




## INTRA- AND INTER-EXAMINER RELIABILITY FOR DIAGNOSTIC CRITERIA OF TEMPOROMANDIBULAR DISORDERS (DC/TMD) – AXIS 1: ASSESSMENT IN A SAMPLE OF STUDENTS

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	<b>DOI:</b> 10.22409/ijosd.v1i63.59145

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## ABSTRACT

**Objective:** The aim of this study was to analyze the intra- and inter-examiner reliability when using the DC/TMD axis 1 and verify the replicability and validity of the data obtained. **Methods:** The sample comprised 30 volunteers (students) of the Instituto Universitário de Ciências da Saúde Norte (Portugal). The calibration process consisted of a volunteer selection, theoretical and practical training, data collection, and agreement calculation. Examiners received proper previous training. Three dental practitioners applied the questionnaire (T1) and re-examined all the participants one week later (T2). To measure the degree of inter and intra-examiner agreement, multiple Kappa coefficients were obtained when nominal or ordinal variables were involved. When the correspondence between quantifiable variables was assessed, Pearson correlation coefficients and their statistical significance were replicated. **Results:** Regarding opening patterns, a strong overall agreement was obtained, only showing discrepancies in left-assisted and unassisted maximum openings (from -0.034 to -0.370 and -0.630 to -0.933, respectively). A high level of inter-examiner agreement during TMJ noise during the opening assessment was obtained, only displaying variations in clicks (Kappa -0.423 to 0.757). Protrusion movement showed negative kappa and weaker agreement of all measurements (Kappa between -0.034 and -0.037). Small discrepancies were obtained from palpation assessment (left lateral pole- Kappa -0.034). **Conclusion:** There was no discernible and persistent difference in the amount of agreement among the three examiners, demonstrating that all three examiners were capable of participating in data collecting by employing the DC/TMD questionnaire. The findings indicated nearly perfect intra- and inter-examiner concordance scores.

**Keywords:** DC/TMD; test replicability; validation; examiner calibration.

## INTRODUCTION

Temporomandibular disorders (TMDs) are considered a heterogeneous group of psychophysiological disorders of the stomatognathic system (MAHAN, 2003; PECK *et al.*, 2014). TMDs are a public health problem affecting approximately 5-12% of the world population (MAIXNER ET AL., 2011; SCHIFFMAN *et al.*, 2014). They cover a wide spectrum of clinical disorders with manifestation spreading to the orofacial area, head, and neck. They are considered one of the main causes of orofacial pain of non-dental origin, with the possibility to become chronic and have a major impact on the patient's social, personal, and professional life (MCNEILL, 1997; MAIXNER *et al.*, 2011).



TMDs typically result from a functional and dynamic interaction between the temporomandibular joint (TMJ), masticatory and neck muscles, teeth, dental support tissue, and the central and peripheral nervous system (MAIXNER *et al.*, 2011). Scientific evidence indicates that TMDs are more prevalent between 20 and 40 years old and more frequent in women (Durham & Wassell, 2011; Schmid-Schwab *et al.*, 2013; Bender, 2014). The etiology remains unknown and has been the subject of numerous studies throughout the last decade. No agreement has been reached in the scientific community, although many hypotheses have been studied (MAYDANA *et al.*, 2010; DURHAM & WASSELL, 2011; KAPOS *et al.*, 2020). Initially attributed to mechanistic causes, the concept that has undergone paradigm shifts, evolving to a multifactorial theory based on biopsychosocial concepts (KAPOS *et al.*, 2020; KIM & KIM, 2022).

Awareness of the different signs/symptoms has become important for Dentistry. This knowledge permits a more precise detection and characterization of these dysfunctions, helping to diagnose early. It can be achieved using a diagnostic questionnaire (research methodologies), interpretation of results, and, consequently, a more efficient clinical practice based on scientific evidence appeared as necessary. In 1992, Dworkin and Le Resche developed a system that standardized the examination, diagnosis, and classification of the most common TMD (Research Diagnostic Criteria for Temporomandibular Disorders, RDC/TMD). This symptom-based method allowed TMD cases to be distinguished from control cases and diagnose their subtypes. This classification has been widely used for years in epidemiological and clinical studies (DWORKIN, 2010; LOOK *et al.*, 2010; MANFREDINI *et al.*, 2011; SCHIFFMAN *et al.*, 2014).

This methodology still lacked scientific validity despite contrasting with previous systems and using a double axis (axis 1-physical symptoms; axis 2-biobehavioral domain). Then, a new classification system was created in 2014 (DC/TMD, Diagnostic Criteria for Temporomandibular Disorders). This new classification implemented screening questionnaires to facilitate its use in epidemiological studies and clinical office practice evaluation (DWORKIN *et al.*, 2002; VISSCHER *et al.*, 2009). This methodology is based on the biopsychosocial model of pain, which states that the disease is not only a biological phenomenon, but its evolution results from interacting psychological, social, and biological factors (PECK *et al.*, 2014; SCHIFFMAN *et al.*, 2014). Despite numerous efforts, the diagnosis of TMD still lacks uniform diagnosis methodologies, instruments, guidelines, terminology, and a universal classification system. The clinical diagnosis currently known has been little reported in the literature (PECK *et al.*, 2014). Currently, the DC/TMD is accepted as appropriate but does not meet absolute consensus. Nevertheless, it is the most widely used in clinical practice for TMDs diagnosis.



Considering the need to systematically diagnose TMDs in clinical practice, this study analyzed the intra- and inter-examiner reliability of different examiners when using the DC/TMD axis 1 (Clinical Examination Form) to verify the replicability and validity of data recollection.

## METHODS

This study followed the Declaration of Helsinki (1975, updated 2013) and it was approved by the local Ethics Committee (IUCS ethics committee, 3-CE-IUCS-2019). The study sample consisted of thirty volunteer dental students of the Instituto Superior de Ciências da Saúde-Norte (Gandra, Portugal). Prior to the evaluation of each participant, they were required to read, complete, and sign an informed consent. DC/TMD Axis I was lastly consulted on the 14th of March 2018 and applied in consonance (CF *et al.*, 2016).

### Eligibility criteria

Inclusion criteria were: students attending the 5<sup>th</sup> year of dental school with complete permanent dentition. Exclusion criteria were: a history of trauma and/or cervical pain, as well as mandibular fracture, TMJ dislocation, systemic ligamentous laxity, systemic neurological or rheumatic diseases, orthodontic treatment in the last six months, and previous cervical or oral surgery.

### Procedures

Three licensed dentistry professionals (D1, D2, and D3) with 9, 8, and 3 years of clinical experience, respectively, were previously trained to collect and process the data. The training was programmed for the theoretical and dialogical exposition of the diagnostic criteria adopted, using manuals, images, and video projections to demonstrate the different physical evaluations to be performed (GONZALEZ *et al.*, 2014).

Each volunteer underwent oral cavity assessment examinations to verify that the inclusion and exclusion criteria were met. Explanations were given to each one of them about the process, and doubts were clarified, if any. DC/TMD Axis I was then applied, and clinical evaluation was performed for data collection. Diagnostic difficulties felt throughout the questionnaire application and clinical evaluation were clarified and discussed between the professionals, which did not compromise the calibration process and was homogeneous. The evaluations were always performed under the same environmental conditions, in the dental practice clinic of dental school.



The three dental professionals clarified and calibrate the use of DC/TMD questionnaire and physical evaluation among them. Data collection was performed in 2 periods: (T1) first collection and (T2) collection one week after the first assessment, serving to estimate inter- and intra-examiner agreements.

### Statistical analysis

The results obtained through the questionnaire were inserted into a digital platform for statistical analysis PASW<sup>®</sup> (Predictive Analytics Software, v.17.0 for Windows) and Excel<sup>®</sup> (Microsoft Office, California, U.S.A.). To measure the degree of inter- and intra-examiner agreements, multiple Kappa coefficients were obtained when nominal or ordinal variables were involved. Kappa values range from -1 to +1. The higher the kappa value, the stronger the agreement (Kappa=1, perfect agreement; Kappa=0, the agreement was expected by chance; and Kappa<0, the agreement is weaker than expected by chance).

The Pearson's correlation coefficient was usually represented by the letter "r" and only takes on values between -1 and 1. This Intraclass Correlation Coefficient (ICC) was used to measure the strength of inter-rater agreement in a situation where the rating scale was continuous or ordinal (it is suitable for studies with two or more raters). The ICC determines the reliability of ratings by comparing the variability of different ratings of the same individuals to the total variation across all ratings and all individuals. When  $r=1$ , it means a perfect positive correlation between the two variables exists; when  $r=-1$ , a perfect negative correlation between the two variables was obtained; and lastly when  $r=0$ , the two variables do not depend linearly on each other. However, there may be another dependency that is "non-linear". Thus, the result  $r=0$  must be investigated by other means.

## RESULTS

The results of the inter-examiner agreement (examiner 1 vs 2; examiner 1 vs 3; and examiner 2 vs 3) are presented first in tables and divided by subgroups of themes of the questionnaire under study (**Suppl. Tables 1 and 2**). Secondly, the table results will present the agreement between moments 1 and 2, from the same examiner, i.e., intra-examiner agreement (**Suppl. Table 3**).

All variables analyzed that do not depend on the examiners were removed from the tables to make the Intraclass correlation coefficient results clearer. In **Suppl. Table 1**, an almost perfect agreement between the examiners is presented. The only slight discrepancy verified was registered for examiner 2. This alteration was verified when measuring the incisal relationships chapter, which was aggravated

at time 2. A strong and perfect agreement in most cases in the Opening Pattern chapter is presented between all 3 examiners. In the second moment of evaluation, in the unassisted maximum opening in the Temporalis site on the right side, examiner 2 manifests a weaker agreement than expected. On the second scale to measure the assisted maximum opening, there is some degree of discrepancy that is exacerbated when it comes specifically to the left side with weaker agreement values.

As seen in **Suppl. Table 1**, for movement C, in protrusion, and in the comparison between examiner 2 vs. examiner 3 a negative Kappa coefficient and a weaker than expected agreement for both sides was obtained. **Suppl. Table 1** presents TMJ noises during movements of opening and closing of the jaw. Overall, a high inter-examiner agreement was here demonstrated. The examiners only show deviations in the clicks (TMJ Right Scale 2). In general, a strong inter-examiner agreement was observed on all parameters of the "TMJ Noises During Lateral & Protrusive Movements", and if there is any discrepancy in the examination, it will be in relation to examiner 2, especially at T2.

For Joint Locking, there is a strong inter-examiner agreement. As for the Muscle & TMJ Pain with Palpation parameters, only the disagreement between examiner 1 and 2 stands out at T2 when the left lateral pole (0.5kg) was evaluated on scales 1 and 2. In the Supplemental Muscle Pain with Palpation chapter, only the submandibular region on the left side shows weaker inter-examiner agreement. The agreement will be verified between moments 1 vs. 2 by the same examiner. Strong and generalized across-the-moment agreement on Incisal Relationships items. In **Suppl. Table 3** a strong and generalized inter-moment agreement on Opening Pattern items is represented.

Regarding the opening movements (**Suppl. Table 3**), a strong and generalized agreement was verified. It should only be noted that the following items show weaker agreement between the 2 moments in examiner 1: [Temporalis] [Scale 1] unassisted maximum opening (right side) and [TMJ] [Scale 2] maximum assisted opening (left side). Regarding the chapter Lateral and Protrusive Movements is Concerned (**Suppl. Table 3**), the diagnosis is favorable in terms of agreement. There is a poor inter-examiner agreement between examiners 1 and 2 at item: [TMJ] [Scale 2] for movement C (Protrusion) - Right Side. In **Suppl. Table 3**, mentioning TMJ Noises During Open & Close Movements, the results showed that the concordance between examiners and time of collection is medium to high, ranging from 0.604 to 1.000. The results obtained also higher discrepancies in click detection noise.

**Suppl. Table 4** shows the strong and generalized inter-moment agreement on TMJ Noises During Lateral & Protrusive Movements items between all 3



examiners. In **Suppl. Table 4** the strong, generalized agreement across moments on Joint Locking items is presented. Presented in **Suppl. Table 4**, we can understand that in the Temporalis (posterior - Scale 2) right side (1kg), around the lateral pole (1kg) - Scale 2 left side, TMJ in the lateral pole (0.5kg) - Scale 1 left side - Scale 1 and 2) the Intraclass correlation coefficients are weaker than expected by chance between moments in examiner 1. At the Supplemental Muscle Pain with Palpation level, there is a strong and generalized agreement between time points (**Suppl. Table 4**). Of note, there is only a weaker agreement in the Submandibular Region on the first scale on the left side (0.5kg) between T1 and T2 on examiner 2.

## DISCUSSION

There are various statistical methodologies for determining inter-examiner reliability. Intraclass correlation coefficients (ICC) or kappa statistics are typically used for this purpose. ICCs can be used to assess the comparability of continuous variables (JOHN *et al.*, 2001). In contrast, kappa statistics have typically been employed to assess the consistency of diagnoses (VIERA & GARRETT, 2005). The reliability may be higher (sensitivity smaller than specificity) or lower (sensitivity bigger than specificity) than predicted, depending on the sensitivity and specificity of the assessors (ASENDORF *et al.*, 2021). In that sense, the examiner's calibration phase is important to ensure the consistency of a study and its replicability. The calibration must be guaranteed by the choice of a measuring instrument for examiner agreement and by the type of population examined during the calibration process. In the examiners' theoretical exposition and practical training phase, there was ample discussion of the criteria adopted in the group. Then, during data collection, the team consensus would prevail over the individual criteria of each examiner (even if contrary to their convictions).

In the first calibration stage, inter-examiner reliability, examiners proved to provide satisfactory levels of agreement. In the cases above, in the kappa calculation, matrices allow the analysis of where the most frequent disagreements are located, generating a stronger direction for the calibration process. The agreement statistics used during calibration are essential since their application allows verification and improves research accuracy. It also enhances the examiners' interpretation of the criteria adopted in the exams. Inter-examiner reliability can be measured in any situation in which two independent observers are assessing the same data variable (VIERA & GARRETT, 2005).

In the analysis of the variables of the incisal relationship study table, the existence of a slight discrepancy caused between examiners 2 and 3 was verified at T2

(ICC  $\geq$  0.667). As for the other variables of this same table, an almost perfect inter-examiner agreement was reached (ICC=1) in several variables analyzed. Inter-rater agreement in metrical parameters is comparable to that seen in previous investigations (SCHMITTER *et al.*, 2005; ÖSTERLUND *et al.*, 2018; ASENDORF *et al.*, 2021). According to the literature, the reliability of laterotrusive measures is the lowest, especially on the left side. This might be due to the examiner's posture, usually to the patient's right throughout the recording. Our research also saw this impact throughout all DC/TMD applications.

In the analysis of the opening pattern, an excellent inter-examiner agreement was obtained, where the lowest ICC was  $\geq$ 0.867 between examiners 1 and 2 at T2. However, regarding the analysis of the opening movements, in the unassisted maximal opening at the site of the right Temporalis muscle, examiner 2 manifested at T2 a weaker agreement than expected on the right side (Kappa between -0.340 and -0.370). When analyzing the variables of laterality movements and for other users, we found for movement C, in the comparison between examiners 2 and 3, that there was a negative kappa coefficient, and the agreement was weaker than expected for both sides (Kappa between -0.034 and 0.037). In the case of TMJ noises during opening and closing movements, an almost perfect agreement was verified between all examiners, existing a deviation in clicks on the right scale 2 (Kappa between 0.423 and 0.757), which agrees with John *et al.* (2001). The lowest ICC (ICC $\geq$ 0.800) between examiners 1 and 2 at T2 was obtained. Similarly, a lower than-predicted ICC (ICC $\geq$ 0.733) was obtained in evaluating joint noises in the laterality and protrusion movement between examiner 1 and 2 at T2 (Kappa between 0.459 and 0.576). In TMJ locking's evaluation, an excellent inter-examiner agreement was reached.

The examiners sought to elicit a pain reaction surpassing the nociceptive input region by specifying a palpation length of 5 seconds per palpation site. If the evoked pain goes beyond the bounds of the palpated structure, it is referred pain; if it affects adjacent structures, it is called spreading pain. In the results that assess TMJ muscle pain with palpation, a lower agreement at T2 between examiner 2 and 3 was obtained in the evaluation of the right-lateral pole (0.5kg) (ICC $\geq$ 0.833). Similarly, at T2, between examiners 1 and 2, a lower ICC ( $\geq$ 0.733) on the lateral pole assessment (1kg) of the left side was reached. Finally, the last inter-examiner evaluation assessed the supplementary muscle pain with TMJ palpation. It has an almost perfect agreement between the various variables analyzed, which was opposite to what was previously demonstrated by Conti *et al.* (2002).

Regarding the intra-examiner reliability, it can be ascertained that it was excellent since the intraclass correlation coefficients obtained were always high. The lowest ICC value was obtained by examiner 3 in quantifying the horizontal incisal





overbite in mm (0.700). This result can be explained by a difference in visualization since subjective when measuring with an analog ruler. However, it is not significant since these quantifiable variables were also analyzed through a correlation matrix using Pearson's test, where high multicollinearity between all measurements was demonstrated. This indicates a strong correlation and linear relationship between the examiners in these quantified measurements.

One limitation of this study was the relatively small sample size resulting in low power for statistical tests and the lack of specific training for muscle palpation sites. To apply this DC/TMD questionnaire, more experienced examiners might be a more valid option. However, using the validated Portuguese version of the DC/TMD avoided problems of interpretation and comprehension.

## CONCLUSION

It is of utmost importance that the medical community finds the correct diagnosis of TMDs and agrees on a proper multifaceted therapeutic approach since they significantly impact the patient's quality of life. No clear and consistent difference in the level of agreement between the three examiners could be observed, proving that all three examiners could participate in the data collection in further investigations. The results showed almost perfect concordance values of intra- and inter-examiner agreement when using the DC/TMD questionnaire. This calibration examiner's process ensures greater accuracy of the results and provides reliability and replicability for the data to be obtained in the future.

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Suppl. Table 1. Kappa coefficient and inter-examiner agreement.

(Incisal Relationships)	T1						T2					
	Examiner 1 vs 2		Examiner 1 vs 3		Examiner 2 vs 3		Examiner 1 vs 2		Examiner 1 vs 3		Examiner 2 vs 3	
	Kappa	ICC	Kappa	ICC	Kappa	ICC	Kappa	ICC	Kappa	ICC	Kappa	ICC
Horizontal incisal overbite	0.998	0.967	1.000*	1.000	0.998	0.967	1.000*	0.967	1.000*	0.967	1.000*	1.000
Vertical incisal overbite	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
Vertical incisal overbite in mm	0.779	0.833	0.864	0.867	0.762	0.800	0.675	0.700	0.818	0.800	0.552	0.667
Is there midline deviation?	1.000	1.000	0.945	0.933	0.945	0.933	0.671	0.733	0.946	0.900	0.691	0.800
<b>(Opening Pattern)</b>												
Opening pattern	1.000	1.000	1.000	0.967	1.000	0.967	0.872	0.867	1.000	0.933	0.819	0.900
Choose the type of uncorrected deviation	1.000*	1.000	1.000*	1.000	1.000*	1.000	1.000*	1.000	0.998	0.967	0.998	0.967
<b>(Opening movements)</b>												
[Temporalis] [Scale 1] Unassisted maximum opening. Right Side.	1.000	1.000	1.000	0.967	1.000	0.967	-0.370	0.867	1.000	0.933	-0.340	0.933
[Temporalis] [Scale 2] Unassisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 1] Unassisted maximum opening. Right Side.	0.651	0.967	1.000	0.967	0.651	0.933	1.000	0.933	0.650	0.900	0.651	0.967
[Masseter] [Scale 2] Unassisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[TMJ] [Scale 1] Unassisted maximum opening. Right Side.	1.000	1.000	1.000	0.967	1.000	0.967	1.000	0.933	1.000	0.933	1.000	1.000
[TMJ] [Scale 2] Unassisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 1] Unassisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 2] Unassisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 1] Unassisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 2] Unassisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 1] Unassisted maximum opening. Left Side.	0.000	0.967	1.000	0.967	0.998	0.933	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 2] Unassisted maximum opening. Left Side.	0.000	0.967	1.000	0.967	1.000*	0.933	1.000*	0.967	1.000*	0.967	1.000*	1.000
[Masseter] [Scale 1] Unassisted maximum opening. Left Side.	0.651	0.967	0.651	0.933	1.000	0.967	1.000	0.933	0.650	0.900	0.464	0.933
[Masseter] [Scale 2] Unassisted maximum opening. Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[TMJ] [Scale 1] Unassisted maximum opening. Left Side.	1.000	1.000	0.651	0.933	0.651	0.933	1.000	0.933	0.650	0.900	0.651	0.967
[TMJ] [Scale 2] Unassisted maximum opening. Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 1] Unassisted maximum opening. Left Side.	1.000*	1.000	1.000*	0.933	1.000*	0.933	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 2] Unassisted maximum opening. Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 1] Unassisted maximum opening. Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 2] Unassisted maximum opening. Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 1] Assisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 2] Assisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 1] Assisted maximum opening. Right Side.	0.651	0.967	1.000	0.967	0.651	0.933	0.650	0.900	0.650	0.900	1.000	1.000
[Masseter] [Scale 2] Assisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[TMJ] [Scale 1] Assisted maximum opening. Right Side.	0.754	0.900	0.731	0.867	0.731	0.867	0.500	0.767	0.727	0.833	0.661	0.867
[TMJ] [Scale 2] Assisted maximum opening. Right Side.	0.783	0.967	0.651	0.933	0.473	0.900	1.000*	0.867	1.000*	0.900	0.783	0.967
[Other masticatory muscles] [Scale 1] Assisted maximum opening. Right Side.	1.000	1.000	1.000	0.967	1.000	0.967	1.000*	0.900	1.000	0.933	1.000*	0.967
[Other masticatory muscles] [Scale 2] Assisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 1] Assisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000



[Non-masticatory] [Scale 2] Assisted maximum opening. Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 1] Assisted maximum opening. Left Side.	1.000*	0.967	1.000	0.967	1.000*	0.933	1.000*	0.900	1.000*	0.900	1.000*	1.000
[Temporalis] [Scale 2] Assisted maximum opening. Left Side.	1.000*	0.967	1.000*	0.933	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 1] Assisted maximum opening. Left Side.	0.651	0.967	1.000	0.967	0.651	0.933	1.000	0.933	0.650	0.900	0.464	0.933
[Masseter] [Scale 2] Assisted maximum opening. Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[TMJ] [Scale 1] Assisted maximum opening. Left Side.	0.630	0.867	0.664	0.867	0.791	0.900	0.364	0.733	0.435	0.767	0.444	0.833
[TMJ] [Scale 2] Assisted maximum opening. Left Side.	0.651	0.967	1.000*	0.933	1.000*	0.900	-0.370	0.867	-0.370	0.867	-0.034	0.933
[Other masticatory muscles] [Scale 1] Assisted maximum opening. Left Side.	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 2] Assisted maximum opening. Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 1] Assisted maximum opening. Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 1] Assisted maximum opening. Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000

## (Lateral and Protrusive Movements)

[Temporalis] [Scale 1] Relative to movement A (Right Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 2] Relative to movement A (Right Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 1] Relative to movement A (Right Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 2] Relative to movement A (Right Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[TMJ] [Scale 1] Relative to movement A (Right Lateral) - Right Side.	1.000	1.000	0.651	0.933	0.651	0.933	-0.037	0.867	1.000	0.933	-0.034	0.933
[TMJ] [Scale 2] Relative to movement A (Right Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 1] Relative to movement A (Right Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 2] Relative to movement A (Right Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 2] Relative to movement A (Right Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 1] Relative to movement A (Right Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 2] Relative to movement A (Right Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 1] Relative to movement A (Right Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 2] Relative to movement A (Right Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 1] Relative to movement A (Right Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[TMJ] [Scale 2] Relative to movement A (Right Lateral) - Left Side.	0.998	0.967	0.998	0.933	1.000*	0.967	0.998	0.933	1.000*	0.900	1.000*	0.933
[TMJ] [Scale 2] Relative to movement A (Right Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 1] Relative to movement A (Right Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 2] Relative to movement A (Right Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 1] Relative to movement A (Right Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 2] Relative to movement A (Right Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000



[Temporalis] [Scale 1] Relative to movement A (Left Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 2] Relative to movement A (Left Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 1] Relative to movement A (Left Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 2] Relative to movement A (Left Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[TMJ] [Scale 1] Relative to movement A (Left Lateral) - Right Side.	1.000*	1.000	1.000*	0.933	1.000*	0.933	0.998	0.933	0.998	0.900	0.998	0.967
[TMJ] [Scale 2] Relative to movement A (Left Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 1] Relative to movement A (Left Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 2] Relative to movement A (Left Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 1] Relative to movement A (Left Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 2] Relative to movement A (Left Lateral) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 1] Relative to movement A (Left Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 2] Relative to movement A (Left Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 1] Relative to movement A (Left Lateral) - Left Side.	0.998	0.967	0.998	0.933	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 2] Relative to movement A (Left Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[TMJ] [Scale 1] Concerning movement B (Left Lateral) - LEFT SIDE.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[TMJ] [Scale 2] Relative to movement A (Left Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 1] Relative to movement A (Left Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 2] Relative to movement A (Left Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 1] Relative to movement A (Left Lateral) - Left Side.	empty	1.000	empty	0.967	empty	0.967	empty	0.933	empty	0.933	empty	1.000
[Non-masticatory] [Scale 2] Relative to movement A (Left Lateral) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
Indicate positive or negative protrusion.	1.000	1.000	1.000	0.967	1.000	0.967	1.000	0.933	1.000	0.933	1.000	1.000
[Temporalis] [Scale 1] Relative to movement C (Protrusion) - Right Side.	0.998	0.967	1.000*	0.967	0.998	0.933	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 2] Relative to movement C (Protrusion) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 1] Relative to movement C (Protrusion) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 2] Relative to movement C (Protrusion) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[TMJ] [Scale 1] Relative to movement C (Protrusion) - Right Side.	0.839	0.967	0.838	0.933	1.000	0.967	0.523	0.833	1.000	0.933	0.526	0.900
[TMJ] [Scale 2] Relative to movement C (Protrusion) - Right Side.	0.651	0.967	1.000	0.967	0.651	0.933	-0.037	0.867	1.000	0.933	-0.034	0.933
[Other masticatory muscles] [Scale 1] Relative to movement C (Protrusion) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000



[Other masticatory muscles] [Scale 2] Relative to movement C (Protrusion) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 1] Relative to movement C (Protrusion) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 1] Relative to movement C (Protrusion) - Right Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 1] Relative to movement C (Protrusion) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis] [Scale 2] Relative to movement C (Protrusion) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 1] Relative to movement C (Protrusion) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter] [Scale 2] Relative to movement C (Protrusion) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[TMJ] [Scale 1] Relative to movement C (Protrusion) - Left Side.	0.712	0.933	0.514	0.867	0.838	0.933	0.523	0.833	1.000	0.933	0.526	0.900
[TMJ] [Scale 2] Relative to movement C (Protrusion) - Left Side.	0.651	0.967	1.000	0.967	0.651	0.933	-0.037	0.867	1.000	0.933	-0.034	0.933
[Other masticatory muscles] [Scale 1] Relative to movement C (Protrusion) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Other masticatory muscles] [Scale 2] Relative to movement C (Protrusion) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 1] Relative to movement C (Protrusion) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Non-masticatory] [Scale 2] Relative to movement C (Protrusion) - Left Side.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000

## (TMJ Noises During Open &amp; Close Movements)

[Click] [Scale 1] RIGHT TMJ. The examiner should select if any joint noises were felt in the following movements	1.000	1.000	1.000	0.967	1.000	0.967	0.854	0.867	0.926	0.900	0.789	0.900
[Click] [Scale 2] RIGHT TMJ. The examiner should select if any joint noises were felt in the following movements.	0.712	0.933	1.000	0.967	0.710	0.900	0.423	0.800	0.757	0.867	0.429	0.867
[Crepitus] [Scale 1] RIGHT TMJ. The examiner should select if any joint noises were felt in the following movements.	1.000	1.000	1.000	0.967	1.000	0.967	1.000	0.933	1.000	0.933	1.000	1.000
[Crepitus] [Scale 2] RIGHT TMJ. The examiner should select if any joint noises were felt in the following movements.	1.000	1.000	1.000	0.967	1.000	0.967	0.650	0.900	0.650	0.900	1.000	1.000
[Click] [Scale 1] LEFT TMJ. The examiner should select if any joint noises were felt in the following movements.	1.000	1.000	0.790	0.900	0.790	0.900	0.900	0.900	0.887	0.900	0.710	0.900
[Click] [Scale 2] LEFT TMJ. The examiner should select if any joint noises were felt in the following movements.	1.000	1.000	0.782	0.933	0.782	0.933	0.837	0.900	1.000	0.933	0.839	0.967
[Crepitus] [Scale 1] LEFT TMJ. The examiner should select if any joint noises were felt in the following movements.	1.000*	1.000	0.998	0.933	0.998	0.933	1.000*	0.933	1.000*	0.900	1.000*	0.967
[Crepitus] [Scale 2] LEFT TMJ. The examiner should select if any joint noises were felt in the following movements.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000	0.933	0.650	0.933	0.651	1.000

\* Stands for Kappa = 1. stating perfect agreement between examiners. ICC – Stands for Intraclass correlation coefficient.





Suppl. Table 2. Kappa coefficient and inter-examiner agreement.

(TMJ Noises During Lateral & Protrusive Movements)	T1				T2							
	Examiner 1 vs 2		Examiner 1 vs 3		Examiner 2 vs 3		Examiner 1 vs 2		Examiner 1 vs 3		Examiner 2 vs 3	
	Kappa	ICC	Kappa	ICC	Kappa	ICC	Kappa	ICC	Kappa	ICC	Kappa	ICC
[Click] RIGHT TMJ. The examiner should select if any joint noises were felt in the following movements	0.923	0.967	0.840	0.900	0.917	0.933	0.500	0.767	0.576	0.800	0.489	0.800
[Crepitus] RIGHT TMJ. The examiner should select if any joint noises were felt in the following movements	1.000	1.000	1.000	0.967	1.000	0.967	1.000	0.933	1.000	0.933	1.000	1.000
[Click] LEFT TMJ. The examiner should select if any joint noises were felt in the following movements	1.000	1.000	0.888	0.933	0.888	0.933	0.429	0.733	0.700	0.833	0.510	0.833
[Crepitus] LEFT TMJ. The examiner should select if any joint noises were felt in the following movements	1.000	1.000	1.000	0.967	1.000	0.967	1.000	0.933	1.000	0.933	1.000	1.000
(Joint Locking)												
[During opening] RIGHT TMJ. Indicate if Locking.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Fully open position] RIGHT TMJ. Indicate if Locking.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[During opening] [Scale 2] RIGHT TMJ. Indicate if Reduction.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Fully open position] [Scale 2] RIGHT TMJ. Indicate if Reduction.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[During aperture] [Scale 2] LEFT TMJ. Indicate if Reduction.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Fully open position] [Scale 2] LEFT TMJ. Indicate if Reduction.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[During opening] LEFT TMJ. Indicate if Locking.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Fully open position] LEFT TMJ. Indicate if Locking.	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
(Muscle & TMJ Pain with Palpation)												
[Temporalis (posterior)] [Scale 1] RIGHT SIDE (1 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis (posterior)] [Scale 2] RIGHT SIDE (1 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis (middle)] [Scale 1] RIGHT SIDE (1 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.867	1.000*	0.933	1.000*	0.933
[Temporalis (middle)] [Scale 2] RIGHT SIDE (1 kg)	1.000	1.000	0.786	0.967	0.786	0.967	0.286	0.867	0.643	0.933	0.464	0.933
[Temporalis (anterior)] [Scale 1] RIGHT SIDE (1 kg)	0.651	0.967	1.000	0.967	0.651	0.933	1.000	0.933	1.000	0.933	1.000	1.000
[Temporalis (anterior)] [Scale 2] RIGHT SIDE (1 kg)	0.651	0.967	0.651	0.967	0.651	0.933	1.000	0.933	1.000	0.933	1.000	1.000
[Masseter (origin)] [Scale 1] RIGHT SIDE (1 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter (origin)] [Scale 2] RIGHT SIDE (1 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter (body)] [Scale 1] RIGHT SIDE (1 kg)	0.783	0.967	0.782	0.933	1.000	0.967	0.462	0.867	0.650	0.900	0.783	0.967
[Masseter (body)] [Scale 2] RIGHT SIDE (1 kg)	1.000	1.000	1.000	0.967	1.000	0.967	1.000	0.933	1.000	0.933	1.000	1.000
[Masseter (insertion)] [Scale 1] RIGHT SIDE (1 kg)	0.651	0.967	0.651	0.933	1.000	0.967	0.650	0.900	0.650	0.900	1.000	1.000
[Masseter (insertion)] [Scale 2] RIGHT SIDE (1 kg)	1.000	1.000	1.000	0.967	1.000	0.967	1.000	0.933	1.000	0.933	1.000	1.000
[Temporalis (posterior)] [Scale 1] LEFT SIDE (1 kg)	1.000*	0.967	1.000*	1.000	1.000*	0.967	1.000*	0.933	1.000*	1.000	1.000*	0.933
[Temporalis (posterior)] [Scale 2] LEFT SIDE (1 kg)	1.000*	0.967	1.000*	1.000	1.000*	0.967	1.000*	0.933	1.000*	1.000	1.000*	0.933
[Temporalis (middle)] [Scale 1] LEFT SIDE (1 kg)	1.000*	0.967	1.000*	1.000	1.000*	0.967	1.000*	0.933	1.000*	1.000	1.000*	0.933
[Temporalis (middle)] [Scale 2] LEFT SIDE (1 kg)	1.000	0.967	1.000	1.000	1.000	0.967	1.000*	0.933	1.000	1.000	1.000*	0.933
[Temporalis (anterior)] [Scale 1] LEFT SIDE (1 kg)	1.000	0.967	1.000	1.000	1.000	0.967	1.000*	0.933	1.000	1.000	1.000*	0.933
[Temporalis (anterior)] [Scale 2] LEFT SIDE (1 kg)	1.000*	0.967	1.000*	1.000	1.000*	0.967	1.000*	0.933	1.000*	1.000	1.000*	0.933
[Masseter (origin)] RIGHT SIDE. (1 kg)	1.000*	0.933	1.000*	0.933	1.000*	1.000	1.000*	0.867	1.000*	0.900	1.000*	0.967
[Masseter (body)] RIGHT SIDE. (1 kg)	1.000*	0.933	1.000*	0.933	1.000*	1.000	1.000*	0.867	1.000*	0.900	1.000*	0.933
[Masseter (insertion)] RIGHT SIDE. (1 kg)	1.000*	0.933	1.000*	0.933	1.000*	1.000	1.000*	0.867	1.000*	0.900	1.000*	0.967
[Lateral pole (0.5 kg)] [Scale 1] RIGHT SIDE (TMJ)	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.867	1.000*	0.933	1.000*	0.933
[Lateral pole (0.5 kg)] [Scale 2] RIGHT SIDE (TMJ)	0.651	1.000	1.000	0.967	0.651	0.967	-0.037	0.867	1.000	0.933	-0.034	0.933
[Around Lateral pole (0.5 kg)] [Scale 1] RIGHT SIDE (TMJ)	0.706	0.900	0.888	0.933	0.580	0.833	0.512	0.833	0.253	0.800	0.609	0.900
[Around Lateral pole (0.5 kg)] [Scale 2] RIGHT SIDE (TMJ)	0.651	0.967	1.000	0.967	0.651	0.933	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Lateral pole (0.5 kg)] RIGHT SIDE. (TMJ)	1.000	0.900	1.000	0.933	1.000	0.833	1.000	0.800	1.000	0.833	1.000	0.833
[Around Lateral pole (0.5 kg)] RIGHT SIDE. (TMJ)	1.000*	0.900	1.000*	0.933	1.000*	0.833	1.000*	0.800	1.000*	0.833	1.000*	0.833
[Temporalis (posterior)] [Scale 1] LEFT SIDE (1 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis (posterior)] [Scale 2] LEFT SIDE (1 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis (middle)] [Scale 1] LEFT SIDE (1 kg)	1.000	1.000	0.838	0.933	0.838	0.933	0.627	0.867	0.781	0.900	0.348	0.900
[Temporalis (middle)] [Scale 2] LEFT SIDE (1 kg)	1.000	1.000	0.628	0.900	0.628	0.900	0.627	0.867	0.472	0.867	0.474	0.933
[Temporalis (anterior)] [Scale 1] LEFT SIDE (1 kg)	1.000	1.000	1.000	0.967	1.000	0.967	1.000	0.933	1.000	0.933	1.000	1.000
[Temporalis (anterior)] [Scale 2] LEFT SIDE (1 kg)	1.000	1.000	1.000	0.967	1.000	0.967	1.000	0.933	1.000	0.933	1.000	1.000
[Masseter (origin)] [Scale 1] LEFT SIDE (1 kg)	1.000*	0.967	1.000*	0.933	1.000*	0.967	1.000	0.933	1.000*	0.900	1.000*	0.967
[Masseter (origin)] [Scale 2] LEFT SIDE (1 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Masseter (body)] [Scale 1] LEFT SIDE. (1 kg)	0.464	0.933	0.463	0.900	0.463	0.900	0.998	0.933	0.998	0.900	0.651	0.967



[Masseter (body)] [Scale 2] LEFT SIDE. (1 kg)	1.000	0.967	0.651	0.933	1.000	0.967	0.650	0.900	1.000	0.933	0.651	0.967
[Masseter (insertion)] [Scale 1] LEFT SIDE (1 kg)	1.000	1.000	1.000	0.967	1.000	0.967	1.000	0.933	1.000	0.933	1.000	1.000
[Masseter (insertion)] [Scale 2] LEFT SIDE (1 kg)	1.000	1.000	1.000	0.967	1.000	0.967	0.650	0.900	1.000	0.933	0.651	0.967
[Temporalis (posterior)] [Scale 1] LEFT SIDE (1 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.967	1.000*	0.900
[Temporalis (posterior)] [Scale 2] LEFT SIDE (1 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.967	1.000*	0.900
[Temporalis (middle)] [Scale 1] LEFT SIDE (1 kg)	0.998	1.000	0.998	0.900	0.998	0.900	1.000*	0.900	1.000*	0.933	1.000*	0.867
[Temporalis (middle)] [Scale 2] LEFT SIDE (1 kg)	1.000	1.000	1.000*	0.933	1.000*	0.933	1.000*	0.933	1.000*	0.933	1.000*	0.900
[Temporalis (anterior)] [Scale 1] LEFT SIDE (1 kg)	1.000	1.000	1.000	0.967	1.000	0.967	1.000	0.933	1.000	0.967	1.000	0.900
[Temporalis (anterior)] [Scale 2] LEFT SIDE (1 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.967	1.000*	0.900
[Masseter (origin)] LEFT SIDE (1 kg)	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.967	1.000*	0.967	1.000*	1.000
[Masseter (body)] LEFT SIDE (1 kg)	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.967	1.000*	0.967	1.000*	1.000
[Masseter (insertion) LEFT SIDE (1 kg)	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.967	1.000*	0.967	1.000*	1.000
[Lateral Pole (0.5 kg)] [Scale 1] LEFT SIDE (TMJ)	0.783	0.967	1.000	0.967	1.000	0.967	-0.077	0.800	0.781	0.900	0.348	0.900
[Lateral Pole (0.5 kg)] [Scale 2] LEFT SIDE (TMJ)	1.000	1.000	1.000	0.967	1.000	0.967	-0.037	0.867	1.000	0.933	-0.034	0.933
[Around lateral pole (1 kg)] [Scale 1] LEFT SIDE. (TMJ)	0.609	0.900	0.628	0.900	0.514	0.867	0.270	0.733	0.604	0.833	0.348	0.833
[Around lateral pole (1 kg)] [Scale 2] LEFT SIDE. (TMJ)	0.651	0.967	0.651	0.933	1.000	0.967	-0.037	0.867	1.000	0.933	1.000	0.933
[Lateral Pole (0.5 kg)] LEFT SIDE (TMJ)	1.000	0.900	0.400	0.867	0.400	0.833	1.000*	0.800	1.000*	0.900	1.000*	0.833
[Around lateral pole (1 kg LEFT SIDE. (TMJ)	1.000	0.900	0.998	0.867	0.998	0.833	0.998	0.767	1.000*	0.900	1.000*	0.833

(Supplemental Muscle Pain with Palpation)

[Mandibular region posterior] [Scale 1] RIGHT SIDE. (0.5 kg)	0.630	0.933	0.782	0.933	0.782	0.933	1.000	0.933	0.781	0.900	0.783	0.967
[Mandibular region posterior] [Scale 2] RIGHT SIDE. (0.5 kg)	0.998	0.967	1.000*	0.967	0.998	0.933	0.998	0.933	0.998	0.900	1.000*	0.967
[Submandibular region] [Scale 1] RIGHT SIDE. (0.5 kg)	1.000	1.000	0.463	0.900	0.463	0.900	-0.057	0.800	0.837	0.900	-0.098	0.800
[Submandibular region] [Scale 2] RIGHT SIDE. (0.5 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Lateral pterygoid area] [Scale 1] RIGHT SIDE. (0.5 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Lateral pterygoid area] [Scale 2] RIGHT SIDE. (0.5 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis tendon] [Scale 1] RIGHT SIDE. (0.5 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis tendon] [Scale 2] RIGHT SIDE. (0.5 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Mandibular region posterior] RIGHT SIDE. (0.5 kg)	1.000*	0.933	1.000*	0.933	1.000*	0.933	1.000*	0.833	1.000*	0.967	1.000*	0.800
[Submandibular region] RIGHT SIDE. (0.5 kg)	1.000*	0.933	1.000*	0.933	1.000*	0.933	1.000*	0.833	1.000*	0.967	1.000*	0.800
[Lateral pterygoid area] RIGHT SIDE. (0.5 kg)	1.000*	0.933	1.000*	0.933	1.000*	0.933	1.000*	0.833	1.000*	0.967	1.000*	0.800
[Temporalis tendon] RIGHT SIDE. (0.5 kg)	1.000*	0.933	1.000*	0.933	1.000*	0.933	1.000*	0.833	1.000*	0.967	1.000*	0.800
[Mandibular region posterior] [Scale 1] LEFT SIDE. (0.5 kg)	0.366	0.900	0.633	0.900	0.651	0.933	0.472	0.867	1.000	0.933	0.348	0.900
[Mandibular region posterior] [Scale 2] LEFT SIDE. (0.5 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Submandibular region] [Scale 1] LEFT SIDE. (0.5 kg)	0.651	0.967	0.463	0.900	0.651	0.933	-0.057	0.800	0.837	0.900	-0.098	0.800
[Submandibular region] [Scale 2] LEFT SIDE. (0.5 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Lateral pterygoid area] [Scale 1] LEFT SIDE. (0.5 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Lateral pterygoid area] [Scale 2] LEFT SIDE. (0.5 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis tendon] [Scale 1] LEFT SIDE. (0.5 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Temporalis tendon] [Scale 2] LEFT SIDE. (0.5 kg)	1.000*	1.000	1.000*	0.967	1.000*	0.967	1.000*	0.933	1.000*	0.933	1.000*	1.000
[Mandibular region posterior] LEFT SIDE. (0.5 kg)	1.000*	0.900	1.000*	0.933	1.000*	0.967	1.000*	0.800	1.000*	1.000	1.000*	0.800
[Submandibular region] LEFT SIDE. (0.5 kg)	1.000*	0.900	1.000*	0.933	1.000*	0.967	1.000*	0.800	1.000*	1.000	1.000*	0.800
[Lateral pterygoid area] LEFT SIDE. (0.5 kg)	1.000*	0.900	1.000*	0.933	1.000*	0.967	1.000*	0.800	1.000*	1.000	1.000*	0.800
[Temporalis tendon] LEFT SIDE. (0.5 kg)	1.000*	0.900	1.000*	0.933	1.000*	0.967	1.000*	0.800	1.000*	1.000	1.000*	0.800

\* Stands for Kappa = 1. stating perfect agreement between examiners. ICC - Stands for Intraclass correlation coefficient.

**Suppl. Table 3.** Kappa coefficient and inter-examiner agreement.

(Incisal Relationships)	Examiner 1		Examiner 2		Examiner 3	
	T1 vs T2		T1 vs T2		T1 vs T2	
	Kappa	ICC	Kappa	ICC	Kappa	ICC
Horizontal incisal overbite	1.000*	0.967	0.998	0.967	1.000*	1.000
Quantify in mm the horizontal incisal overbite	1.000*	0.800	1.000*	0.900	1.000*	0.700
Vertical incisal overbite	1.000*	0.933	1.000*	1.000	1.000*	0.967
Is there midline deviation?	0.782	0.800	0.791	0.867	0.784	0.833
<b>(Opening Pattern)</b>						
Opening pattern	0.936	0.900	0.877	0.933	0.938	0.933
Choose the type of uncorrected deviation	1.000*	1.000	1.000*	1.000	0.998	0.967
<b>(Opening Movements)</b>						
[Temporalis] [Scale 1] Unassisted maximum opening. RIGHT SIDE.	-0.037	0.867	-0.034	0.933	-0.036	0.900
[Temporalis] [Scale 2] Unassisted maximum opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 1] Unassisted maximum opening. RIGHT SIDE.	0.650	0.900	1.000	1.000	1.000	0.967
[Masseter] [Scale 2] Unassisted maximum opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[TMJ] [Scale 1] Unassisted maximum opening. RIGHT SIDE.	1.000	0.933	1.000	1.000	0.998	0.967
[TMJ] [Scale 2] Unassisted maximum opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Other masticatory muscles] [Scale 1] Unassisted maximum opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Other masticatory muscles] [Scale 2] Unassisted maximum opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 1] Unassisted maximum opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 2] Unassisted maximum opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis] [Scale 1] Unassisted maximum opening. LEFT SIDE.	0.998	0.900	1.000*	1.000	0.998	0.933
[Temporalis] [Scale 2] Unassisted maximum opening. LEFT SIDE.	0.998	0.933	1.000*	1.000	0.998	0.933
[Masseter] [Scale 1] Unassisted maximum opening. LEFT SIDE.	0.650	0.900	1.000	1.000	0.651	0.933
[Masseter] [Scale 2] Unassisted maximum opening. LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[TMJ] [Scale 1] Unassisted maximum opening. LEFT SIDE.	1.000	0.933	1.000	1.000	1.000	0.967
[TMJ] [Scale 2] Unassisted maximum opening. LEFT SIDE.	1.000*	0.933	1.000*	1.000	0.998	0.967
[Other masticatory muscles] [Scale 1] Unassisted maximum opening. LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.933
[Other masticatory muscles] [Scale 2] Unassisted maximum opening. LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 1] Unassisted maximum opening. LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 2] Unassisted maximum opening. LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis] [Scale 1] Maximum assisted opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis] [Scale 2] Maximum assisted opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 1] Maximum assisted opening. RIGHT SIDE.	0.650	0.900	0.464	0.933	1.000	0.967
[Masseter] [Scale 2] Maximum assisted opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[TMJ] [Scale 1] Maximum assisted opening. RIGHT SIDE.	0.619	0.800	0.661	0.867	0.657	0.833
[TMJ] [Scale 2] Maximum assisted opening. RIGHT SIDE.	0.998	0.900	0.63	0.933	0.651	0.933
[Other masticatory muscles] [Scale 1] Maximum assisted opening. RIGHT SIDE.	1.000	0.933	0.998	0.967	1.000	0.967
[Other masticatory muscles] [Scale 2] Maximum assisted opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 1] Maximum assisted opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 2] Maximum assisted opening. RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis] [Scale 1] Maximum assisted opening. LEFT SIDE.	1.000	0.933	1.000*	1.000	0.998	0.933
[Temporalis] [Scale 2] Maximum assisted opening. LEFT SIDE.	0.998	0.900	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 1] Maximum assisted opening. LEFT SIDE.	1.000	0.933	0.651	0.967	0.651	0.933
[Masseter] [Scale 2] Maximum assisted opening. LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[TMJ] [Scale 1] Maximum assisted opening. LEFT SIDE.	0.576	0.800	0.630	0.867	0.517	0.833
[TMJ] [Scale 2] Maximum assisted opening. LEFT SIDE.	-0.037	0.867	-0.047	0.900	0.998	0.933
[Other masticatory muscles] [Scale 1] Maximum assisted opening. LEFT SIDE.	1.000*	0.933	0.998	0.967	1.000*	0.967
[Other masticatory muscles] [Scale 2] Maximum assisted opening. LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967



[Non masticatory] [Scale 1] Maximum assisted opening. LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 2] Maximum assisted opening. LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
Interrupted?	1.000*	0.933	1.000*	1.000	1.000*	0.967
<hr/>						
(Lateral and Protrusive Movements)						
[Temporalis] [Scale 1] Concerning movement A (Right Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis] [Scale 2] Concerning movement A (Right Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 1] Concerning movement A (Right Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 2] Concerning movement A (Right Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[TMJ] [Scale 1] Concerning movement A (Right Lateral) - RIGHT SIDE.	-0.050	0.833	-0.047	0.900	-0.036	0.900
[TMJ] [Scale 2] Concerning movement A (Right Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Other masticatory muscles] [Scale 1] Concerning movement A (Right Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Other masticatory muscles] [Scale 2] Concerning movement A (Right Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 1] Concerning movement A (Right Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 2] Concerning movement A (Right Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Cefaleia familiar] Concerning movement A (Right Lateral) - RIGHT SIDE.	empty	1.000	empty	1.000	empty	1.000
[Temporalis] [Scale 1] Concerning movement A (Right Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis] [Scale 2] Concerning movement A (Right Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 1] Concerning movement A (Right Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 2] Concerning movement A (Right Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[TMJ] [Scale 1] Concerning movement A (Right Lateral) - LEFT SIDE.	0.998	0.900	1.000*	1.000	0.998	0.933
[TMJ] [Scale 2] Concerning movement A (Right Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Other masticatory muscles] [Scale 1] Concerning movement A (Right Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Other masticatory muscles] [Scale 2] Concerning movement A (Right Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 1] Concerning movement A (Right Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 2] Concerning movement A (Right Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Cefaleia familiar] Concerning movement A (Right Lateral) - LEFT SIDE.	empty	1.000	empty	1.000	empty	1.000
[Temporalis] [Scale 1] Concerning movement B (Left Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis] [Scale 2] Concerning movement B (Left Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 1] Concerning movement B (Left Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 2] Concerning movement B (Left Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[TMJ] [Scale 1] Concerning movement B (Left Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	-0.036	0.900
[TMJ] [Scale 2] Concerning movement B (Left Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Other masticatory muscles] [Scale 1] Concerning movement B (Left Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Other masticatory muscles] [Scale 2] Concerning movement B (Left Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 1] Concerning movement B (Left Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 2] Concerning movement B (Left Lateral) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis] [Scale 1] Concerning movement B (Left Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis] [Scale 2] Concerning movement B (Left Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 1] Concerning movement B (Left Lateral) - LEFT SIDE.	0.998	0.900	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 2] Concerning movement B (Left Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[TMJ] [Scale 1] Concerning movement B (Left Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[TMJ] [Scale 2] Concerning movement B (Left Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Other masticatory muscles] [Scale 1] Concerning movement B (Left Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Other masticatory muscles] [Scale 2] Concerning movement B (Left Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 1] Concerning movement B (Left Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 2] Concerning movement B (Left Lateral) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
Indique se Protrusion positiva ou negativa.	1.000	0.933	1.000	1.000	1.000	0.967
[Temporalis] [Scale 1] Concerning movement C (Protrusion) - RIGHT SIDE.	1.000*	0.933	0.998	0.967	1.000*	0.967
[Temporalis] [Scale 2] Concerning movement C (Protrusion) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 1] Concerning movement C (Protrusion) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 2] Concerning movement C (Protrusion) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[TMJ] [Scale 1] Concerning movement C (Protrusion) - RIGHT SIDE.	0.781	0.900	0.609	0.900	0.633	0.900
[TMJ] [Scale 2] Concerning movement C (Protrusion) - RIGHT SIDE.	-0.037	0.867	-0.047	0.900	-0.036	0.900
[Other masticatory muscles] [Scale 1] Concerning movement C (Protrusion) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Other masticatory muscles] [Scale 2] Concerning movement C (Protrusion) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 1] Concerning movement C (Protrusion) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 2] Concerning movement C (Protrusion) - RIGHT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis] [Scale 1] Concerning movement C (Protrusion) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967



[Temporalis] [Scale 2] Concerning movement C (Protrusion) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 1] Concerning movement C (Protrusion) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter] [Scale 2] Concerning movement C (Protrusion) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[TMJ] [Scale 1] Concerning movement C (Protrusion) -LEFT SIDE.	0.344	0.833	0.609	0.900	0.782	0.933
[TMJ] [Scale 2] Concerning movement C (Protrusion) -LEFT SIDE.	0.651	0.867	-0.037	0.900	-0.034	0.900
[Other masticatory muscles] [Scale 1] Concerning movement C (Protrusion) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Other masticatory muscles] [Scale 2] Concerning movement C (Protrusion) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 1] Concerning movement C (Protrusion) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Non masticatory] [Scale 2] Concerning movement C (Protrusion) - LEFT SIDE.	1.000*	0.933	1.000*	1.000	1.000*	0.967

(TMJ Noises During Open & Close Movements)						
[Click] [Scale 1] TMJ RIGHT. The examiner should select whether any joint noise was felt in the following movements	1.000	0.867	0.854	0.900	0.789	0.867
[Click] [Scale 2] TMJ RIGHT. The examiner should select whether any joint noise was felt in the following movements	0.604	0.833	0.839	0.967	0.606	0.867
[Crepitus] [Scale 1] TMJ RIGHT. The examiner should select whether any joint noise was felt in the following movements	1.000	0.933	1.000	1.000	1.000	0.967
[Crepitus] [Scale 2] TMJ RIGHT. The examiner should select whether any joint noise was felt in the following movements	0.650	0.900	1.000	1.000	1.000	0.967
[Click] [Scale 1] TMJ LEFT. The examiner should select whether any joint noise was felt in the following movements	0.661	0.833	0.630	0.867	0.664	0.867
[Click] [Scale 2] TMJ LEFT. The examiner should select whether any joint noise was felt in the following movements	0.627	0.867	0.516	0.900	0.782	0.933
[Crepitus] [Scale 1] TMJ LEFT. The examiner should select whether any joint noise was felt in the following movements	0.998	0.900	0.998	0.967	0.651	0.933
[Crepitus] [Scale 2] TMJ LEFT. The examiner should select whether any joint noise was felt in the following movements	1.000	0.933	1.000	1.000	1.000	0.967

\* Stands for Kappa = 1. stating perfect agreement between examiners. ICC - Stands for Intraclass correlation coefficient.

**Suppl. Table 4.** Kappa coefficient and inter-moment agreement.

(TMJ Noises During Lateral & Protrusive Movements)	Examiner 1		Examiner 2		Examiner 3	
	T1 vs T2		T1 vs T2		T1 vs T2	
	Kappa	ICC	Kappa	ICC	Kappa	ICC
[Click] TMJ RIGHT. The examiner should select whether any joint noise was felt in the following movements	0.731	0.833	0.590	0.833	0.551	0.800
[Crepitus] TMJ RIGHT. The examiner should select whether any joint noise was felt in the following movements	1.000	0.933	1.000	1.000	1.000	0.967
[Click] TMJ LEFT. The examiner should select whether any joint noise was felt in the following movements	0.500	0.767	0.814	0.933	0.440	0.800
[Crepitus] TMJ LEFT. The examiner should select whether any joint noise was felt in the following movements	1.000	0.933	1.000	1.000	1.000	0.967

(Joint Locking)	Examiner 1		Examiner 2		Examiner 3	
	T1 vs T2		T1 vs T2		T1 vs T2	
	Kappa	ICC	Kappa	ICC	Kappa	ICC
[During the Opening] TMJ RIGHT. Indicate if Lock.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Fully open position] TMJ RIGHT. Indicate if Lock.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[During the Opening] [Scale 2] TMJ RIGHT. Indicate if Reduction. Examiner.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Fully open position] [Scale 2] TMJ RIGHT. Indicate if Reduction. Examiner.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[During the Opening] [Scale 2] TMJ LEFT. Indicate if Reduction. Examiner.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Fully open position] [Scale 2] TMJ LEFT. Indicate if Reduction. Examiner.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[During the Opening] TMJ LEFT. Indicate if Lock.	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Fully open position] TMJ LEFT. Indicate if Lock.	1.000*	0.933	1.000*	1.000	1.000*	0.967

(Muscle & TMJ Pain with Palpation)						
[Temporalis (posterior)] [Scale 1] RIGHT SIDE. (1 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis (posterior)] [Scale 2] RIGHT SIDE. (1 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis (middle)] [Scale 1] RIGHT SIDE. (1 kg)	0.286	0.867	0.464	0.933	0.357	0.900
[Temporalis (middle)] [Scale 2] RIGHT SIDE. (1 kg)	0.286	0.867	0.464	0.933	0.357	0.900
[Temporalis (anterior)] [Scale 1] RIGHT SIDE. (1 kg)	1.000	0.933	0.651	0.967	1.000	0.967
[Temporalis (anterior)] [Scale 2] RIGHT SIDE. (1 kg)	1.000	0.933	0.651	0.967	1.000	0.967
[Masseter (origin)] [Scale 1] RIGHT SIDE. (1 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter (origin)] [Scale 2] RIGHT SIDE. (1 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967



[Masseter (body)] [Scale 1] RIGHT SIDE. (1 kg)	1.000	0.933	0.783	0.967	1.000	0.967
[Masseter (body)] [Scale 2] RIGHT SIDE. (1 kg)	1.000	0.933	1.000	1.000	1.000	0.967
[Masseter (insertion)] [Scale 1] RIGHT SIDE. (1 kg)	0.462	0.867	1.000	1.000	1.000	0.967
[Masseter (insertion)] [Scale 2] RIGHT SIDE. (1 kg)	1.000	0.933	1.000	1.000	1.000	0.967
[Temporalis (posterior)] [Scale 1] RIGHT SIDE. (1 kg)	1.000*	0.933	0.998	0.900	1.000*	0.933
[Temporalis (posterior)] [Scale 2] RIGHT SIDE. (1 kg)	-0.037	0.933	-0.036	0.900	1.000	0.933
[Temporalis (middle)] [Scale 1] RIGHT SIDE. (1 kg)	0.512	0.933	0.379	0.900	0.521	0.933
[Temporalis (middle)] [Scale 2] RIGHT SIDE. (1 kg)	0.998	0.933	1.000	0.900	0.651	0.933
[Temporalis (anterior)] [Scale 1] RIGHT SIDE. (1 kg)	1.000*	0.933	1.000*	0.900	1.000*	0.933
[Temporalis (anterior)] [Scale 2] RIGHT SIDE. (1 kg)	1.000*	0.933	1.000*	0.900	1.000*	0.933
[Masseter (origin)] RIGHT SIDE. (1 kg)	1.000*	0.900	1.000*	0.967	1.000*	1.000
[Masseter (body)] RIGHT SIDE. (1 kg)	1.000*	0.900	1.000*	0.933	1.000*	1.000
[Masseter (insertion)] RIGHT SIDE. (1 kg)	1.000*	0.900	1.000*	0.967	1.000*	1.000
[Lateral pole (0.5 kg)] [Scale 1] RIGHT SIDE. (TMJ)	1.000*	0.867	1.000*	0.900	1.000*	0.900
[Lateral pole (0.5 kg)] [Scale 2] RIGHT SIDE. (TMJ)	1.000*	0.867	1.000*	0.933	1.000*	0.900
[Around Lateral pole (1 kg)] [Scale 1] RIGHT SIDE. (TMJ)	1.000*	0.833	1.000*	0.800	1.000*	0.833
[Around Lateral pole (1 kg)] [Scale 2] RIGHT SIDE. (TMJ)	1.000*	0.900	1.000*	1.000	1.000*	0.933
[Lateral pole (0.5 kg)] RIGHT SIDE. (TMJ)	1.000*	0.767	1.000*	0.733	1.000*	0.800
[Around Lateral pole (1 kg)] RIGHT SIDE. (TMJ)	1.000*	0.767	1.000*	0.733	1.000*	0.800
[Temporalis (posterior)] [Scale 1] LEFT SIDE. (1 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis (posterior)] [Scale 2] LEFT SIDE. (1 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis (middle)] [Scale 1] LEFT SIDE. (1 kg)	0.627	0.867	0.630	0.933	0.266	0.833
[Temporalis (middle)] [Scale 2] LEFT SIDE. (1 kg)	0.627	0.867	0.630	0.933	0.473	0.900
[Temporalis (anterior)] [Scale 1] LEFT SIDE. (1 kg)	1.000	0.933	1.000	1.000	1.000	0.967
[Temporalis (anterior)] [Scale 2] LEFT SIDE. (1 kg)	1.000	0.933	1.000	1.000	1.000	0.967
[Masseter (origin)] [Scale 1] LEFT SIDE. (1 kg)	0.998	0.900	1.000	1.000	0.998	0.933
[Masseter (origin)] [Scale 2] LEFT SIDE. (1 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Masseter (body)] [Scale 1] LEFT SIDE. (1 kg)	0.998	0.900	0.651	0.967	0.463	0.900
[Masseter (body)] [Scale 2] LEFT SIDE. (1 kg)	0.650	0.900	0.651	0.967	1.000	0.967
[Masseter (insertion)] [Scale 1] LEFT SIDE. (1 kg)	1.000	0.933	1.000	1.000	1.000	0.967
[Masseter (insertion)] [Scale 2] LEFT SIDE. (1 kg)	1.000	0.933	0.651	0.967	1.000	0.967
[Temporalis (posterior)] [Scale 1] LEFT SIDE. (1 kg)	1.000*	0.933	1.000*	0.933	1.000*	0.867
[Temporalis (posterior)] [Scale 2] LEFT SIDE. (1 kg)	1.000*	0.933	1.000*	0.933	1.000*	0.867
[Temporalis (middle)] [Scale 1] LEFT SIDE. (1 kg)	0.998	0.900	1.000*	0.933	0.998	0.833
[Temporalis (middle)] [Scale 2] LEFT SIDE. (1 kg)	1.000*	0.933	1.000*	0.933	1.000*	0.867
[Temporalis (anterior)] [Scale 1] LEFT SIDE. (1 kg)	1.000	0.933	1.000	0.933	1.000*	0.867
[Temporalis (anterior)] [Scale 2] LEFT SIDE. (1 kg)	1.000*	0.933	1.000*	0.933	1.000*	0.867
[Masseter (origin)] LEFT SIDE. (1 kg)	1.000*	0.967	1.000*	0.967	1.000*	0.967
[Masseter (body)] LEFT SIDE. (1 kg)	1.000*	0.967	1.000*	0.967	1.000*	0.967
[Masseter (insertion)] LEFT SIDE. (1 kg)	1.000*	0.967	1.000*	0.967	1.000*	0.967
[Lateral pole (0.5 kg)] [Scale 1] LEFT SIDE. (TMJ)	-0.077	0.800	0.464	0.933	0.346	0.867
[Lateral pole (0.5 kg)] [Scale 2] LEFT SIDE. (TMJ)	-0.037	0.867	-0.034	0.933	-0.036	0.900
[Around Lateral pole (1 kg)] [Scale 1] LEFT SIDE. (TMJ)	0.134	0.733	0.520	0.867	0.190	0.800
[Around Lateral pole (1 kg)] [Scale 2] LEFT SIDE. (TMJ)	-0.050	0.833	-0.034	0.933	-0.036	0.900
[Lateral pole (0.5 kg)] LEFT SIDE. (TMJ)	1.000*	0.733	0.998	0.867	0.998	0.833
[Around Lateral pole (1 kg)] LEFT SIDE. (TMJ)	1.000*	0.733	0.998	0.867	1.000*	0.867
(Supplemental Muscle Pain with Palpation)						
[Mandibular region posterior] [Scale 1] RIGHT SIDE. (0.5 kg)	0.781	0.900	0.783	0.967	0.782	0.933
[Mandibular region posterior] [Scale 2] RIGHT SIDE. (0.5 kg)	1.000*	0.933	0.998	0.967	0.998	0.933
[Submandibular region] [Scale 1] RIGHT SIDE. (0.5 kg)	-0.094	0.767	0.464	0.933	0.266	0.833
[Submandibular region] [Scale 2] RIGHT SIDE. (0.5 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Lateral pterygoid area] [Scale 1] RIGHT SIDE. (0.5 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Lateral pterygoid area] [Scale 2] RIGHT SIDE. (0.5 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis tendon] [Scale 1] RIGHT SIDE. (0.5 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis tendon] [Scale 2] RIGHT SIDE. (0.5 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Mandibular region posterior] RIGHT SIDE. (0.5 kg)	1.000*	0.800	1.000*	0.900	1.000*	0.833
[Submandibular region] RIGHT SIDE. (0.5 kg)	1.000*	0.800	1.000*	0.900	1.000*	0.833
[Lateral pterygoid area] RIGHT SIDE. (0.5 kg)	1.000*	0.800	1.000*	0.900	1.000*	0.833



[Temporalis tendon] RIGHT SIDE. (0.5 kg)	1.000*	0.800	1.000*	0.900	1.000*	0.833
[Mandibular region posterior] [Scale 1] LEFT SIDE. (0.5 kg)	0.512	0.833	0.651	0.967	0.782	0.933
[Mandibular region posterior] [Scale 2] LEFT SIDE. (0.5 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Submandibular region] [Scale 1] LEFT SIDE. (0.5 kg)	-0.094	0.767	-0.047	0.900	0.266	0.833
[Submandibular region] [Scale 2] LEFT SIDE. (0.5 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Lateral pterygoid area] [Scale 1] LEFT SIDE. (0.5 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Lateral pterygoid area] [Scale 2] LEFT SIDE. (0.5 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis tendon] [Scale 1] LEFT SIDE. (0.5 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Temporalis tendon] [Scale 2] LEFT SIDE. (0.5 kg)	1.000*	0.933	1.000*	1.000	1.000*	0.967
[Mandibular region posterior] LEFT SIDE. (0.5 kg)	1.000*	0.800	1.000*	0.900	1.000*	0.867
[Submandibular region] LEFT SIDE. (0.5 kg)	1.000*	0.800	1.000*	0.900	1.000*	0.867
[Lateral pterygoid area] LEFT SIDE. (0.5 kg)	1.000*	0.800	1.000*	0.900	1.000*	0.867
[Temporalis tendon] LEFT SIDE. (0.5 kg)	1.000*	0.800	1.000*	0.900	1.000*	0.867

\* Stands for Kappa = 1. stating perfect agreement between examiners. ICC - Stands for Intraclass correlation coefficient.