

Analysis of chewing and swallowing in cerebral palsy with a visual impairment: study of case

Análise da mastigação e deglutição na paralisia cerebral com deficiência visual: estudo de caso

Análisis de la masticación y la deglución en la parálisis cerebral con discapacidad visual: un estudio de caso

Wanessa Moura Costa* 

Gerlane Karla Bezerra Oliveira Nascimento** 

Abstract

Introduction: Cerebral Palsy can cause changes in any of the phases of swallowing, causing neurogenic dysphagia. However, neurological disorder and associated visual impairment is a poorly studied topic. The child with the absence of the visual channel, generally has little idea of the structure of the space and even of its body and organizational structure. It is known that Cerebral Palsy has delays in chewing and swallowing patterns, but it is questioned whether visual impairment can interfere or not in this performance. **Objective:** The purpose of this study was to analyze chewing functions and swallowing time in children with cerebral palsy and associated visual impairment. **Method:** This research is exploratory and descriptive in nature, developed through a clinical case study of a child with cerebral palsy and associated visual impairment. Three food consistencies were examined: liquid (juice), pasty (yogurt) and solid (bread), with the time spent swallowing each of them during the normal feeding time being timed. **Results:** the results showed that the child with Cerebral Palsy and Visually Impaired presents difficulties in chewing function and takes more time to swallow in solid and liquid consistencies. **Conclusion:** Visual impairment associated with cerebral palsy may accentuate the difficulty in chewing and swallowing functions.

Keywords: Cerebral Palsy; Vision disorders; Chewing; Swallowing Disorder

* Faculdade Redentor Instituto de Desenvolvimento Educacional, Recife, Pernambuco, Brazil.

** Universidade Federal de Sergipe, Lagarto, Brazil.

Authors's contributions:

WMC: Study design, data collection, analysis and interpretation and review.

GKBON: Contributed to the study design, methodology and guidance.

Correspondence email address: Wanessa Moura Costa - wanessafmouracosta@gmail.com

Received: 07/24/2020

Accepted: 23/11/2020

Resumo

Introdução: A Paralisia Cerebral pode acarretar alterações em qualquer uma das fases da deglutição, causando uma disfagia neurogênica. No entanto, desordem neurológica e deficiência visual associada é um tema pouco estudado. A criança com a ausência do canal visual, geralmente tem pouca noção na estrutura do espaço e até mesmo em relação à sua estrutura corporal e organizacional. É sabido que a Paralisia Cerebral discorre atrasos no padrão mastigatório e da deglutição, mas questiona-se se a deficiência visual pode interferir ou não neste desempenho. **Objetivo:** O propósito deste estudo foi analisar as funções de mastigação e o tempo de deglutição em criança com paralisia cerebral e deficiência visual associada. **Método:** Esta pesquisa é de natureza exploratória e descritiva, desenvolvida por meio de um estudo de caso clínico de uma criança com paralisia cerebral e deficiência visual associada. Três consistências de alimento foram examinadas: líquido (suco), pastosa (iogurte) e sólido (pão), sendo cronometrado o tempo gasto para deglutir cada uma delas, durante o horário normal de alimentação. **Resultados:** os resultados mostraram que a criança com Paralisia Cerebral e Deficiência Visual apresenta dificuldades na função de mastigação e leva mais tempo para deglutir nas consistências sólida e líquida. **Conclusão:** A deficiência visual associada à paralisia cerebral pode acentuar na dificuldade das funções de mastigação e deglutição.

Palavras-chave: Paralisia Cerebral; Deficiência Visual; Mastigação; Transtornos da deglutição

Resumen

Introducción: La parálisis cerebral puede provocar cambios en cualquiera de las fases de la deglución, provocando disfagia neurogénica. Sin embargo, el trastorno neurológico y la discapacidad visual asociada es un tema poco estudiado. El niño con ausencia del canal visual, generalmente tiene poca idea de la estructura del espacio e incluso de su cuerpo y estructura organizativa. Se sabe que la parálisis cerebral tiene retrasos en los patrones de masticación y deglución, pero se cuestiona si la discapacidad visual puede interferir o no en este desempeño. **Objetivo:** El propósito de este estudio fue analizar las funciones de masticación y el tiempo de deglución en niños con parálisis cerebral y discapacidad visual asociada. **Método:** Esta investigación es de naturaleza exploratoria y descriptiva, desarrollada a través de un estudio de caso clínico de un niño con parálisis cerebral y discapacidad visual asociada. Se examinaron tres consistencias de alimentos: líquido (jugo), pastoso (yogur) y sólido (pan), y se pasó el tiempo de deglución de cada uno de ellos durante el tiempo normal de alimentación. **Resultados:** los resultados mostraron que el niño con parálisis cerebral y deficiencia visual tiene dificultades en la función de masticación y toma más tiempo para tragar en forma sólida y líquida. **Conclusión:** la discapacidad visual asociada con la parálisis cerebral puede acentuar la dificultad en las funciones de masticación y deglución.

Palabras clave: Parálisis cerebral; Trastornos de la vista; Masticación; Trastorno de Deglución.

Introduction

Cerebral palsy (CP), also called chronic non-progressive encephalopathy, is the most frequent cause of motor disability in childhood and refers to a heterogeneous group of conditions that develops with central motor dysfunction, affecting tone, posture and movements. It results from a permanent injury to the developing brain and presents itself in a variable way in terms of anatomical distribution of the injury, severity of motor involvement and associated clinical symptoms¹

CP is an alteration resulting from a non-evolutionary lesion of the Central Nervous System

(CNS), in the early period of brain development, which leads to a persistent movement and posture disorder, which may have changes in its clinical manifestations over time^{1,2}.

Regional structural malformations with motor deficits such as agenesis and schizencephalias, hemimegalencephalias, pachygyrias, polygyri, lissencephalias and other migration and embryogenesis defects are common etiologies for cerebral palsy and can occur in children who do not have a history of gestational or perinatal risk. These conditions are not evident and will only be diagnosed by appropriate imaging exams, usually MRI².

Cerebral Palsy can be classified by two criteria: type of motor dysfunction present (resulting clinical picture) that includes the types of tone changes: athetoid, chorea, dystonic, non-toxic, mixed and spastic; and topography of the lesion, that is, location of the affected body parts, which includes quadriplegia or paraplegia, monoplegia, diplegia and hemiplegia^{3,4}.

The spastic child, for example, shows permanent hypertonia. If the spasticity is severe, the child is more or less fixed in some typical postures due to the severe degrees of co-contraction of the parties involved, especially around the proximal joints. Spasticity is of negligible distribution and typical changes, due to tonic reflex activity³.

In addition to the difficulty in movement, children with CP often have other conditions that can impede their development and learning. This is due to the fact that the same brain damage that causes muscle tone problems or involuntary movements can also cause problems in other areas. Brain damage can cause mental, visual, auditory, language and / or behavioral changes with intermittent active movements. Brain injuries vary according to the affected area, the time of injury and its intensity⁴.

People may have difficulties in motor actions such as eating and swallowing, hindering hydration and adequate nutrition, which therefore compromises their nutritional status⁵.

Eating difficulties range from neurological immaturity to the interference of the mood and the preparation of their caregivers. Among the most encountered difficulties are dysphagia for solids and liquids, regurgitation and vomiting, prolonged time to offer the meal and constipation. These manifestations are considered risk factors for eating disorders: due to motor changes in oropharyngeal dynamics; the lack of understanding of the food context and difficulty in voluntary motor action in the oral phase, which may alter the sequencing of the pharyngeal phase; and the severity of tracheal aspiration,^{5,6}

Regarding visual impairment, a comparative study between sighted and visually impaired children concluded that there are differences between them, starting with the mother who interacts less with the visually impaired child, bringing disharmony and behavioral asynchrony to the child⁷.

The vision provides an attractive world to the human being in addition to infinity of shapes, colors, situations and experiences. Since antiquity,

Socrates, in Phaedo, describes visual impairment as the loss of the mind's eye⁸. By not being able to make use of one of the most important receiving channels for human life, children with visual impairments in any degree, compromise the person's ability to orient themselves and to move in space safely and independently and in the same way in relation to the activity of daily living⁹.

For some authors, the limitation in orientation and mobility can be considered the most serious effect of visual impairment. The family is also the basis of human development, it is the task of offering the visually impaired the conditions for their growth as an individual, making them capable of being happy and productive, within their reality, their potential and their potential limits^{10,11}.

The relationship between vision and child development has the most important evolutionary period in the first eighteen months of life, which expands until around the age of six and matures during the first decade of life. This process, however, influences and is influenced by the relationship between neurological maturity, the development of visual functions, age and life experiences⁷. A maturation index of the visual system present around 6 months of life, when the child is able to make the visual fixation of the object combined with head rotation, will significantly influence mandibular development, mandibular lateralization and masticatory function⁵.

Visual impairment is not directly related to the manner, often considered inappropriate, as blind people tend to eat. However, children with CP who, for the most part, have limits in motor actions resulting from brain disorder, care should be taken with global care and especially in relation to eating posture when these children also have visual impairment.

In view of this scenario, the present study intended to investigate for the understanding of speech therapy performance in the face of visual impairment if the child, due to the lack of a vision channel, can have greater difficulties during chewing and swallowing.

Method

This work was exploratory and descriptive of a clinical case approved by the Research Ethics Committee of the responsible institution under nº 1591044. The exploratory methodology is justified

by the scarcity of theoretical framework in the area's literature, making it difficult to formulate precise and operable hypotheses. The descriptive study covers the identification, registration and analysis of chewing and swallowing and different perceptual poles. The research was enlightened to the parents of the child involved (and their parents), who, after consent, signed the Free and Informed Consent Form. The study was conducted at a non-profit organization, which aims to offer multiprofessional therapeutic treatment, totally free of charge, to children of low socioeconomic level and with neuropsychomotor disabilities such as: cerebral palsy, myelomeningocele, Down syndrome, West and others. Currently, the Institution serves, on a monthly basis, around 130 children aged 0 to 12 years.

Clinical case – description

Child aged 2 years and 8 months, female, had speech therapy, occupational therapy and physiotherapy for 1 year (started in June 2011), diagnosed with Spastic Tetraplegic Cerebral Palsy and low vision (diagnosis through the Altino Ventura Foundation).

Therapy sessions were held once a week, lasting 45 minutes. The family received instructions to practice facilitating techniques in relation to chewing and swallowing, to be performed at home.

The rehabilitation was performed in a specific way of swallowing, involving training of orofacial motricity, administration of the diet and specific orientations related to posture, type of food, consistency, quantity, rhythm, utensils and specific maneuvers.

The collection was performed in the oral motor assessment protocol developed by Vivone et al¹².

The child was positioned comfortably in a stable posture, but with additional help, a chair adapted for cervical control. Sometimes it was fed by the parents, sometimes by the therapist.

In the structural evaluation, spontaneous movements were observed: Mobility: inefficient or efficient in the presence of hypertonia or hypotonia; Sensitivity: absence or presence in the response to the stimulus or without reaction to touch; Specific Sensitivity: absence or presence in taste recognition; Oral reflexes: absence or presence (hypo or hyperactive); Postural reflexes: absence or presence of trunk control.

In the functional evaluation, the aspects were classified as absence or presence:

Oral phase - Capture of the cake: captures all, or part of the utensil's food, accurately and without escape (presence); Without food intake (absence); Lip sealing: lip sealing with the cake remaining in the oral cavity (presence); Without lip seal (absence). Cake preparation: food in the mouth, it is possible to check the action of the suprahyoid muscles, lateralization and rotation of the jaw during chewing; No external preparation movement leading to prolonged stasis. Sialorrhea: absence of saliva control; Swallow the glass; Remove the food from the spoon; preparation of the bolus and conduction of the bolus.

Pharyngeal Phase - Laryngeal mobility: laryngeal elevation (presence); No laryngeal elevation movement (absence); Nasal reflux: evidence or not of reflux of food into the nasal cavity; Clinical signs of aspiration: presence or absence of clinical signs of aspiration - cough, choking, cyanosis, drowsiness, fatigue or dyspnoea.

The material for application of the protocol was agreed as: 10 ml of juice offered in the glass, 10 g of homogeneous strawberry yogurt offered in the spoon and 10 grams of bread offered in small pieces, which were ingested in their entirety and in the order presented.

A stopwatch record with measurements in minutes and seconds was also used to measure swallowing times for each type of food. In addition, in order for sampling to become more reliable, the collection was also recorded through video recording (Material used for filming on a tripod: Sony W80 camera - video mode: 640x480; audio: sampling rate from 32 kHz to 16 bits). Maximum duration of 20 minutes to avoid fatigue and / or refusal to eat.

The present research presented the descriptive observational design in one year and a half.

Results

According to the literature on spastic cerebral palsy and medical diagnosis, it was observed that the participant with Cerebral Palsy and Visual Impairment (DV) has hypertonia in all extension.

According to Charts 1, 2 and 3, several aspects were analyzed:

Chart 1. Results of the participant's speech-language assessment (Protocol adapted by Vivone, et al, 2007)

STRUCTURAL EVALUATION	CHILD CP VI
Mobility (hypertonia)	Present
Sensitivity	Present
Specific Sensitivity	Absent

STRUCTURAL EVALUATION	CHILD CP VI
ORAL PHASE	
Bite reflex	Absent
Capture of the Food Cake	Absent
Lip Sealing	Absent
Sialorrhea	Present
Swallow the Cup	Absent
Remove from Spoon	Absent
Preparing the Food Cake	Absent
Driving the Food Cake	Absent

STRUCTURAL EVALUATION	CHILD CP VI
PHARMACEUTICAL PHASE	
Laryngeal Mobility	Absent
Nasal reflux	Absent
Clinical Signs of Aspiration (coughing and choking)	Present

Caption: * CP VI = child with Cerebral Palsy and Visual Impairment.

Regarding sensitivity, the child showed reactions to touch when stimulated and often reacted with scares and cries, often making rehabilitation more difficult. This fact is interesting because observing the other children in this institution with CP and vision, they did not present these reactions during speech therapy.

According to Tables 2 and 3, in relation to the oral phase, in liquid, pasty and solid consistencies, the child had great difficulty swallowing the liquid, especially when it presented residues of the fruit, when it was not completely liquidized. During the research, significant sialorrhea was also observed, that is, in relation to posture, lip sealing was not present. During the evaluation of signs of aspiration, the presence of inefficient cough was observed during swallowing

The ability to control the lips preventing the escape of the bolus was inefficient in the three food

consistencies. When preparing the food cake, it was visualized in solid consistency because the child presented “kneading” of the food. This lack of oral control characterizes inefficiency in chewing.

Another differential factor in this case study is the ability to swallow from the cup and the ability to remove the food from the spoon, usually present in children with CP and vision, however, in the child with CP and visual impairment he did not show this ability.

In relation to the pharyngeal phase, laryngeal mobility is inefficient.

During the food offering, the time spent swallowing each of the three types of food was recorded, from the introduction of the first portion in the mouth, until its emptying in the last swallowing. The data were also evaluated using video recordings to provide an opportunity to review time several times and measure more accurately.

Chart 2. Material used for evaluation and responses (Protocol adapted by Vivone, et al, 2007)




JUICE		YOGURT	
			
Inefficient in the activity of the orbicularis oris muscle during function		Partial liquid containment	
Decreased mental muscle activity during function		Decreased orbicularis oris muscle activity during function	
Flexed head		Increase of mental muscle activity during the function	
Inefficient sip by sip rhythm		Flexed head	
		Presence of residues in upper lip and commissures	
		Intense movement in the chair	
		Mannerism	

Chart 3. Material used for evaluation and responses (Protocol adapted by Vivone, et al, 2007)

BREAD IN PIECES	
	
CHEWING	DEGLUTITION
Inefficient crushing;	Inefficiency in the activity of the orbicularis oris muscle during function;
Unsystematic lip closure;	Inefficiency in mental muscle activity during function;
Head flexed throughout chewing;	Flexed head;
Presence of food in oral vestibule and upper and lower lips;	Intense movement in the chair;
	Mannerism

The relationship between chewing and swallowing time reveal that the greater the oral motor dysfunction, the greater the time spent to swallow in each of the three food consistencies. Of the children presented by Vivone et. al. children with profoundly impaired oral motor function take 14.2 times longer to swallow liquid foods and 6.4 times more for pasty food than normal children. None of the children with profound oral motor dysfunction swallowed the solid consistency.

Compared to the study by Vivone et.al., the child with cerebral palsy and visual impairment (low vision) in the present study, had 15 times more time to swallow liquid food than normal time, and 14.7 times more time to eat food pasty, because even though the initial time of the offer in

the mouth was timed, the reaction was frightening and crying, demanding then, a lot of conversation, describing all the action, using the resources of hearing, perception and smell to accept the food.

Regarding the solid consistency, it was compared to that of children with severe oral motor dysfunction; it took 4.9 times more time to swallow the solid than the normal time. In the present study, the solid food was the consistency less accepted by the child, and it is not possible to measure the swallowing time.

Discussion

The authors, Moura and Oliveira⁷ consider that young children with visual impairments obtain

information about objects and concepts through touch, smell, hearing and taste, being slower and of a sequential character. Eating becomes a pleasurable or complicating factor if you do not follow the sequence and respect the learning pace of the blind child.

Many studies state that the development of the visually impaired child follows the same sequence of development as the visionary child, only with a change in the rhythm that would be slower^{7,8,13}.

It is considered that the development of a visually impaired child follows a different developmental sequence, in which behaviors are learned in a proper order¹³.

Regarding the oral phase, according to Ribeiro¹⁴, to mitigate sialorrhea, a complementary and very effective method would be through elastic banding (initially developed by Kenzo Kase), helping to improve the control of saliva swallowing in children with cerebral palsy, with reduction of the number of towels used per day and with statistical significance in the scoring of the frequency and severity scales, which can be an important therapeutic resource in the field of Speech Therapy.

Sialorrhea is prevalent in 10 to 38% of individuals with CP. Among the factors responsible for the lack of saliva control, in children with cerebral palsy we may include deficits in oral sensation and perception, inadequate lip sealing and oral sucking, incoordination of swallowing and lack of cervical control.

Lip sealing is of paramount importance for swallowing, because when efficient it maintains the intra-oral pressure that helps, together with the propelling movement of the tongue, to direct the bolus to the pharynx. Thus, when there is inefficiency in the sealing, this pressure mechanism ends up being affected, and, consequently, so does the food transport¹⁵.

Quantitative parameters, such as the time of the bolus at each stage of the process and the time spent on meals can be equally important parameters¹⁶.

Authors^{1,5,6,17} state that the pasty consistency is the most suitable for children with oral motor dysfunction and malnutrition, since it is the easiest to be manipulated and can reduce cough and aspiration, facilitating feeding and child nutrition.

A study carried out on 32 children with spastic tetraparetic CP points out that all of them presented alterations in the oral phase of swallowing and 40% presented tracheal aspiration, with liquid consis-

tency being the most frequently aspirated. When coughing occurs during swallowing, it may be a sign of glottic inefficiency and after swallowing it is indicative of stasis of residues in the larynx^{6,17}.

The results suggest the need for specific monitoring with regard to issues of swallowing and visual impairment. Several studies report the importance of improving the objectives regarding therapeutic maneuvers and the real time spent during meals so that the intervention becomes more effective^{15,16}.

Difficulty swallowing food, liquids or saliva at any stage of the journey from mouth to stomach is called dysphagia. Dysphagia is a symptom that affects or increases the risk of compromising nutritional and water status, general health and a negative impact on quality of life¹⁸.

The treatment of dysphagia is multidisciplinary and involves doctors, speech therapists, nutritionists, nurses, physiotherapists, psychologists and social workers. Each professional has its role in the treatment of oropharyngeal dysphagia. Dysphagia is one of the speech therapist's specialties, therefore, this professional is qualified to perform oropharyngeal swallowing assessment to identify which changes exist and if there is a possibility of safe mouth feeding^{5,6,19}.

Authors^{19,20} describe eating difficulties (dysphagia) in children with CP, the process of clinical and complementary evaluation and speech therapy treatment, which aims to establish the positioning and types of utensils, adjustment of food consistencies, indication of the use of thickeners and reduction of the fractional volume that is offered in each food offer. In this article, dysphagia is characterized by the presence of signs such as cough or hypoxemia during or after feeding; nasal regurgitation; extraoral escape; deficient oral motor coordination; delay in the pharyngeal response to elucidate the swallowing reflex; multiple swallows; increased secretion in the airways; fatigue during or after feeding; liquid stridor in upper airways during or after feeding; apnea or dyspnea during feeding; change in respiratory rate; watery eyes, throat clearing, grimaces; prolonged time for swallowing and eating the meal (45-60 min); presence of residues in the oral cavity; protrusion of the tongue; head tilt, opisthotonus, diplopia, halitosis.

They also state that children can spend up to 15 times more time and take up to 7 hours a day to feed themselves, a fact that can lead families to

frustration in the face of the difficulty of feeding these children and stress, contributing to the reduction of food supply to children, and, consequently, malnutrition. In the specific case in this study, it was observed that the family lost interest in insisting on the food supply because the child had major difficulties during the entire feeding process and, in addition, there was little interaction between them due to the lack of eye contact¹².

Many families prolong their moments of anguish, anxiety, conflicts, denial, sublimation, frustration and even hopelessness for not having information and not finding interlocutors to discuss their problems and to identify themselves. They need to have places and people with whom they can talk and share not only the sufferings, but also the moments of joy, achievements and victories^{21,22}.

The sooner the visually impaired child is referred to care services, the greater their chances of developing their potential²².

Conclusion

The purpose of the present study was to confirm the hypothesis that the alterations presented by the child with Cerebral Palsy and participating Visual Deficiency are not compatible with those of the visionary CP, but are intensely marked and intricate, outlining as complex and unlimited analysis regarding subject matter.

It is concluded that the notes proven in this study are identified in several articles in the literature, that the difficulty in chewing patterns and in swallowing time are due to Cerebral Palsy. Studies show that cerebral palsy is one of the neurological diseases referred to as a candidate for presenting oropharyngeal dysphagia, and the importance of joint intervention with the multidisciplinary team and perceptual stimuli contribute to improvement and rehabilitation.

However, in relation to Visual Deficiency, what has awakened to further investigation and which also leads to such an important contribution to Speech Therapy is in relation to communication. Observing the important difficulty through the child's neurological disorder, visual impairment and the absence of family interaction, there is evidences that can naturally have consequences for the worsening of the condition during feeding.

Children who have visual impairment need visual rehabilitation for more meaningful and contextualized bodily experiences for the construction of the self, the object and, consequently, better planning and adequate sequence to assist in comprehensive care and especially in oral motor functions.

According to the data of this study, through speech therapy, it also provided a decrease in the severity of oropharyngeal dysphagia and the presence of signs suggestive of laryngotracheal penetration and / or aspiration.

In this sense, it is considered that the purpose of this research was not to exhaust the central theme, but rather to awaken the issue under discussion, in the sense of broadening the view of speech therapy to the issues of visual impairment and its relationship with other associated disabilities.

References

1. Silvério C.C, Henrique C.S. Indicadores da evolução do paciente com paralisia cerebral e disfagia orofaríngea após intervenção terapêutica. *Revista Sociedade Brasileira de Fonoaudiologia* 2009; 14(3): 381-6.
2. Rotta, N.T. Paralisia cerebral, novas perspectivas terapêuticas. *Jornal de Pediatria - Vol. 78, Supl.1 Rio Grande do Sul*: 2002.
3. Bobath K. Uma base neurológica para o tratamento da paralisia cerebral. 2 ed. Traduzido por Ana Fátima Rodrigues Alves. São Paulo: Manole: 1990.
4. Geralis E. Crianças com paralisia cerebral: guia para pais e educadores. 2 ed. Porto Alegre: Artmed, 2007.
5. Hirata GC, Santos RS. Rehabilitation of oropharyngeal dysphagia in children with cerebral palsy: A systematic review of the speech therapy approach. *Int. Arch. Otorhinolaryngol.* 2012; 16(3): 396-9.
6. Furkim AM, Behlau MS, Weckx LLM. The use of cervical auscultation in tracheal aspiration in children with cerebral palsy. *Rev. CEFAC.* 2009; 11(4): 624-9.
7. Moura WF, Oliveira JR. Estudo descritivo e comparativo de parâmetros de Interação entre mãe e criança cega. *Revista Distúrbios da Comunicação.* São Paulo, abril 2011; 23 (1) 7-14.
8. Carvalho, Erenice Natália S. A educação especial: concepção de deficiência. Brasília, Secretaria de Educação Especial, Ministério da Educação, 1996.
9. Massini, Elcie F. Salzano. "Conversas sobre deficiência visual". *Revista Con-tato.* São Paulo, Laramara, no 3, p. 24, 1993.
10. Vianna CIO, Suzuki HS. Cerebral palsy: analysis of swallowing patterns before and after speech therapy intervention. *Rev. CEFAC.* 2011; 13(5): 790-800.
11. Andrade, T. D. (1997). A família e a estruturação ocupacional do indivíduo. Em R. Levenfus (Org.), *Psicodinâmica da escolha profissional* (pp. 123-134). Porto Alegre, RS: Artes Médicas.



12. Vivone PG, Tavares MM, Bartolomeu RS, Nemr K, Chiappetta ALM. Análise da consistência alimentar e tempo de deglutição em crianças com Paralisia Cerebral Tetraplégica Espástica. *Revista CEFAC*, São Paulo, v.9, n.4, 504-511, outubro, 2007.
13. Amiralian, Maria Lúcia Toledo Moraes. Compreendendo o cego: uma visão psicanalista da cegueira por meio de desenhos-estórias. São Paulo: Casa do Psicólogo, 1997. 321p.
14. Ribeiro OM, Rahal RO, Kokanj AS, Bittar DP. O uso da bandagem elástica Kinesio no controle da sialorréia em crianças com paralisia cerebral. *Revista Acta Fisiátrica* 16(4). São Paulo, 2009.
15. Lucchi C, Florio CP, Silverio CC, Reis TM. Incidência de disfagia orofaríngea em pacientes com paralisia cerebral do tipo tetraparéticos espásticos institucionalizados. *Rev Soc Bras Fonoaudiologia* 2009 ;14(2): 172-6.
16. Rocha EMS. Disfagia: avaliação e terapia. In: MARCHESAN, I.Q. - Fundamentos em fonoaudiologia: aspectos clínicos da motricidade oral. Rio de Janeiro, Guanabara Koogan, 1998, p.91-8.
17. Aurélio SR, Genário KF, Filho EM. Análise comparativa dos padrões da deglutição de crianças com paralisia cerebral e crianças normais. *Revista brasileira de otorrinolaringologia*. 68 (2) parte 1. Paraná: 2002.
18. Silva RG. A eficácia da reabilitação em disfagia orofaríngea. *Pró-Fono*. 2007.Jan-Abr; 19(1): 123-30.
19. Araújo LA, Silva LR, Mendes FAA. Digestive tract neural control and gastrointestinal disorders in cerebral palsy. *J. Pediatr*. 2012; 88(6): 455-64.
20. Vianna CIO, Suzuki HS. Cerebral palsy: analysis of swallowing patterns before and after speech therapy intervention. *Rev. CEFAC*. 2011; 13(5): 790-800.
21. Winnicott, D.W. A família e o desenvolvimento individual. Trad. Jefferson Luiz Camargo. Cap1 – O primeiro ano de vida. P 3-20. Editora São Paulo, 2005.
22. Euno SR, Cunha AC. Desenvolvimento da criança com deficiência visual (DV) e interação mãe-criança: algumas considerações. *In: Revista psicologia, saúde e doenças: sociedade portuguesa de psicologia da saúde*. Lisboa, Portugal, 2003 vol. 4, nº 001, p.33-46.