



## RESEARCH ARTICLE

## Phonetic and Phonological Aspects in Children with Operated Cleft Lip and Palate

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### Abstract

**Introduction:** Cleft Lip and Palate (CLP) is the most common malformation in childhood and may result in the presence of communication disorders. The consequences in speech are related to velopharyngeal dysfunction and dentofacial deformity, as the risks to phonological disorders, related to middle ear changes.

**Objective:** To analyze the occurrence of phonetics and phonological disorders in children aged from 3 years to 3 years and 11 months with repaired CLP.

**Methods:** Data from 30 children medical files were analyzed with operated CLP aged from 3 years to 3 years and 11 months, duly enrolled in a reference hospital treatment of this malformation. The data collection was made by the child's medical record information as identification, type of cleft and newer specific speech evaluation. The phonetics and phonological aspects were analyzed.

**Results:** There were observed compensatory articulations, phonological simplifications (phonological disorders) and side lisp (phonetics disorder).

**Conclusion:** Besides the Compensatory articulations, phonological simplifications and articulatory distortions were also present in children with operated CLP, accentuating the impaired speech intelligibility.

### Keywords

Speech, Language and hearing sciences, Cleft lip, Cleft palate

### Introduction

The Cleft Lip and Palate (CLP) occur during the first quarter of intrauterine development, and has multifactorial origin [1]. This is one of the most common malformations of childhood [2], affecting 1 in every 650 live births in Brazil [3]. CLP may result in the presence of communication disorders, covering different aspects such as articulation, resonance, hearing, speech and/or language.

The CLP consequences of speech are mainly justified by the commitment of anatomical structures involved in speech production, related to velopharyngeal dysfunction and Dentofacial deformity [4-7].

The speech alterations resulting from velopharyngeal dysfunction affect speech intelligibility of individuals may persist even after surgical correction of the palate [8], the most common hypernasality, the nasal air emission and compensatory articulations.

The risks for language change, the changes are given in the middle ear, such as frequent episodes of otitis media with sensory deprivation, which can lead to phonological errors [9]. As for the different aspects of language in the early stages of language development, problems of resonance and articulation can cause phonetic and phonological changes and thus significantly interfere with the quality of speech. It notes that the

phonological simplifications not expected for chronological age, also interfere with speech intelligibility [10].

The literature does not provide conclusive evidence on the development of phonological system in children with CLP, which may occur in a similar way to the other children, but can also present the phonological disorder. Given conflicting results, it is necessary to investigate the presence not only of speech disorders, such as aspects of the language that interfere with speech intelligibility of these children.

## Objective

Analyze the occurrence of phonetics and phonological disorders in children aged from 3 years to 3 years and 11 months with repaired CLP.

**Table 1:** Classification of evaluation results by speech and language analysis.

Speech evaluation	Example
Compensatory articulations	Glottal stop, Pharyngeal fricative, Velar fricative, Pharyngeal stop, Velar stop e mid-dorsum palatal stop
Phonological simplifications	Substitution process and Structure syllabic
Articulatory distortions	Anterior lisp, Side lisp and Side distortions

**Table 2:** Sample distribution by type of Cleft Lip and Palate, considering the number of subjects, percentage and mean age in months.

Cleft type	n	%	Age
Cleft palate	12	40	41.9
Cleft lip and palate	18	60	39.9

n: Number of subjects; %: Percentage of subjects by cleft type.

## Methods

### Ethic aspects

The study was approved by the Human Research Ethical Commission of the institution concerned, under the protocol number 1.155.108.

### Casuistry

Data from 30 children medical files were analyzed with repaired CLP aged from 3 years to 3 years and 11 months, duly enrolled in a reference hospital treatment of this malformation.

As exclusion criteria, children with diagnoses of genetic syndromes and otitis history were not part of this study.

### Procedures

The data collection was made by examining the child's medical record information for identification, type of cleft [11,12] and newer specific speech evaluation.

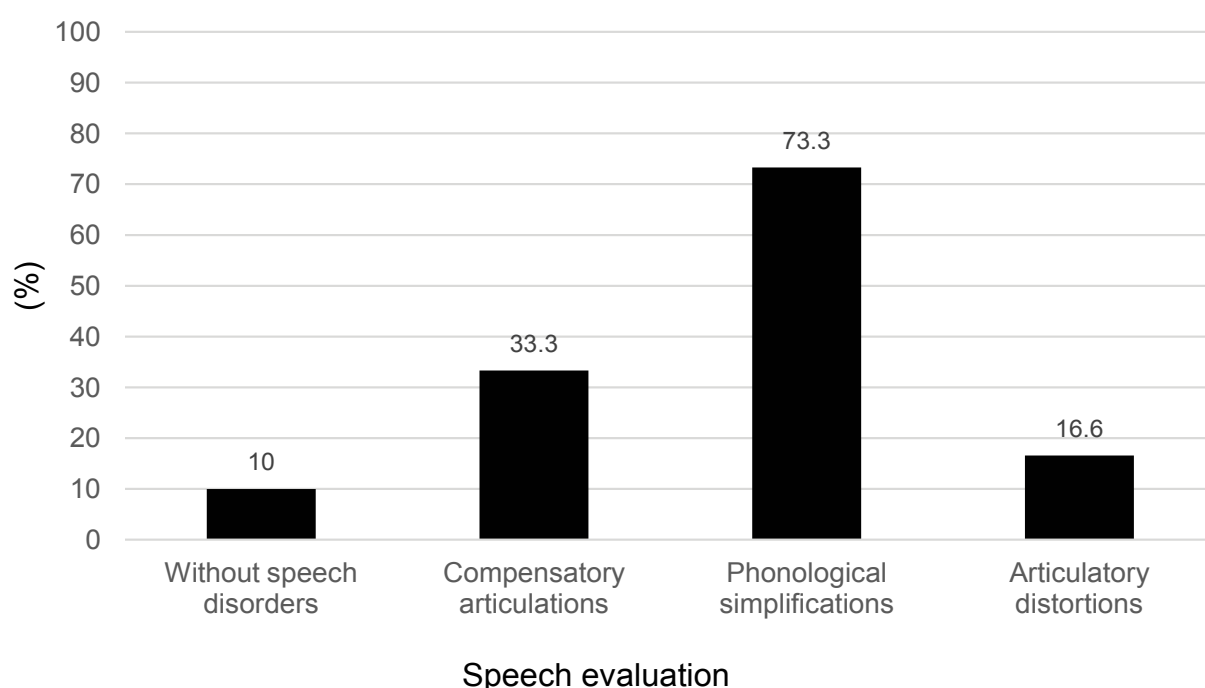
The item found in the specific clinical assessment was the phonetic frame, represented by a given speech sample based on directed speech and images. Thus, the possible findings of this speech and language evaluation were classified as detailed in Table 1.

### Data analysis

Data were submitted to descriptive analysis quantitatively and presented in tables and figures.

## Results

The majority of the sample consisted of children with cleft lip and palate (60%). The characterization of the sample showed 16 male children and 14 female, with overall average age of 40 months group (Table 2).



**Figure 1:** Speech evaluation in percentage.

As for the quality of speech, it was observed that 10 children had compensatory articulations, 22 had phonological simplifications not expected for age and 5 showed articulatory distortions, as shown in [Figure 1](#). It is noteworthy that the same child might have different speech disorders and 3 children no showed speech disorders.

Compensatory articulations present in the sample were Coup glottis, Pharyngeal fricative and velar fricative. Phonological simplifications not appropriate to chronological age were mostly type replacement, and only 2 children presented syllable simplification (structural). Regarding articulatory distortions occurred more frequently the Side Lisp.

## Discussion

The thematic basis of this study stems from the concern to analyze a particular function, in this case, the speech, in a comprehensive manner, considering different characteristics that make it up, so that in this way, the design of the therapeutic process is based on the process of communication.

The occurrence of cleft lip and palate was predominant, as the literature demonstrates [[13,14](#)]. It is still possible to attribute the speech alterations to the type of fissure most found in the sample, because the language are directly related to more extensive clefts [[15,16](#)].

There was a predominance of occurrence of phonological simplifications not expected for age of the children. While it is expected the acquisition of similar phonological system between children with and without cleft; no language delay was reported in children with cleft [[16-18](#)]. Then there is the presence of compensatory articulations in 16.6% of the sample value, below the Bzoch (1997) and Seguí (2002) findings [[19,20](#)], who reported the persistence of compensatory articulations in approximately 30% of children with CLP after surgery, inserted into multidisciplinary care. Lower occurrence of articulatory distortions. The absence of speech disorders in part of this population after surgery is scheduled for literature [[19-21](#)].

Knowing the complexity of the communication process also should be investigated in future research. The occurrence of the change of speech due to possible changes in the auditory system, should consider the possibility of changes in the middle ear function in these children.

## Conclusion

Besides the Compensatory articulations, phonological simplifications and articulatory distortions were also present in children with operated CLP, which accentuated the impaired speech intelligibility. Thus, during the evaluation of speech in this population, it is necessary to clinically look not only the changed anatomical and

physiological aspects, but also velopharyngeal function and phonological development.

## Financing

None.

## Conflict of Interests

None.

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