

Supplementary Material

Speech Therapy Olfactory Rehabilitation Program (PROL)

I. International Statistical Classification of Diseases and Related Health Problems (ICD-11)

R43 Smell and taste disorders.

R43.0 Anosmia

R43.1 Parosmia

R43.2 Parageusia

R43.8 Other smell and taste disorders and those not specified

II. Key findings

1) Incomplete and delayed recovery from sudden olfactory loss secondary to viral infections, specifically COVID-19¹³.

2) Altered sense of taste (dysgeusia), altered sense of smell (hyposmia or anosmia), xerostomia, and hyposalivation after treatment for COVID-19^{12, 14}.

3) Increased risk of distorted odor perception (parosmia or troposmia) among young individuals affected by viral infection (in this case: COVID-19), with adverse impacts on quality of life¹⁵.

III. General Objective

1) To rehabilitate olfactory function.

IV. Specific Objectives and Respective Therapeutic Interventions.

1) Conduct a patient interview and olfactory assessment.

Number of sessions: 1.

Resources: Anamnesis protocol, Connecticut test kit.

Strategies: Anamnesis with identification data, past history of the complaint, survey of possible etiological factors, previous and current treatments, impacts of hyposmia/anosmia on activities of daily living, and olfactory assessment.

2) To establish nasal breathing.

Number of sessions: 11.

Resources: Mirror, figures, blowing materials (Pró-Fono® breathing kit, party blower, and balloon), syringe for nasal cleaning with saline solution, and tongue scraper.

Strategy 1: Through video, illustration, and oral presentation by the therapist, the respiratory function will be explained, and nasal and tongue hygiene, which should be done daily (at least three times per day), will be demonstrated.

Strategies 2-11: Breathing techniques including nasal inspiration (I), pause (P), and nasal expiration (E), with a gradual increase in duration, combined with the prior application of an inverted "V" elastic bandage from the glabella to the nasal wing (applied at the beginning and removed at the end of the session by the therapist), provided there are no indications of allergy to the material. Blowing materials will be used to diversify activities within the therapeutic process.

3) To detect, discriminate, identify, and memorize odors.

Number of sessions: 11.

Resources: MedSmel® kit with four amber bottles containing watercolor paper discs impregnated with essences from distinct olfactory groups: lemon, rose, clove, e and eucalyptus (2 mL each), plus bottles with primary scents, as listed in the table below.

Chart. List of primary odors and stimuli employed weekly in-person therapies, indicating the session of use.

Primary odors	Stimuli	Format – Session
Floral	Talc	Johnson® MedSmell talc container - Session 2.
	Jasmine	Jasmine bar soap (Granado®) – Session 3.
	Lily	Phebo® brand bar soap (Lily) – Session 4.
	Rose	Nativa Spa bar soap, by Boticário® (Pink) – Sessions 5 and 6.
	Orange	Natura® brand bar soap, Ekos line (Orange and Orange Blossom) – Session 7.
	Lavender	Natura® brand bar soap, Ekos line (Lavender) – Session 8.
	Rose	Natural rose – Session 9.
	Chamomile	Box of tea (Leão® brand, chamomile flavor) – Session 10.
	Anise	Box of tea (Leão® brand, fennel flavor) – Session 11.
Resinous	Menthol	MedSmell® container – Sessions 2 and 10.
	Eucalyptus	Eucalyptus Oil (Granado® brand) – Sessions 3 and 7.
	Mint toothpaste	Close Up® brand toothpaste tube (Refreshing Mint flavor) – Sessions 4 and 11.
	Vanilla	Dr. Oetker® vanilla container – Sessions 5 and 9.
	Wood	Wood chips (obtained from carpentry shops) – Session 6.
	Plastic	Plastic bottle with water inside (left in the sun before use) – Session 8.
Aromatic	Clove	Small packet of whole cloves (Arisco® brand) – Session 2.
	Cinnamon	Small packet of cinnamon sticks (Arisco® brand) – Session 3.
	Lemongrass	Box of lemongrass tea (Leão® brand) – Session 4.

	Instant and ground coffee	Small container of instant and ground coffee (Pilão® brand) – Section 5.
	Chocolate bars and powder	Small container of Nescau powder (Nestlé®) – Session 6.
	Garlic	Jar of crushed garlic in brine (Arisco® brand) – Section 7.
	Onion	Fresh onion stem (actual product) – Session 8.
	Oregano	Packet of dried oregano (Kitano® brand) – Section 9.
	Paçoca (peanut candy)	Small packet of "Paçoquita" candies (Santa Helena® brand) – Section 10.
	Coriander	Bunch of fresh cilantro (real product) – Session 11.
	Cumin	Packet of ground cumin (Kitano® brand) – Section 11.
Fruity	Orange	Natural fruit and orange essence container (Arcolor® brand) – Session 2.
	Banana	Natural Fruit – Session 3.
	Passion fruit	Natural fruit and passion fruit essence container (Arcolor® brand) – Session 4.
	Pineapple	Cake and pineapple essence container (Arcolor® brand) – Session 5.
	Grapes and strawberries	Natural grapes and strawberry essence container (Arcolor® brand) – Session 6.
	Apple	Natural Fruit – Session 7.
	Tangerine	Natural Fruit – Session 8.
	Mango	Natural Fruit – Session 9.
	Lemon	Natural Fruit – Session 10.
	Guava and kiwi	Natural Fruit – Session 11.

Source: Authors.

Strategy 1: Through video, illustration, and oral presentation, the olfactory function and etiological factors of olfactory disorders were explained. The MedSmell® kit for daily home-based olfactory training was provided, together with detailed instructions for its use. Home olfactory training and nasal hygiene (nasal irrigation with 0.9% sodium chloride saline solution, using a 20mL needleless syringe and applying the solution to each nostril to the maximum extent allowed by the syringe) were

performed daily (at least three times per day). Training and hygiene monitoring sheets were completed for documentation purposes.

Strategies 2-11: Odors were presented approximately 2 cm from the patient's nose, first to one nostril (with the contralateral nostril occluded using the index finger), then to the other, and finally in both nostrils simultaneously. Initially, stimuli were provided with a visual cue and, if possible, with an associated gustatory cue, followed by presentation without a visual cue. A 30-second interval was maintained between stimuli. The Nasal Airflow-Inducing Maneuver (NAIM) technique was taught and performed during the sessions (characterized as a "prolonged yawn" with simultaneous retraction movement of the mandible, floor of the mouth, tongue base, and palate muscles, always with the lips closed) to stimulate retronasal olfaction. In addition to the kit, during each session patients were instructed to practice with the stimuli addressed in that session (a set of four primary odors). During the stimulus application, the patient was asked to establish an association (whenever possible), with an affective memory (e. g., apple and cinnamon cake baked by a family member at gatherings, or a moment when they received a bouquet). The outcomes of correct and incorrect responses were documented on separate forms.

4) Reassess olfactory function.

Number of sessions: 01.

Content: Knowledge of changes in the patient's history and clinical profile regarding orofacial motor skills.

Resources: Connecticut test kit – MedSmell®.

Strategy: Oral interview conducted using the same protocols applied at the beginning of the study. Accordingly, tests were reapplied to assess olfaction with the aforementioned instrument. It should be emphasized that neither the initial

assessment nor the reassessment was performed by the therapist, in order to minimize analysis bias.