosage, and service delivery.

28
29 Abd-Elmonem et al. (2021) investigated the effect of oral sensorimotor stimulation on
30 oropharyngeal dysphagia in children with spastic quadriplegia. A convenient sample of 71
31 children age ranged from 12 to 48 months diagnosed with spastic quadriplegia, were
32 randomly assigned into two groups. Children in the control group received 90 minutes
33 conventional physical therapy training five times/week for four successive months while
34 those in the experimental group received 20 minutes of oral sensorimotor stimulation
35 before the same program as in control group. Oral motor function, body weight, segmental
36 trunk control and gross motor function were assessed at baseline and after completing
37 treatment. Overall, 64 (32 in the experimental group, 32 in the control group) children
38 completed treatment and data collection. The baseline assessment showed non-significant
39 differences regarding all measured variables while within group comparisons showed
40 significant improvement in the two groups. The post-treatment comparisons revealed
41 significant differences in the oral motor function and physical growth in favor of the
42 experimental group. Finally, there was non-significant difference regarding segmental

1 trunk control and gross motor function. Authors concluded that oral sensorimotor
2 stimulation has the capability to improve feeding in children with spastic cerebral palsy
3 diagnosed with oropharyngeal dysphagia.

4
5 Min et al. (2022) performed a study to identify the effect of OMFT on oral motor function
6 and feeding skills in children with CP. Deficiencies in oral motor function and feeding
7 skills are common in children with cerebral palsy (CP). Oral motor facilitation technique
8 (OMFT) is a newly designed comprehensive oral motor therapy, including postural control,
9 sensory adaptation, breathing control, sensorimotor facilitation, and direct feeding. A total
10 of 21 children with CP (3-10 years) participated in 16 weeks (16 sessions) of OMFT. The
11 effects on oral motor function and feeding skills were assessed using the Oral Motor
12 Assessment Scale (OMAS) before the treatment, 8 and 16 weeks after OMFT. Significant
13 improvement was found in oral motor function and feeding skills including mouth closure,
14 lip closure on the utensil, lip closure during deglutition, control of the food during
15 swallowing, mastication, straw suction, and control of liquid during deglutition after
16 OMFT. Mouth closure was the most effective and mastication was the least effective item.
17 Sixteen weeks is more effective than 8 weeks of OMFT. Authors concluded that OMFT
18 could be an effective and useful oral motor therapy protocol to improve oral motor function
19 and feeding skills in children with CP.

20 21 **PRACTITIONER SCOPE AND TRAINING**

22 Practitioners should practice only in the areas in which they are competent based on their
23 education, training and experience. Levels of education, experience, and proficiency may
24 vary among individual practitioners. It is ethically and legally incumbent on a practitioner
25 to determine where they have the knowledge and skills necessary to perform such services
26 and whether the services are within their scope of practice.

27
28 It is best practice for the practitioner to appropriately render services to a member only if
29 they are trained, equally skilled, and adequately competent to deliver a service compared
30 to others trained to perform the same procedure. If the service would be most competently
31 delivered by another health care practitioner who has more skill and training, it would be
32 best practice to refer the member to the more expert practitioner.

33
34 Best practice can be defined as a clinical, scientific, or professional technique, method, or
35 process that is typically evidence-based and consensus driven and is recognized by a
36 majority of professionals in a particular field as more effective at delivering a particular
37 outcome than any other practice (Joint Commission International Accreditation Standards
38 for Hospitals, 2020).

39
40 Depending on the practitioner's scope of practice, training, and experience, a member's
41 condition and/or symptoms during examination or the course of treatment may indicate the
42 need for referral to another practitioner or even emergency care. In such cases it is prudent

1 for the practitioner to refer the member for appropriate co-management (e.g., to their
 2 primary care physician) or if immediate emergency care is warranted, to contact 911 as
 3 appropriate. See the *Managing Medical Emergencies (CPG 159 – S)* policy for
 4 information.

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