PIAHO: A TOOL TO PREVENT BAD ORAL HABITS OCCURRENCE (PROTOCOL OF APPROPRIATE INCLUSION OF ORAL HABITS)

PIAHO: Una herramienta para la prevención de hábitos orales deletéreos (Protocolo de Incorporación Apropiada de Hábitos Orales)

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ABSTRACT

Purpose: to present a tool to prevent bad oral habits ocurrance, this protocol is called PIAHO. **Methods:** comparing the diagnoses obtained by PeNaF subjective test with nasal resistance diagnoses obtained by the objective test of rhinomanometry. It was explored the relationships between the incorporation of consistencies, tools and choice of positions during feeding and swallowing different types. Based on both, the results obtained and published research in Chilean population; as in the international literature review. **Results:** a new strategy and guidelines for a early inclusion of consistencies and feeding tools, also focus in a good nasal hygiene. **Conclusion:** to contribute to the prevention of orofacial myofunctional disorders and avoiding oral bad habits occurrence.

KEYWORDS: Oral Medicine; Nasal Obstruction; Myofunctional Therapy; Speech Language and Hearing Sciences

INTRODUCTION

At present, in Chile there is no option for the speech-language pathologists to study a specialization in Orofacial Myology. Therefore the applicants must study abroad and thus we can say that OM is a "developing" discipline in Chile, which is also the term used to describe the general economic profile of our country.

The speech-language pathologists trained in Orofacial Myology attend generally patients referred by dentist, physicians and pre-school teachers. The dental specialties with more referral cases to the OM speech-language therapist are the orthodontists and the dento-maxillary orthopedists. The most common referral causes are pathological signs in the swallowing physiology, mainly associated with structural alterations.

Therefore, it is a challenge for the OM specialist to treat these patients in *"in-formed"* multidisciplinary work teams to give a solution to the referred case. However, the real challenge of the Specialty is to give a multidisciplinary solution to the presence of the aforesaid disorders through PREVENTION procedures of the concomitant factors.

Among them are the early detection and maintenance of the upper airways[1] permeable, as well as the diet characteristics influencing the persistence of the child swallowing patterns[2].

The Orofacial myofunctional disorders include swallowing, breathing, chewing and rest alterations together with the presence of bad oral habits or harmful habits. Consequently, it is not surprising that the main objective of this article is the prevention of bad oral habits through the application of the Protocol of Appropriate Inclusion of Oral Habits.

METHODS

This descriptive study was approved by the Ethics Committee of the School of Speech Therapy of the Universidad de Chile (04/2006).

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Conflict of interest: non-existent

The Protocol of Appropriate Inclusion of Oral Habits (PIAHO) was based on both a theoretical and analytical revision of the international literature, using Pubmed to obtain the records presented in periodic publications, and on the results of researches developed in our country. The databases, where the national results were collected from, are listed below.

Regarding the nasal permeability item, the efficiency to detect the nasal obstruction through the simple PeNaF clinical test was compared with the results of the rhinomanometry[1]. For that, it is necessary to describe in detail the following descriptors: the result of the obstruction test is (+) if the patient cannot maintain 6 nasal cycles. Whereas, it is (-) if the patient is able to complete 6 nasal respiratory cycles.

For the item of early detection of the structural alteration in phonoarticulatory organs and for the item of early inclusion of consistencies, postures and food utensils, we used the evidence obtained in the last 5 years of research regarding the factors delaying the apparition of the adult swallowing. The 2008-2012 database of Prof. Villanueva was used, from the line of investigation: School of Speech Therapy, Universidad de Chile. "Evolution of the swallowing in Chilean children". So, 180 cases of children sorted in 3 groups: 2 to 4.11 years, 5 to 8.11 years and 9 to 12 years of age. They were sorted by age, gender and evolution state of the dentition. Then, a food routine survey was filled, including data of consistencies, postures and utensils used. Finally, each child was clinically, extra and intra-orally assessed. For every procedure, the individuals and their parents had to sign an informed consent[2].

These studies permitted to detect the presence of a child swallowing pattern at a high rate in school children aged between 5 and 8 years. The low incidence of mature pattern –adult or typical – in these children was associated with the presence of dentomaxillary anomalies. However, in the group with normal occlusion, the incidence of the child swallowing pattern –somatic or atypical – was also significantly higher. So, we proved that the difference between these children and those with normal occlusion + adult swallowing lied in the appropriate inclusion of utensils, consistencies and postures during the feeding and also in the maintenance of the nasal airways permeable, in other words, the lacking of bad oral habits for these children[2].

The assessment guidelines, the tests and procedures (treatment) are based on national evidence developed in the last 15 years of clinic experience, teaching and research. The presentation of this protocol to the scientific community intends to give a simple tool for the training of parents, teachers and health care professionals. For this, the same principle of diffusion to the community and the success of the plans for early intervention were applied. In the future, this will allow professionals, parents and patients to be *in-formed* and thus it will contribute to the oral health of our patients as well as to the decrease of the incidence of orofacial dysfunctions.

RESULTS

As this is an intervention protocol, it is intended for the professionals who know the anatomo-physiological and evolutional basis required for its efficient and effective administration. In spite of this, many activities of the protocol can be carried out by the parents of the child, because of its simple nature and recommended domestic materials.

Protocol of Appropriate Inclusion of Oral Habits (PIAHO)

This protocol consists basically of three items to consider:

1. Preservation of hygiene and nasal permeability
2. Early detection of structural alteration in phono-articulatory organs (OFA)
3. Early inclusion of consistencies, postures and food utensils

PROTOCOL OF ADEQUATE INCLUSION OF ORAL HABITS (PIAHO): Record Sheet

1. NASAL HYGIENE AND NASAL PERMEABILITY CONSERVATION

1.1 Detection of functional nasal permeability

	right nostril	left nostril	assessment date
PeNaF	( )	( )	
PeNaF	( )	( )	

Referred to ENT if the result is (+) Assessment Date: Diagnosis/Procedure:

1.2 Nasal Hygiene teaching

	present	absent	assessment date
Air cycle management: mouth-nose	( )	( )	
	( )	( )	
parents : use of one hand	( )	( )	
	( )	( )	
child: use of both hands	( )	( )	
	( )	( )	

2.EARLY DETECTION OF STRUCTURAL ALTERATION IN PHONOARTICULATORY ORGANS

	present	absent
Obstructions in the airway	( )	( )
enlarged tonsils	( )	( )
nasal bridge deviation	( )	( )
enlarged nasal turbinates	( )	( )
Mechanical or structural impairments		
short sublingual frenulum	( )	( )
craniofacial malformations	( )	( )
dento-maxillary anomalies	( )	( )

3. EARLY INCLUSION OF CONSISTENCIES, POSTURE AND FOOD UTENSILS

Stage	consistencies	postures	utensils	movement
0 - 4	liquid	face-up semi- seated	mother breast bottle	anteroposterior lingual
4 to 6 months	liquid	semi-seated	cup	oral games
6 to 10 months	mashed	sitting in a high chair with support	spoon	vertical lingual/vertical labial
10 to 12 months	chopped	sitting in a high chair without support	glass by the feeder	labial backwards
12 to 18 months	chopped	family chair with support	blunt fork	wrist action when the child eats alone
18 to 24 months	chopped or whole	family chair without support	glass	lingual elevation

Figure 1 – Protocol

1. Preservation of hygiene and nasal permeability

The anatomo-functional characteristics of a full-term newborn include all the required elements for nasal breathing to be the least energy-consuming mechanism, even during breastfeeding (Figure 2).

Figure 2 – During breastfeeding, the minor keeps the nasal breathing

It is important to remember that at birth the child presents a small and retracted mandible, an accumulation of fat in the cheeks that permit a better sucking and their tongue takes up the entire oral cavity. As a posterior limit, the veil of the palate touches the epiglottis; the hyoid bone and the larynx are high in the neck, which favors an efficient system of defense of the airway, considering that at this stage there is still a poor coordination of the glottic closure during swallowing[3,4].

For these reasons, the PIAHO protocol brings up the two following items to fulfill the objective of hygiene preservation and nasal permeability.

1.1 Detection of functional nasal permeability: the professional must carry out the PeNaF test (Functional Nasal Permeability). This is a semi-objective clinical exam, quick and easy to apply, which shows the functional nasal permeability, independent for each nostril. Its results were compared with those obtained through the objective rhinomanometry exam, presenting a positive correlation and coincidence higher than 94%[1].

For this test, the speech-language pathologist obstructs gently with the thumb the right nostril of the subject, placed in postural position of the mandible (Figure 3). Then the patient is asked to inhale and exhale 6 times through the left nostril. After, the same procedure is applied with the other nostril. The result of the exam is negative (-) when the patient keeps the nasal breathing during 6 inhalations and positive (+) if the patient is not able to keep the nasal breathing during 6 inhalations and requires to breathe orally to continue the inhalations.

Figure 3 – Position of the examiner during PeNaF. The nostril is obstructed by the thumb of the examiner while the patient accomplishes 6 respiratory cycles through the other nostril

The result of the PeNaF test is recorded in the protocol and the speech-language pathologist continues with the application of the PIAHO. If the results obtained are positive, it is recommended to repeat the test after 2 weeks during which the point 1.2 of the PIAHO, will be applied. If the result persists, the patient must be referred to an otorhinolaryngologist to determine the cause of the nasal obstruction.

It is important to note that the results of the PeNaF are also related to the protocol's item 2, as many causes of obstruction can be detected when applying the assessment guideline of the phonoarticulatory organs.

1.2 Nasal Hygiene teaching: as described before, many development skills (such as sphincter control) and habits (such as teeth brushing) must be stimulated since the early age and are of common

general knowledge. Nevertheless, the proper nasal hygiene of the children by the parents at first, and then by the children themselves since the age of 6, is clearly a concept little known by the community.

For all of the above reasons, we propose the teaching of a correct nasal hygiene, according to the age of the child. For this, the bases of the nasal anatomy are outlined to the child and his/her parents, to inform that intranasal pressure must be produced by the permanent obstruction of one nostril, to be able to blow strongly through the other nostril and then alternate.

For both parents and minors, it is necessary to emphasize on the importance of a deep inhalation. And, only because the nose is temporally and partially obstructed, this inhalation must be through the mouth.

In practice, we must make sure that the air cycle: mouth – nose works properly !!! Therefore, some children with poor air control require some extra activities to improve their coordination.

Finally the use of one hand, for the parents, and both hands at the same time, for the children, must be practiced. The use of both hands is always recommended in the first stage.

2. Early Detection of Structural Alteration In Phonoarticulatory Organs (OFA)

This item of the protocol is centered on the assessment of the phonoarticulatory organs (OFA). Like every specialist in Orofacial Myology, who has a wide range of assessment guidelines, OFA observation and anthropometric measures applied to the orofacial study [5,6], I have included the OM assessment guideline, to give the general speech-therapists an improvable starting point, and to give the specialists a comparison point with their tools.

See figure 4: file of assessment of Orofacial Myology [7].

This item aims to determine the presence of two concepts that must be detected precociously. *The obstructions in the airway*, possible to detect clinically; such as enlarged tonsils, nasal bridge deviation or enlarged nasal turbinates. And the *mechanical or structural impairments* interfering with the appropriate instauration of oral habits; such as short sublingual frenulum, craniofacial malformations and dento-maxillary anomalies.

If one of the mentioned manifestations is detected, the patients must be timely referred to the respective specialist, and continue with the next item of the PIAHO, incorporating the indications of the treating team.

3. Early Inclusion of Consistencies, Postures and Food Utensils

In our country, the pediatrician generally indicates to the mother the appropriate inclusion of food consistencies, once she visits the professional with her child for the “well-child check-ups”. As for the postures and utensils used for the food, they are normally chosen by the parents following intuition or family advices.

The inclusion of different consistencies and utensils in the food, as well as the recommended position for each stage, are based on evolutionary-physiological principles experienced by the child. In some cases, this permits the incorporation of new tools, whereas in others, it stimulates the development of a motor action, necessary for the step towards the next stage. The swallowing stages are well-known by the professionals of the field, and thus will not be approached here.

0 to 4 months

As previously described, the children are born with a small mouth, completely filled by the tongue. The intraoral stability is given by the presence of fat cushions that permit a better grip to the nipple, guaranteeing an adequate extraction of the milk. The lingual movements are only anteroposterior and are made with the help of the mandible. This movement guarantees the first physiological advance of the mandible, which in turn permits the condylar development and thus the enlargement of the intraoral cavity.

Initially the child puts positive pressure with the mandible and the anterior third of the tongue; and then negative pressure with lingual backing and mandibular descent.

Considering that the minor is still totally dependent of the mother, the recommended position to feed him/her must give the minor the required security sensation. The face-up position is recommended, with the head slightly leaning up and sideward against the maternal breast, or semi-seated at an angle not higher than 45 degrees.

At this stage, the only recommended food utensil is the maternal breast. However, as a result of medical or parent decisions, the minor can be fed by the baby bottle. The chosen bottle must favor the correct position of the child’s head, it must allow the adequate quantity of milk according to the development stage and it must have the appropriate shape to be handled by the feeder.

4 to 6 months

Between 4 and 6 months old, the minors present motor advances that lead to a change in their food. They are able to hold the head, the larynx starts

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INTRA AND EXTRAORAL ASSESSMENT RECORD

PATIENT RECORD

NAME:
DATE OF BIRTH:
AGE:
DATE:
EXAMINER:

ANAMNESIS
Previous dental treatments NO___ YES___ Date_____Cause_____

Tooth extraction or tooth loss NO___YES___Date_____Cause_____

Use of denture:

Upper Maxilla NO___ YES___
Partial prosthesis _____ Total prosthesis _____
Start_____Cause_____

Lower Maxilla NO___ YES ___
Partial prosthesis _____ Total prosthesis _____
Start_____Cause_____

Patient experience with dentures: _____
_____

Existence of dento-maxillary anomalies in the family NO___YES___Specifiy_____

Dental Hygiene Good____ Fair____ Bad ____

Other records:
_____
_____
_____

ANATOMO-FUNCTIONAL OROFACIAL ASSESSMENT:

Extraoral Exam

Facial width _____ Facial height_____ % _____

Upper facial third _____ Middle facial third _____ Lower facial third _____

Facial type: Dolichofacial ____ Mesofacial ____ Brachiofacial ____

Swallow (trago), Subnasal, Chin _____

Facial profile: Straight____ Convex ____ Concave ____

Nose:
Front:
Normal _____ Deviated right _____ Deviated left _____

Profile:
Normal _____ Shape _____

Inferior view:
Normal _____ Greater right _____ Greater left ___

Permeability:
Nasal mirror test:_____

Rosenthal test: Right nostril _____ Left nostril _____

Upper lip:
Size:
Normal____ Long____ Short____ Cleft _____ Operated_____

Frenulum:
Normal____ Short____ Transfixing _____

Functionality:
Functional____ Non functional____

Lower lip:
Size:
Normal____ Everted____

Intraoral Exam

Determine number of teeth in the mouth:_____

Absence of teeth NO___YES___ Specify_____

Maximum oral opening _____

Occlusion and ADM (For each measurement specify if it is right or left).

· Intra-maxillary

o Upper Maxilla	NO	YES	Specify
Agenesis	___	___	_____
Supernumerary	___	___	_____
Rotations	___	___	_____
Diastemas	___	___	_____

o Lower Maxilla	NO	YES	Specify
Agenesis	___	___	_____
Supernumerary	___	___	_____
Rotations	___	___	_____
Diastemas	___	___	_____

· Intermaxillary
o Sagittal direction
Molar relationship:
Neutroclusion (D I)____ Distoclusion (D I)____ Mesioclusion (D I) ____

Incisor relationship:
Normal____ Aumentada (enlarged)____ Vis a Vis ____ Inverted____

o Vertical direction:
Normal____ Vis a Vis ____ Open____ Overbite ____

o Transversal direction:
Normal(D I) ____ Vis a Vis (D I) ____ Crossbite (D I) ____

· If the patient uses prosthesis, evaluate:
o Upper prosthesis : Retention YES_____ NO_____
Support YES _____ NO_____
Indicate the covered zones _____
- Lower prosthesis : Retention YES_____ NO_____
Support YES _____ NO_____
Indicate the covered zones: _____

Tongue:
Size:
Normal____ Enlarged____

Frenulum:
Normal____ Short____

Hard palate:
Shape:
Normal____ High____ Cleft ___ Operated____

Soft palate:
Shape:
Normal____ Cleft ____ Operated____

Uvula:
Shape:
Normal____ Short____ Bifid ____

Mobility in (/a/) phonation:
Appropriate ____ Reduced____ Without mobility____ Diverted____

Tonsils:
Normal____ Enlarged____ Absent____

EVALUATION OF NON-VERBAL FUNCTIONS:

Rest:
Lingual position:
Normal____ Low____ Interdental ____ Anterior thrust ____
Labial closure:
Present ____ Absent ____ With effort____

Breathing:
Type:
Diaphragmatic _____ High costal _____ Mixed _____

Mode:
Nasal _____ Oral _____ Mixed _____

Bad oral habits:

	YES	NO	From	To
Finger sucking				
Nail-biting				
Baby bottle				
Pacifier				
Lip sucking				
Objects sucking				
Others				

Swallowing:

Normal _____ Lip sucking _____
Lingual Interposition _____ Labial Interposition _____

Praxis execution:

Normal (N) Reduced (D) Without mobility (Sm)

Labial Praxis

Protrusion of both lips _____
Distension of both lips _____
Lip deviation to the right corner _____
Lip deviation to the left corner _____
Resonant labial retrusion _____
Lip vibration _____
Cheek swelling _____

Lingual Praxis

Lingual apex goes across upper dental arch _____
Lingual apex goes across lower dental arch _____
Lingual apex goes across the hard palate _____
Lingual attachment _____
Lingual click _____
Voiceless alveolar vibration _____
Voiceless lingual vibration between the lips _____
Extraoral lingual elevation _____
Extraoral lingual descent _____
Lateralization of the lingual apex to the right _____
Lateralization of the lingual apex to the left _____
Lingual apex pushes right cheek _____
Lingual apex pushes left cheek _____
Lingual apex under upper lip _____
Lingual apex under lower lip _____

SPEECH EVALUATION:

Articulation

Phonemes		M	P	B	F	S	T	D	N	L	R	RR	Ñ	CH	Y	J	K	G
POINT OF ARTICULATION	Bilabial																	
	Labiodental																	
	Post Dent Inf.																	
	Post Dent sup.																	
	Alveolar																	
	Palatal																	
	Velar																	
	Comp. Lab. Inf.																	
	Interdental																	
	Retroflex																	
	Omite																	

OBSERVATIONS:

_____
_____
_____

SIGNATURE

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Figure 4 – Orofacial Myology, Assessment Record. Villanueva P., Gómez B. 2001

to descent with the consequent increase of risk of aspiration. The mandible starts to grow downward and forward. This, together with the disappearance of the fat cushions, generates more space for the anteroposterior movement. They can start with the buccal games of the lips and tongue that will favor their own intraoral perception, required for the development of the feeding and speech mechanisms.

The minors are able to seize objects, so the parents must consider changing the shape of the baby bottle, in order to stimulate them to hold it. Since they are 4 and half months old, the children can hold their baby bottle with both hands and after 5 months and a half the parents can help them hold the bottle with one hand. The same principle supports the inclusion of the use of cups with big handles at this stage. The child can seize the cup with both hands but must exercise the hand-mouth coordination as well as the handling of liquids. It is recommended to incorporate the cup at this stage for stimulation, using small quantities of liquid and keeping the baby bottle as the feeding tool.

As the minor is able to hold the head, the mouth changes its orientation from a horizontal to a vertical plan. For this reason, some liquid spills may occur while the minor is fed in a semi-seated position that can reach 90 degrees for both in the feeder's arms and in a rocking chair.

The first routines are developed at this stage and therefore it is necessary to remember that we must establish stable eating patterns, for example feeding the minor in a same, bright place with few distracting elements and ideally by the same feeder.

6 to 10 months

The 6-months stage is marked by the sitting position, which allows the pelvic stability to support the shoulder girdle and this, in turn the head and neck. So, the orofacial region has a better motor control. That is how the tongue begins to move up and down, which, together with a better lips control, makes more efficient the nipple sucking and favors the appearance of phonemes[8].

Due to the incipient pelvic control, it is suggested to change the position to sitting on a high chair, with the support of cushions or towels around the child. This is to give independence to the posture, based on an external or positional stability. This external support must be progressively retired until the postural or internal stability is obtained at 10 months, which permits to use a high chair without support.

At 6 months of age, it is recommended to incorporate the first baby food. The physiological characteristics of the minor favor this change. The dentition appears, together with an excessive salivation. When the food is brought closer, the mandible is open for a prolonged period and the tongue is motionless. Ideally, the food must be given in a teaspoon, with a flat bowl at first.

In the following months, the child acquires skills that facilitate the transition to the adult deglutition, as long as the consistency of the food and the incorporation of utensils, adapted to the age of the child, is done progressively. (Figure 5). At 7 months of age, the child is able to tear the food. At 9 months the upper lip can move downward to drag the food in the spoon an when swallowing, the lips can close with force [9,10]. This labial movement is expressed clearly with the appearance of babbling and its characteristic bilabial sounds.

Figure 5 – Since 6 months of age, the use of spoons with bowl depth is necessary, to stimulate the dragging movement of the upper lip

To assure the vertical movement of the upper lip, the spoon must have the appropriate size in the mouth of the infant and have a bowl depth, for the lip to drag the food. Besides, its shape, with a long handle, must facilitate the use by the feeder. The bowl must resist the child's bites, since the mandibular control at this stage is external and is made through the seizure of objects.

Lateral lingual movements are observed. Together with protrusive movements, they permit a better handle of the food bolus in mouth. If the child already uses a cup, he/she can move the liquid laterally. The cup must favor an appropriate position of the head, have a small rim, resistant to the constant bites of the mandible, necessary for its external stability.

This stage has to be considered as an exploration stage and therefore the child must investigate by him/herself. The child usually plays with the food, discovers the consistencies, temperature and tries to help in his/her feeding with the hands. It is also recommended to have a second spoon, lighter, with a thicker plastic handle for the child to play eating. The former favors the hand-mouth coordination, necessary in the following stages to achieve the self-feeding by the child.

10 to 12 months

Between 10 and 12 months of age, the chewing begins [10] because at this stage the minor must receive entire or partially ground food to help the development of the mastication. The smooth baby food must be replaced by lumpy purée, ideally not homogeneous. It is recommended to grind the soft components (rice, potatoes, pasta), to blend the other components and to present both consistencies in one plate.

The minor sits independently from the feeder, in a high chair without support, as he/she has the required postural stability. The child can drink in a cup or glass, with occasional liquid loss as the mandibular stability is still external.

The tongue presents anteroposterior and lateral movements which, together with the vertical and diagonal movements of the mandible, permit the lateralization of the bolus in the mouth. It is recommended to give entire food (cookies, bread), so that the child exercises vertical cutting movements of the mandible.

It is possible to observe that the upper lip starts moving backwards at this stage when the spoon leaves the mouth, allowing an efficient seal and avoiding the escape of food.

12 to 18 months

At 12 mouths of age, the minor starts walking, the first words come out as well as the first temporary molars. This assures the first physiological lift and the consequent increase of the intraoral space. An occasional elevation of the tongue is observed. Until 15 months, there is not enough neurological maturation for the tip of the tongue to rise and to be placed in the anterior part of the palate. (Figure 6 and 7).

Figure 6 – Using a glass with small quantities of liquid since 6 months of age. The minor can hold the glass without help since one and half years of age.

Figure 7 – Prefer bottles over straws, as they favor the lingual elevation

The inclusion of minced food (except meat) favors the chewing, made with the help of the cheeks and the active participation of the corners of the mouth. The child can select the part of the bolus ready to be swallowed and can continue to chew the remaining bolus.

The lingual protrusion can still be observed inside the cup. This favors the stability, required for the swallowing of the liquid.

At 15 months of age the child can clean his/her lower lip by dragging the upper incisors.

The cut of entire food (cookies for example) goes with backward movements of the head or the body.

The child continues with the exploration of food, now throwing it to the ground, to the clothes or the head, and facing also the reaction of the adults. The child eats alone, using wrist movements sporadically.

18 to 24 months

If the child still uses the baby bottle, at 18 months he/she can grab and lift it and drink alone. He/She is very skillful at eating with the fingers and tries with other adult utensils (fork). It is recommended to let the child drink all the liquids in glass, cup or narrow-mouthed bottles.

At 18 months of age, they can swallow with a soft closing of the lips and the tip of the tongue raised. This elevation of the lingual tip will not happen while the child is still fed with baby bottle, straw or sippy cups, which are placed at the tip of the tongue and prevent it from going up. The inclusion of the glass (without accessories) must come early to guarantee the accomplishment of the next stage. The child must be progressively included in the family routine, which means he/she must sit on an adult chair with booster or support. Even if the hours are different, at least one of the meals should be together with the family and its social routine.

2 years and more

At 24 months of age, most of the children change the protrusion for the elevation of the tongue, independently of the mandible, with a soft closing of the lips, preventing the leak of saliva or food [8,11,12]. In this way, the labio-lingual position is established during swallowing, which together with the labio-lingual position at rest favors the growth and development of the craniofacial structures[13].

With the eruption of the second molar, the temporary dentition is complete and the second physiological lift occurs, with the consequent increase of the intraoral space.

Provided that the appropriate utensils, consistencies and postures have been incorporated, the minor has an adult-like eating mechanism.

The opening of the mouth is in accordance with the proximity and seizure of the food. The mandibular stability is given by the temporomandibular articulations. So, the child is capable of holding a glass, cup or bottle by gently using the lips without bites in its rim.

The tearing is made by the incisors or the canine zone, without associated movements of head or body. During the chewing, there are rotating mandibular movements and the child is able to move the bolus from one side to the other. He/She can adjust the forces and the movements to the texture of the food, and clean the vestibules or look for rests of food out of the mouth with the tongue as well.

The minor shares the menu, the consistency, the utensils and the routines with the family (Figure 8)

Figure 8 – The minor must share utensils and food with the family

DISCUSSION

Until one decade ago, it was frequent in our country to hear the question "what is speech-language therapy?" At present, the dissemination at the community level, together with the wonderful clinical achievement of our professionals, has not only incorporated this profession in the collective consciousness but has also placed it among the most demanded university careers of the students.

Therefore, for more than five years now, I have put in a lot of effort to change the pattern of "evaluation and treatment of bad oral habits" by programs of "prevention and early stimulation of appropriate oral habits". In the "*regulations of the prevention and interception of dento-maxillary anomalies*" published by the Chilean Ministry of Health, exclusive

breastfeeding for the first 6 months, the correct lingual position at rest, phonemes and swallowing[14], are described as preventive patterns. Likewise, it has been proved that the longer the breastfeeding period, the smaller the presence of bad oral habits [15].

For the previous reasons, we, health professionals working with minors and their mothers must promote themes that are not of common general knowledge, as the evolution of the feeding and the speech, and the appropriate inclusion of oral habits. It has been proved that mothers with higher schooling offer more commonly the feeding bottle than mothers with elementary schooling, for comfort and time reasons and affecting the good habits. The same study shows that mothers working in the health area do not present differences in the use of feeding bottle when compared with mothers working in other areas[16]. Thus, the use of the Protocol of Appropriate Inclusion of Oral Habits intends to contribute to the prevention of organic, functional and sometimes psycho-emotional alterations, associated with bad oral habits. The idea is to present it to the community of speech-language therapists for its use in clinics, schools, kindergartens and mothers associations. Working on the "non-establishment" of bad oral habits is an unprecedented concept and therefore this protocol is unpublished literature. However, it requires a second stage for the validation of its use by the different groups of professionals, parents or supervisors.

In the meantime, the efficiency of the treatment of the breathing, chewing and swallowing dysfunctions requires the systematic and coordinated approach of the orthodontist and the speech therapist, specialist in Orofacial Myology. Both specialists have a complete and professional training in evolutionary physiology and physiopathology of the related oral functions. Then, it is getting more necessary to know the work of the other professionals involved and to understand scientifically the most favorable interrelations for the rehabilitation of our patients.

CONCLUSIONS

This article presents the Protocol of Appropriate Inclusion of Oral Habits as a tool that contributes to the prevention of myofunctional alterations and that prevents the introduction of bad oral habits.

RESUMEN

Objetivo: presentar una herramienta de prevención de malos hábitos orales, llamado PIAHO. **Métodos:** se comparan los diagnósticos obtenidos de la prueba subjetiva PeNaF con los diagnósticos de resistencia nasal obtenidos por la prueba objetiva de rinomanometria. Se estudian las relaciones entre la incorporación de consistencias, herramientas y elección de posturas durante la alimentación y los diferentes tipos de deglución. Basados tanto en, los resultados obtenidos y publicados de investigaciones realizadas en población chilena; como enla revisión de la literatura internacional. **Resultados:** una nueva estrategia y plan de acción para una oportuna incorporación de consistencias y utensilios de alimentación, también enfocado en una correcta higiene nasal. **Conclusión:** Contribuir a la prevención de alteraciones miofuncionales, y evitar la instauración de malos hábitos orales.

PALABRAS CLAVES: Medicina Oral; Obstrucción Nasal; Terapia Miofuncional, Fonoaudiología

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Received on: October 30, 2012
Accepted on: July 11, 2013

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