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# Myofunctional orofacial examination: comparative analysis in young adults with and without complaints

## *Análise comparativa das informações de exame clínico miofuncional orofacial em adultos jovens com e sem queixas*

### ABSTRACT

**Purpose:** To verify myofunctional orofacial characteristics in young adults and to compare data on individuals with and without myofunctional complaints, aiming to identify the main myofunctional problems and differentiating them from characteristics that are common for this population, as well as to list items for myofunctional evaluation in this population. **Methods:** Cross-sectional study with 85 adult participants, aged between 19 and 39 years, selected through consecutive sampling at the Department of Speech, Language and Hearing Sciences of Universidade Veiga de Almeida. The participants were divided into two groups: G1 (comprising 50 individuals referred for orofacial myofunctional disorders) and G2 (comprising 35 volunteers without complaints). Descriptive evaluation of craniofacial structures of hard and soft tissues, kinesiology and mandible range of motion and functional patterns of breathing, chewing, and swallowing was applied. Three expert Speech-Language pathologists assessed all participants. Statistical analysis was done using  $\chi^2$ -test, Student's *t*-test, or Mann-Whitney test. The reliability level was 99%. **Results:** A predominance of Angle Class I pattern of occlusions for G2 ( $p<0.0001$ ) was found. G1 showed ( $p<0.0001$ ) mandible movements with deviations and joint noises, amplitude reduction in lateral and protrusive movements, unilateral chewing, nonexpected muscle contraction, temporomandibular joint noises, swallowing with excessive contraction of the orbicularis oris muscle, loud noise, and residues ( $p=0.006$ ). **Conclusion:** The main myofunctional orofacial alterations in young adults with complaints refer to changes of the mandibular movements and patterns of chewing or of swallowing, reflecting the main items of the clinical evaluation. Many items of assessment and characterization do not differ between the groups, and these should be analyzed regarding their relevance.

### RESUMO

**Objetivo:** Verificar as características miofuncionais orofaciais em adultos jovens e analisar comparativamente dados de indivíduos com e sem queixas miofuncionais, visando apontar os principais problemas miofuncionais e diferenciando-os de características típicas dessa população, além de elencar os itens de avaliação miofuncional que possam merecer maior atenção para essa população. **Métodos:** Estudo transversal com 85 participantes adultos, 19 a 39 anos, selecionados por amostra consecutiva no Serviço de Fonoaudiologia da Universidade Veiga de Almeida, divididos em dois grupos — G1: 50 indivíduos encaminhados por queixas miofuncionais orofaciais; G2: 35 indivíduos voluntários sem queixas. Todos foram avaliados por três fonoaudiólogos, especialistas. O exame constou de avaliação clínica descritiva quanto às estruturas craniofaciais de tecidos duros e moles, análise dos movimentos mandibulares, verificação funcional quanto à respiração, mastigação e deglutição. Análise estatística: teste do  $\chi^2$ , teste *t* de Student ou de Mann-Whitney. Foi adotado nível de confiabilidade de 99%. **Resultados:** Constatou-se predomínio de oclusão Classe I de Angle para G2 ( $p<0,0001$ ). G1 apresentou ( $p<0,0001$ ): movimentos mandibulares com desvios e ruídos articulares, amplitude reduzida nos movimentos de lateralidade e protrusivos, mastigação unilateral, contração muscular não esperada, ruídos articulares, deglutição com contração perioral excessiva, ruído evidente e resíduos ( $p=0,006$ ). **Conclusão:** As principais alterações miofuncionais orofaciais em adultos jovens com queixas referem-se a modificações dos movimentos mandibulares, dos padrões de mastigação e de deglutição, sendo esses os itens de maior importância na análise da avaliação. Vários itens de avaliação e caracterização de distúrbios não diferem entre os grupos, devendo ser cuidadosamente analisados quanto à sua relevância.

Study carried out at the Professional Masters Program in Speech, Language and Hearing Sciences, Universidade Veiga de Almeida – UVA – Rio de Janeiro (RJ), Brazil.

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**Conflict of interests:** nothing to declare.

## INTRODUCTION

The stomatognathic system presents great adaptive capacity of its components to maintain the functionality and integrity of the structures that compose it. The precision, coordination, range, and efficiency of movements developed by the orofacial muscles and structures define many of the characteristics of breathing, chewing, and swallowing and depend fundamentally on their anatomy and organization<sup>(1-4)</sup>.

Clinical evaluation of orofacial motricity is a fundamental step in the diagnostic process in this field, because it allows the understanding of the anatomical and functional condition of the stomatognathic system. It thus seeks to guide the therapy, defines the need for interdisciplinary referrals, and points to the prognosis<sup>(5-9)</sup>. Accordingly, numerous conditions, intrinsic and/or extrinsic, can interfere with responses that are observed in myofunctional evaluation. The age group is one of the aspects to be considered regarding the criteria of what is considered acceptable or an alteration when it comes to stomatognathic functions<sup>(9-11)</sup>. Studies with young adults suggest variations in chewing and swallowing from the analysis of various issues that range from structural features, such as alterations in occlusion curve, to temporomandibular disorders and even the textures of food<sup>(4,5,12)</sup>.

In recent years, many publications containing orofacial motricity assessment protocols are available, showing a concern about the standardization of these instruments for the detection of orofacial myofunctional disorders<sup>(6,8,13-18)</sup>. However, the main focus points of interpretation of these studies are varied, and many of them apply to any age group. Studies involving adults mainly focus on certain specificities of that population and propose protocols that are unique to certain problems<sup>(16-19)</sup>. Disorders and conditions that are specific to the adult population studies are addressed in studies focusing specifically on young adults, such as respiratory disorders<sup>(20)</sup>, sleep disorders<sup>(21)</sup>, and temporomandibular joint (TMJ) dysfunction<sup>(21-23)</sup>. Breathing, chewing, swallowing, and speech disorders appear associated with alterations of the occlusion and of facial type<sup>(1,2,5)</sup>, imbalances of the musculature<sup>(14,15,18)</sup>, and temporomandibular dysfunction<sup>(16,17,21-23)</sup>. Protocols with scores were validated, providing assessment parameters and determining myofunctional diagnosis<sup>(6,15,17,18)</sup>.

Young adults are a population that often seeks or is referred to the Speech-Language Pathologist (SLP) with specific complaints, be it associated with negative interference in the evolution of orthodontics; the presence of orofacial pain and limitation of mandibular movements; and difficulties in chewing, breathing, and/or sleeping. However, it appears that many adaptations occur and allow the functionality of the stomatognathic system, even with present or incipient alterations<sup>(1,4,5,7,12)</sup>, without those factors or characteristics denoting complaint, discomfort, or reason for referral.

Based on the hypothesis that similar structural and/or myofunctional characteristics are also present in young adults without complaints, which may not cause a significant myofunctional impact, the purpose of this study was to investigate the orofacial myofunctional characteristics in young adults and to compare the data obtained from the descriptive evaluation of individuals with and without myofunctional complaints. It seeks, therefore,

to address the main myofunctional problems in this population, differentiating them from typical characteristics of this age group, as well as to list the items for myofunctional evaluation that may require greater attention in this population.

## METHODS

This study was approved by the research ethics committee of the Professional Masters Program in Speech-Language Pathology and Audiology, Universidade Veiga de Almeida (under protocol no. 01684312.2.0000.5291).

After relevant ethical procedures, 85 adults of both genders participated in this study. All procedures were performed in the Department of Speech-Language Pathology and Audiology, Hospital Universitário Antonio Pedro (HUAP), Universidade Federal Fluminense (UFF).

A total of 50 individuals, referred from specific sectors of the hospital on complaints related to orofacial function in breathing, chewing, and swallowing, were evaluated, constituting the study group (G1). Also, 35 individuals without complaints related to these functions, who voluntarily agreed to participate in the study, were evaluated, constituting the control group (G2), matched by age (G1: mean age  $28.1 \pm 6.5$  years and G2: mean age  $26.4 \pm 5.4$  years;  $p=0.07$ ) and by gender (G1: female, 56%; male, 44%; and G2: female, 68.6%; male, 31.4%;  $p=0.24$ ), seeking homogeneity between groups.

One of the criteria for inclusion, for both groups, was being in the age range between 19 and 39 years. This range was defined with the aim of restricting possible variations arising from the extensive range of age considered adulthood (19–60 years), characterizing the population study as young adults.

Exclusion criteria for both groups were the following: presenting any type of neurological and/or cognitive impairment; presenting congenital or acquired structural deformities or alterations in orofacial structures; presenting any moderate or severe hearing impairment; individuals with missing teeth characterized by the presence of edentulous spaces in the arcades; individuals who had undergone previous orofacial myofunctional speech rehabilitation; and individuals with speech alterations of any kind.

To investigate the criteria for inclusion and exclusion of subjects, as well as to confirm the inclusion of subjects in the respective groups, a screening consisting of interviews with all study participants was performed through the application of a semistructured questionnaire<sup>(23)</sup>, containing items relating to identification data, age, gender, presence or absence of myofunctional complaint, history and background, problem description, harmful habits, functional difficulties, breathing problems, and sleep problems. Concomitantly to the questionnaire, myofunctional screening was performed to check the other exclusion criteria that were not included in the questionnaire.

The myofunctional orofacial clinical examination was performed in the hospital's ambulatory by the author of this study and other two Speech-Language pathologists with expertise in orofacial motricity, with previous training in the application of this evaluation and familiarity with the material used (average training:  $120 \pm 18.7$  days). The evaluation was blind only

to the two Speech-Language pathologists who participated in the analysis. All participants were individually examined by the three Speech-Language pathologists at the same time, but they took notes independently and did not exchange information during the analysis. All participants were videotaped and photographed during the examination to enable further review, should there be disagreement in the analysis of the results. Compatibility of responses was conducted jointly by the three evaluators, requiring revision of the videos in 8% of cases, leading to consensus.

This examination consisted of the use of descriptive structured orofacial myofunctional evaluation, which included items assessing craniofacial structures of hard and soft tissues; verification of kinesiology and mandibular movements; functional verification; and description of breathing, chewing, and swallowing. A descriptive evaluation comprised the variables of interest and categories of results that allowed specific marking of answers, performed according to instructions and explanations of the Orofacial Myofunctional Evaluation Explanatory Manual<sup>(24)</sup> applied in previous training for 4 months.

Data from each patient were duly noted, documented, and archived in a digital spreadsheet<sup>(24)</sup>, consisting of the following descriptions:

- Examination of craniofacial structures of hard and soft tissues using anthropometric measurements by digital caliper (in mm); description of occlusion and dental relationship; and subjective muscle characterization through visual inspection, palpation, request for contraction against the resistance of the examiner's finger, and verification of directed movements, characterized as satisfactory or altered;
- Examination of kinesiology mandibular movements: opening, laterality, protrusion, with analysis of the movement observed for the presence or absence of deviations in the path and determination of the amplitude of these movements by measuring with a digital caliper;
- Functional examination and description of breathing, chewing, swallowing, and its structural correlations. The evaluation of chewing and swallowing of solids was performed with bread rolls, with standard analysis of the following variable: crushing, chewing pattern, lip closure, unexpected muscular twitching, presence of noise in the TMJ, and number of chewing cycles. Swallowing was evaluated using liquid (water) in a disposable cup. The variables analyzed were lip and tongue posture, containment of food and liquid, contraction of the orbicularis oris and/or chin muscle, auxiliary head movement, noise, and presence or absence of coordination and residue after swallowing, as pointed out in the results tables.

In this study, description was chosen in spite of scores, seeking to pinpoint the characteristics of the data between the groups analyzed.

The following equipment were used for in the register process: digital caliper, Sony DCR-SX20 digital camcorder, and Sony Alpha 1000 digital camera. The participants were photographed and videotaped to allow data review and archiving of the material.

## Statistical analysis

The descriptive analysis showed the observed data, expressed by the frequency (n) and percentage (%) for categorical data, and mean, standard deviation (SD), and median for numerical data, in the form of tables. The inferential analysis comprised the  $\chi^2$ -test or Fisher's exact test, the comparison of categorical data, and the Student's *t*-test for independent samples, or the (nonparametric) Mann-Whitney test for comparing the numerical data between groups, the latter being used for data without normal distribution. A nonparametric method was used, because some variables did not present Gaussian distribution according to the Kolmogorov-Smirnov test.

Considering that several comparisons between the groups were necessary due to the large number of variables analyzed in the application of the assessment protocol (31 tests in total), it was necessary to increase the level of reliability. Once the Bonferroni correction could be too rigid, and significant data could be lost, the choice was to adopt the confidence level of 0.01, that is, 99%.

Statistical analysis was performed with SAS<sup>®</sup> System statistical software, version 6.11.

## RESULTS

Regarding the variables age and gender, according to statistical study, the groups did not differ ( $p=0.24$ ), allowing comparison of the results of the tests applied.

The characterization of the sample in dento-occlusal aspects and use of braces for the two groups studied are shown in Table 1.

Regarding the occlusal classification, prevalence of occlusion considered normal was found — Angle Class I — for G2. Among the occlusal changes observed, the following were observed: for G2, the presence of Class II, division in 14.5% of participants, whereas for G1, the presence of Class II, first division in 70% of participants; Class II, second division in 4%; and Class III, division in 6% of participants.

In both groups, there were participants with and without braces, with a prevalence of participants without braces, constituting a similar sample.

The results regarding the characteristics of execution of mandibular movements (opening and closing), for the two groups, are shown in Table 2. The presence of deviations and noise during both the opening and closing was noteworthy, especially for G1, with differences.

The results of the analysis of mandibular movements on its amplitude are shown in Table 3. Smaller amplitudes in both lateral and protrusive movements can be observed in G1, with differences.

As for orofacial functions, data concerning breathing were checked by the predominant respiratory characteristic: nasal, oronasal, or oral. Results obtained for G1 were the following: 42% nasal, 52% oronasal, and 6% oral. Results obtained for G2 were as follows: 74.3% nasal and 25.7% oronasal.

**Table 1.** Sample characterization regarding the classification of the occlusion and use of braces for both groups

Variable	G1	G2	p-value*
	n (%)	n (%)	
<b>Angle classification</b>			
Normal	10 (20.0)	30 (85.7)	<0.0001
Altered	40 (80.0)	5 (14.3)	
<b>Horizontal relation</b>			
Normal	27 (54.0)	33 (94.3)	<0.0001
Overbite	9 (18.0)	1 (2.9)	
Anterior crossbite	14 (28.0)	1 (2.9)	
<b>Vertical relation</b>			
Normal	25 (50.0)	32 (91.4)	<0.0001
Overbite	6 (12.0)	3 (8.6)	
Open crossbite	10 (20.0)	0 (0.0)	
Posterior open bite	9 (18.0)	0 (0.0)	
<b>Use of braces</b>			
Yes	9 (18.0)	3 (8.6)	0.18
No	41 (82.0)	32 (91.4)	

\* $\chi^2$ -test or Fisher's exact test**Caption:** G1 = research group; G2 = control group**Table 2.** Characteristics of mandibular movements for both groups studied

Variable	G1	G2	p-value*
	n (%)	n (%)	
<b>Opening (altered)**</b>			
Normal	14 (29.2)	23 (67.7)	0.001
Deviation to the right	12 (25.0)	4 (11.8)	
Deviation to the left	11 (22.9)	7 (20.6)	
Noises	11 (22.9)	0 (0.0)	
<b>Closing</b>			
Normal	21 (42.0)	30 (85.7)	<0.0001
Deviation to the right	11 (22.0)	5 (14.3)	
Deviation to the left	7 (14.0)	0 (0.0)	
Noises	11 (22.0)	0 (0.0)	

\* $\chi^2$ -test or Fisher's exact test; \*\*For analytical purposes, three cases were excluded (two with limitations and one with pain)**Caption:** G1 = research group; G2 = control group**Table 3.** Range of mandibular movements for both groups studied

Variable	G1	G2	p-value*
	Mean $\pm$ SD (median)	Mean $\pm$ SD (median)	
Maximum opening (mm)	54.6 $\pm$ 10.1 (55.7)	50.5 $\pm$ 7.8 (48)	0.046**
Right side (mm)	5.8 $\pm$ 2.6 (5.1)	8.2 $\pm$ 2.0 (7.7)	0.0001**
Left side (mm)	6.0 $\pm$ 2.3 (5.8)	8.3 $\pm$ 2.0 (8.0)	0.0001**
Protrusion (mm)	5.9 $\pm$ 1.4 (6.0)	8.0 $\pm$ 1.0 (7.9)	0.0001**

\* $\chi^2$ -test or Fisher's exact test; \*\*Data on maximum opening and protrusion were compared by Student's *t*-test for independent samples, and data on right and left sides were compared by Mann-Whitney test**Caption:** G1 = research group; G2 = control group

Statistical analysis done using  $\chi^2$ -test or Fisher's exact test showed difference ( $p=0.006$ ) between the groups.

The verification of symmetry or asymmetry between the nostrils did not show difference between the groups ( $p=0.30$ ), and, in G1, 70% of participants presented symmetric nostrils and 80% in G2.

The results and data analysis regarding the characteristics of mastication, for both groups, are shown in Table 4.

**Table 4.** Results concerning the characteristics of the masticatory function for the groups studied

Variable	G1	G2	p-value*
	n (%)	n (%)	
<b>Crushing</b>			
Posterior	35 (71.4)	30 (85.7)	0.12
Anterior	14 (28.6)	5 (14.3)	
<b>Chewing pattern</b>			
Bilateral	11 (22.0)	24 (68.6)	<0.0001
Unilateral	39 (78.0)	11 (31.4)	
<b>Labial closure</b>			
Yes	43 (86.0)	35 (100.0)	0.020
No	7 (14.0)	0 (0.0)	
<b>Unexpected muscle contraction</b>			
Yes	46 (92.0)	10 (28.6)	<0.0001
No	4 (8.0)	25 (71.4)	
<b>Noise in the TMJ</b>			
Yes	22 (44.0)	2 (5.7)	<0.0001
No	28 (56.0)	33 (94.3)	
<b>Number of cycles</b>			
Mean $\pm$ SD (median)	21.8 $\pm$ 6.8 (21.2)	22.5 $\pm$ 6.0 (22)	0.56**

\* $\chi^2$ -test or Fisher's exact test; \*\*Data on the number of cycles were compared by Mann-Whitney test**Caption:** SD = standard deviation; TMJ = temporomandibular joint; G1 = research group; G2 = control group

It was observed that most participants in both groups performed the crushing of the food on the posterior teeth. Excessive use of the tongue by pressing the food was previously observed only in one participant from G1 (2%).

There was a predominance of unilateral masticatory characteristic for G1 and bilateral for G2, with differences between the two groups. By analyzing the chewing pattern in detail, a bilateral alternating pattern was observed for in 16% of the sample, and simultaneous bilateral pattern in 6%. For G2, only the standard bilateral alternating pattern (68%) was observed. Unilateral chewing was preferred for 70% of the G1 sample, and chronic unilateral for 8%. In G2, there was only a preferential unilateral pattern in 31.4% of participants.

Seeking to verify the possible existence of bound variables, cross-checks were performed between the type of food crushing made during chewing, if anterior or posterior, and the type of occlusion. No statistically significant results were observed regarding the association between the type of crushing: Angle classification ( $p=0.98$ ); horizontal occlusal relationship considering positive overjet, no overjet, or anterior crossbite ( $p = 0.91$ ); and vertical



overbite, considering normal overbite, no overbite, open bite, or excessive overbite ( $p=0.81$ ).

The results and analysis of data on swallowing characteristics for the two study groups are shown in Table 5.

**Table 5.** Results concerning the characteristics of the swallowing function for both groups studied

Variable	G1 n (%)	G2 n (%)	p-value*
Lip posture			
Yes	46 (92.0)	34 (97.1)	0.31
No	4 (8.0)	1 (2.9)	
Tongue posture			
Yes	45 (90.0)	35 (100.0)	0.065
No	5 (10.0)	0 (0.0)	
Containment of food			
Yes	39 (78.0)	24 (68.6)	0.33
No	11 (22.0)	11 (31.4)	
Containment of liquid			
Yes	41 (82.0)	25 (71.4)	0.25
No	9 (18.0)	10 (28.6)	
Contraction of the orbicularis			
Yes	41 (82.0)	16 (45.7)	<0.0001
No	9 (18.0)	19 (54.3)	
Contraction of the mentalis			
Yes	38 (76.0)	20 (57.1)	0.066
No	12 (24.0)	15 (42.9)	
Head movement			
Yes	16 (32.0)	3 (8.6)	0.011
No	34 (68.0)	32 (91.4)	
Noise			
Yes	18 (36.0)	1 (2.9)	<0.0001
No	32 (64.0)	34 (97.1)	
Coordination			
Yes	46 (92.0)	35 (100.0)	0.11
No	4 (8.0)	0 (0.0)	
Residue after swallowing			
Yes	23 (46.0)	6 (17.1)	0.006
No	27 (54.0)	29 (82.9)	

\* $\chi^2$ -test or Fisher's exact test

**Caption:** G1 = research group; G2 = control group

## DISCUSSION

This study had a sample of young adults, and those who composed the G1 were referred for orofacial myofunctional problems. Thus, this group was constituted of patients who met the inclusion criteria for the established age range, 19–39 years, according to the interest of the study.

Variations of some characteristics of the stomatognathic functions were also identified in relation to gender<sup>(9,10)</sup>. Therefore, the two groups were also paired regarding this variable, to avoid possible bias in the analyses.

As for the results found regarding the variables of the characteristics of mandibular movements analyzed, differences were found between the groups. The G1 showed a lower percentage of subjects with normal opening and closing

movements, and higher percentage of subjects with these movements accompanied by deviations and/or noise during mandibular route. The literature suggests that the organization of mandibular movements relates to the integrity of the TMJ and the action of skeletal muscles<sup>(3,8)</sup>, and some signs of temporomandibular disorders refer to alterations in these movements<sup>(15-18)</sup>.

In a related way, the variables of mandibular motion regarding the extent of laterality and maximum mandibular protrusion showed significantly lower values in the G1 compared to the G2, which are also characteristics that indicate signs of temporomandibular disorders, agreeing with previous studies<sup>(14,17,22,23)</sup>. In this sense, the smaller amplitude of alterations of mandibular movements found in G1, compared to those in G2, may show the presence of temporomandibular disorders in the first group. These findings agree with previous studies that indicate the presence of reduced range and deviations in laterality of the mandibular path for individuals with restriction or limitation of mandibular movements, which are quite frequent in subjects with temporomandibular disorders<sup>(16-18,21-23)</sup>. Thus, it seems important to observe and analyze the amplitude of mandibular movements obtained for the two groups analyzed in this study. The mean values of the opening movement obtained for both G1 and G2 were within the reference limits reported in the literature<sup>(6,8,15)</sup>, between 40 and 55 mm. However, for laterality movements and maximum protrusion, the average values obtained for G1 were significantly lower than those obtained for G2, falling below the reference values<sup>(6,8,15)</sup>, close to the interval between 7 and 11 mm.

Regarding the occlusal characterization, data from this study showed, as expected, that in the G2, the Angle Class I pattern of occlusions prevailed. In parallel, in G1, the Class II pattern of malocclusion prevailed, as well as alterations in vertical and horizontal occlusal relationships. One study<sup>(7)</sup> points to the existence of a relationship between measures of mandibular movements with malocclusions, indicating that these may lead to changes in the position of the condyles, changing the biodynamic and influencing the performance of laterality and protrusion movements<sup>(7)</sup>.

The use of braces does not seem to interfere with the functional results, because the difference between the two groups was not found with regard to this variable. However, these data do not corroborate a previous study<sup>(25)</sup>, in which oral discomfort and other difficulties related to oral function are reported, such as difficulty in chewing and swallowing. Different types of braces can justify these discrepant findings, because this study only presented individuals with fixed vestibular braces, in both groups.

With an analysis of orofacial functions, one can note differences between the groups in this study regarding respiratory function, with oronasal and oral breathing types being significantly more frequent in G1, whereas the nasal type was more frequent for G2. These findings raise agreement with studies that show associations between alterations in the breathing pattern and other myofunctional alterations<sup>(2,5,10,15,18)</sup>. However, the analysis of the breathing pattern

based on observational data on posture, both habitual and in usual activities, represents a difficult conclusive possibility. Although the purpose of this study was the analysis of orofacial myofunctional clinical examination in the chosen population, examinations of breathing can be considered one of the study's limitations, because the determination of the respiratory pattern raises specific needs for additional verification.

By analyzing masticatory function, this study showed that G1 presented a unilateral preferred chewing pattern, unexpected muscle contraction, and noises in the TMJ, with differences from G2. These results corroborate previous studies related to masticatory patterns<sup>(1,3,8,14-18)</sup>.

Chewing seems to be affected by dental morphology and the temporomandibular situation. In general, dental-occlusal disharmony seems to interfere directly in this function and can lead to unilateral chewing patterns. The causes cited refer to the asymmetry of masticatory muscles, temporomandibular disorders, unilateral muscle problem, and occlusal factors, such as premature tooth contacts that would cause deviations in the path of mandibular closure, and the preference for a particular side in chewing seems to be directly related to the better quality of occlusal relationship<sup>(4,8,26-28)</sup>.

Regarding the analysis of the swallowing function, it was found that G1 showed changes such as contraction of the orbicularis oris muscle, excessive noise, and waste after swallowing, with statistically higher frequency than in G2. These data disagree with the findings in previous studies<sup>(1,2,6,8,9,15,18)</sup>, which describe these changes related to functional swallowing abnormalities. It is worth mentioning the importance of checking the volume of the bolus to be swallowed in the analysis of swallowing characteristics, because this produces variations to be considered<sup>(9,11,12)</sup>.

This study fulfilled its objective of outlining the main myofunctional changes in the population studied, indicating these as items that require greater attention and detail in the myofunctional evaluation process, corroborating previous studies. Furthermore, considering the variables that showed no statistical differences between groups, we emphasize the need for more research comparing groups of adults with and without myofunctional complaints, seeking to ascertain the items that are common to the two groups, therefore presenting less clinical manifestation. This type of examination can point to the assessment items in which there are similarities in the results, and can be singled out as normal variations between adults.

The inherent difficulty of application of orofacial myofunctional evaluation protocols can also be highlighted, because even those who use scores and are validated always include subjective data analysis, such as those related to stress, appearance, strength, and perception of muscular and/or functional interference, which depend on the impressions and expertise of the examiners. In this study, this can be considered a limitation, especially because descriptive assessment is used, which, although being partially structured and requiring previous training, can present variations in the views of different evaluators.

## CONCLUSION

The main orofacial myofunctional disorders in young adults with complaints refer to the limitations and alterations of mandibular movements; unilateral masticatory pattern with unexpected muscle contraction and noise in the TMJ; swallowing with excessive contraction of the orbicularis oris, evident noise when swallowing and leftover residues, indicating that these are the most common items in the assessment analysis.

Considering the population studied, several items of evaluation and characterization of disturbances were found to not differ between the groups. These should be carefully analyzed.

*\*PFAM was responsible for bibliographic research, collection and tabulation of data, analysis of results, and drafting of the manuscript; EMGB collaborated in the preparation of the project, supervised the collection and tabulation of data, guided the analysis of the results, and the final writing of the manuscript.*

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