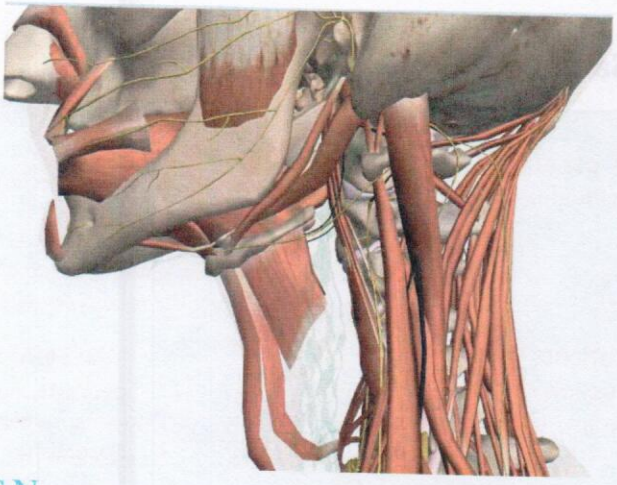


Note that in the head there are three joints:

the **craniocervical** joint, **craniomandibular** joint (TMJ) and **tooth** joint, which should be treated harmoniously together.

OBJECTIVE OF THE STUDY

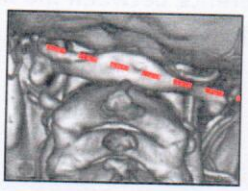
> Goring H. Estudio suizo Posición viciosa del atlas con rotación e inclinación a la izquierda. Crones Croatian Federation.
www.atlasprofilax.la

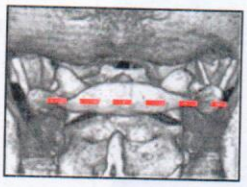
The study arises from the need to treat the TMJ Dysfunctions my means of using alternatives.

AtlasPROfilax® is a natural therapy developed to permanently correct the wrong angle of rotation of the first cervical vertebra or "atlas".

It helps in correcting the cervical curve, the position of the head and their spatial relationship to the jaw and the rest of the body.

The goal was to describe the effect of therapy AtlasPROfilax® on symptoms associated with TMJD, bruxism and mandibular deviations in maximum intercuspation and openness, in a cohort of patients.





MATERIALS AND METHOD USED

Type of study

Descriptive observational study

Universe and Sampe

UNIVERSE: 223 patients to whom the AtlasPROfilax® method was applied.

SAMPLE: 151 patients that assist to the control session 30 or 40 days after the Atlasprofilax application.

Excluded were:
Patients with total superior or inferior prothesis, because of intraoral or eviction movement.

Patients with thrush or any soft tissue injury pain that could affect the mouth opening.

SUB-SAMPLE: 71 patients (Photographic measurement of middel ddental line)

VARIABLES

Sociodemographic:

- Age.
- Gender.

Clinic: taken directly from the patient

- The presence or absence of temporomandibular dysfunction (TMD).
- In patients with DTM symptoms related to noise, jump, pain or lockjaw before and after the therapy was analyzed.
- The presence of bruxism both before and after therapy.
- Perception of relief felt by the patient after treatment, which was quantified on a scale from 0 to 100% and qualitative relief Yes or No.

Obtained from photographic analysis

- Magnitude in millimeters of midlines deviation; variables that were taken immediately before, after and in the monthly control.
- The difference between the midline deviation into occlusion and opening at each of those times.

PROCEDURE

For the collection of clinical data:

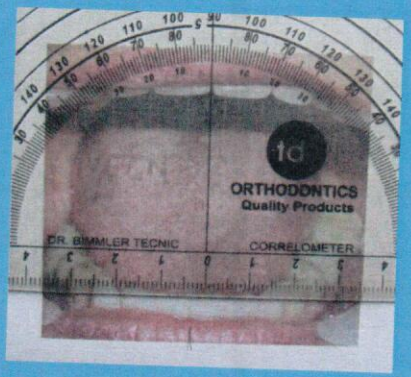
Taken from the medical history and from sociodemographic variables, TMD and articular symptoms as well identified from the perceptions reported by the patient.

For the information obtained from the pictures:

The patient was placed in a sitting position without back, keeping a natural posture with feet flat on the floor and knees at a 90 degree angle.

PENTAX Optio camera brand Dinecorp M40 8.0 Megapixels and 3x optical zoom, 6.3 mm-18,9mm, located on an adjustable to the height of the patient's mouth, at a distance of 33 cm tripod, was used.

The patient's position of the head was not corrected at the time of the shot, allowing angulation or tilting the same as the tendency of the patient.



Coefficient of Correlation

Midline deviation in occlusion

• Before	0.96
• Right after	0.96
• 1 Month after	0.97

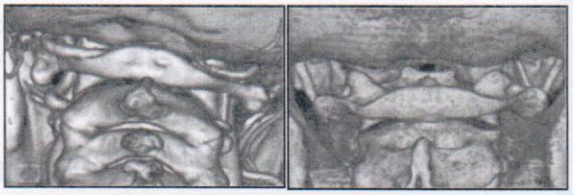
Midline deviation in opening

• Before	0.95
• After	0.97
• 1 Month after	0.95

In the photographic analysis the distance between the dental midlines top and bottom, and both opening intercuspidation were measured. The correlometer of Bimler was used. Measurements at two different times were made by the same orthodontist with 15 days difference between measurements to match coherence. Deviation from the midline in occlusion - DEviation of the midline opening in three stages. The midline line distance difference in occlusion and opening were calculated the in millimeters (mm).

STATA Corporation

The AtlasPROfilax® method seeks the correct repositioning of the atlas (C1) vertebra using a vibratory and controlled vibration stimulus in the short muscles of the neck that mitigate existing contractures. It is a not risky treatment.



Usually, the therapy is performed only once in life. The approximate length of the appointment is 45 minutes including the history, kinesiological tests, anthropometric measurements and application itself.

The procedure is performed with the patient in sitting position, using the AtlasPROfilax® Wellnessvib in adults and in children AtlasPROfilax® Babyvib manufactured by Automation and HC Ingenierie SA, ZI in Bovery D CH'1868 Collombey and approved in Colombia with INVIMA register # 2011000975.

Göring H. Estudio suizo Posición viciosa del atlas con rotación e inclinación a la izquierda. Crones Croatian Federation . // www.atlasprofilax.la

STATISTICAL ANALYSIS

For all analyzes a significance level of α (alpha) ≤ 0.05 was considered:

>Microsoft Excel 5.0. Microsoft Corporation, 1997

>STATA Corporation

>Pagano M, Gauvreau K. Fundamentos de Bioestadística. Ed. Thomson Learning; 2001. p. 259 - 321

Information was collected on an tool. It was systematized in Excel. The database was debugged. The information was processed in STATA 9.0. Results are presented in text, tables and graphs.

Univariate

- Summary measurements for Qualitative variables: proportions were calculated. Measurements for Quantitative: measurements of central tendency (mean and median) and dispersion (standard deviation, range, percentiles).

Bivariate

- TMD was associated with sociodemographic variables:
- Qualitative: Chi2 or Fisher's exact test.
- Quantitative: Student's t test or Wilcoxon rank test.
- TMD related symptoms before and one month were compared:
- McNemar test.
- The difference of the deviations from the middline before
- and after and monthly were monitored and correlated with the presence of TMD
- t Test of Student or the Wilcoxon rank test.

ETHICAL CONSIDERATIONS

Ministry of Health. Resolution No. 008430 (Oct 4/1993) Bogota (Colombia)

This research was welcomed with established ethical principles in resolution 1993 008430, while preserving the principles of beneficence, autonomy, confidentiality, privacy of information.

RESULTS

*Average (Standard Deviation)

**Wilcoxon rank test

+ Chi^2 Test

Table 1. Description of the sociodemographic variables analyzed according TMD before and one month after the treatment

VARIABLE	TOTAL	TMD		P	WITH SYMPTOMS MONTH
		Yes	No		TREATMENT
TMD	151(100)	65 (43.1)	86 (56.9)		
Age (years) *	50.3 ±17.5	49.2±15.4	51.2±19	0.5227**	53±13.4
Gender					
Male	47(31.1)	13(27.7)	34(72.3)	0.010+	4 (8.5)
Female	104(68.9)	52(50)	52(50)		24 (23.1)

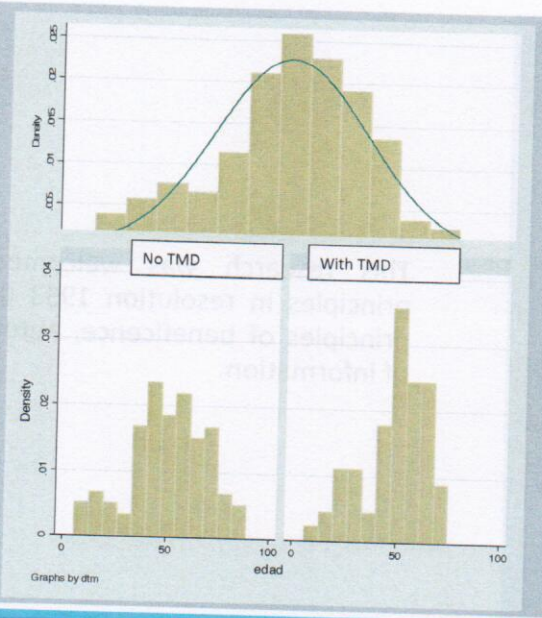


Figure 1. Distribution of age in all patients in the cohort and according presence of TMD

Table 2. Description of symptoms associated with TMD before and one month after therapy AtlasPROfilax®

Variables	Total	Before	After 1 Month	P**
Symptoms	151(100)	65(43.1)		
Articular nois	33(21.9)	33(50.8)	14(21.5)	<0.0001
Articular jump	29(19.2)	29(44.6)	12(18.5)	<0.0001
Articular pain	32(21.2)	32(49.2)	13(20)	<0.0001
Lockjaw in opening	6(4)	6(9.2)	1 (1.5)	0.0243
Bruxism	11(7.3)	11(16.9)	4(6.2)	0.0082
Relief provided by treatment (%)	NA	NA	72.8±37.9*	---

*Average (Estándar Deviation) **McNemar Test

The symptoms were significantly reduced the effect of therapy AtlasPROfilax®.

Noise, jump and joint pain reduced by more than half and bruxism in about 70%.

82.3% (51) of those suffering TMD reported pain relief after therapy.

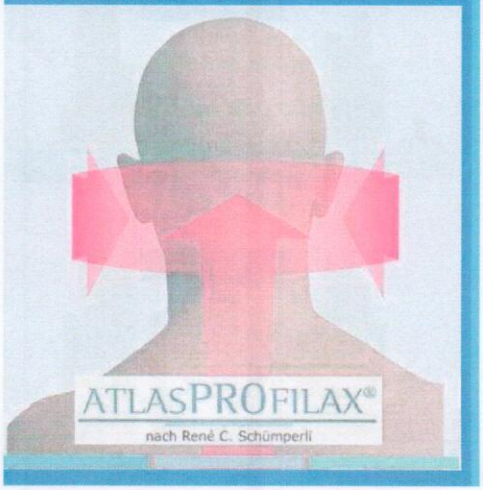
The average percentage of relief was 72.8 ± 37.9, with a median of 100%.

Table 3. Mean differences deviation from the midline at maximum occlusion and openness; before, after and in the monthly monitoring analyzed by level of TMD.

Variable	TMD		P
	Yes	No	
Difference midline occlusion and opening BEFORE (mm)	-1.4±2.3*	-0.4±1.6	0.0395**
Difference midline occlusion and opening AFTER (mm)	-1.4±2.3	-0.3±1.5	0.0110**
Difference midline occlusion and opening 1 MONTH AFTER (mm)	-0.9±2.1	-0.3±1.5	0.1562+

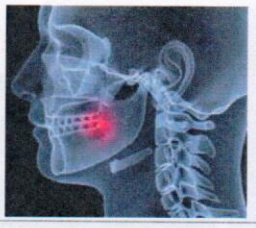
*Average (Estándar Deviation) **Wilcoxon rank test + T Test

DISCUSIÓN



The aim of this study was to analyze the effect of therapy AtlasPROfilax® on symptoms associated with TMD, bruxism and the ratio of the midlines in maximum opening and closing, in a cohort of patients.

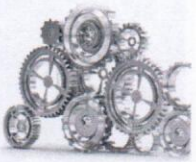
Alternative treatments performed by orthodontists, for these alterations should not be limited to the correction of tooth alignment and occlusion control.



The orthodontist must know and even have the skills to intervene cráneocervicofacial complex and the dental one in favor of more stable and holistic treatments.

In this sense the AtlasPROfilax® therapy is an alternative that allows an approach to the complex skull-cervical effect on TMJ.

Based on the results of this study, this therapy has potential impact on the management of TMD symptoms.



• Alpern M. TMJ Biocompatible orthodontic treatment. The Angle orthodontic 1992;62(4):299-302
• Atlas Clínico: Congruencia Cráneo-Cervico- Mandibular. Dr Mariano Rocabado Seaton

male	Values
this work	50%
arren & Fried	80%
adhwa & Kapila	2:1
ttila & col	confused by stress

Hormonal influence

From 65 with TMD, 52 (80%) were females.

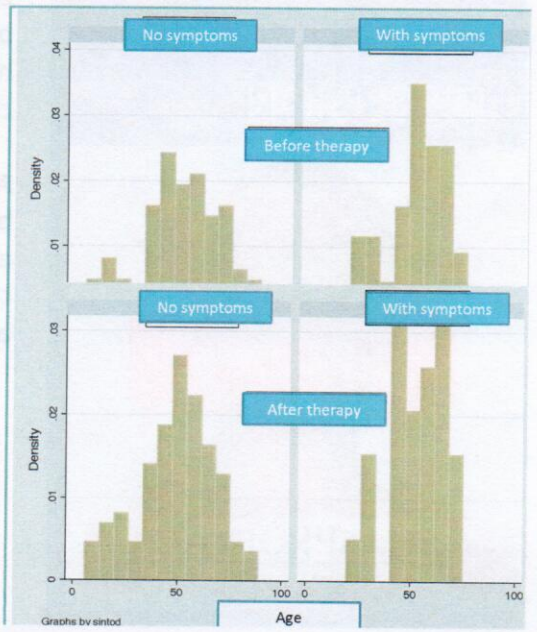
GENDER AND AGE

>Warren MP, Fried JL. Temporomandibular disorders and hormones in women. Cell Tissues Organs. 2001;169:187-192

>Wadhwa S, Kapila S. TMJ disorders: future innovations in diagnostics and therapeutics. Journal of Dental Education. 2008; 72(8):930-947

>Kuttila M, Niemi PM, Kuttila S, Alanen P, Le Bell Y. TMD treatment need in relation to age, gender, stress and diagnosis subgroup. Journal of Orofacial Pain. 1998, 12(1):67-74

Analysis of the presence of symptoms before and after the therapy AtlasPROfilax® by age.



SYMPTOMS

>Abou-Atme YS, Zawawi KH, Melis M. Prevalence, intensity and correlation of different TMJ symptoms in Lebanese and Italian subpopulations. J

>Contemp Dent Pract 2006;7(4):71-78.

>Casanova-Rosado JF, Medina-Solis CE, Vallejo-Sánchez AA, Casanova-Rosado A, Hernández-Prada B et al. Prevalence and associated factors for Temporomandibular disorders in a group of **Mexican** adolescents and youth adults. Clin Oral Investen:

>Sonnesen L, Bakke M, Solow B. Temporomandibular disorders in relation to craniofacial dimensions, head posture and bite forcé in children

selected for orthodontic treatment. European Journal of Orthodontics. 2001; 23:179-|192.

>Manfredini D, Peretta R, Guarda-Nardini L, Ferronato G. Predictive value of combined clinically diagnosed bruxism and occlusal features for

>TMJ Pain. Journal of craniomadibular practice. 2010;28(2): 1-9.

SYMPTOMS TRABAJO	TMD Prevalence	Articular noise	Articular blockade	Articular pain	Bruxis
This study	43%	22%	4%	General:21% <30 years: 14.3%	7.3%
Abou-Atme y col.	40-75%				
Casanova-Rosado y col.	46%	50%	5%		
Sonnesen y col.				12.5%(Adoles cents)	
Manfredini y col.					65%

PHOTOGRAPHIC ANALYSIS

>Armijo-olivo S, Rappoport K, Fuentes J, Gadotti IC, Major PW, Warrren S, et al. Head and Cervical

>Posture in patients with temporal disorders. J Orofacial Pain.2011;25:199-209.

>Lunes DH, Carvalho LCF, Oliveira AS, Bevilaqua-Grossi D. Craniocervical posture analysis in patients with temporoandibular disorder. Rev Brasil Fisioter. 2009; 13(1):89-95.

WORKS	CARACTERISTICS
This study	Objective: measureing midline deviation in occlusion and openness by using frontal photography as a strategy to identify TMD, when the head is in normal position.
Armijo & al.	Objective: To obtain the position of the head and cervical spine in the sagittal plane according to the usual position the head, associating them with TMD
Lunes & al.	He photographed the position of the head and whole boc in the sagittal and frontal plane for the purpose of analyzi the craniocervical posture and its relationship to TMD.

SUPPORT FOR THE DENTAL MIDLINE DIAGNOSIS BY PHOTOGRAPHY

>Schmitter M, Kress B, Leckel M, Henschel V, Ohlmann B, Rammelsberg P. Validity of temporalmandibular disorders examination procedure for assessment of tempormandibular joint status. Am J. Orthod Dentofacial Orthop 2008; 133(6):796-803.

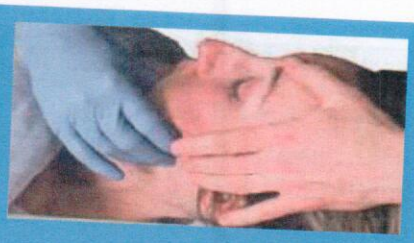
>Sora C, Jaramillo PM. Diagnóstico de las asimetrías faciales y dentales. Revista Facultad de Odontología Universidad de Antioquia 2005; 16 (1 y2): 15-25.

>Hirschhaut M, Desordenes temporomandibulares y dolor facial crónico. Acta Odontológica Venezolana 1998;36(3).

According to data: measuring the deviation of the midlines in photographs is a good marker to analyze the TMD while showing that the difference of the deviation is greater among people with TMD.

This score is based on the statement by Sora and Jaramillo who believe that the clinical evaluation of the deviation from the midline in different positions, including opening and occlusion, is a strategy to detect functional asymmetries related to TMJ disorders and mandibular dynamics.

To Hirschhaut, it is normal that the midline is kept opening and closing, but can move sideways and then return (deviation) or not (deflection). In cases of subluxation, the interarticular disc is displaced and the patient has, among other signs, deviation from the midline toward the affected side.



THE TREAMENT

>Alpern M. TMJ biocompatible orthodontinc treatment. The Angle Orthodontic 1992; 62(4): 299-302.

>American Society of Temporomandibular Joint Surgeons. Guidelines for Diagnosis and Managment of Disorders Involving the Temporomandibular Joint and Related Musculoeskeletal Structures.2001. En http://astmjs.org/final%20guidelines-04-27-2005.pdf (Mayo 2013).

>gGrossi DB, Chaves TC. Physiotherpeutic treatment for temporal disorders (TMD). Braz J Oral Sci.2004;3(10): 492-497.

Orthodontic treatment of patients with TMD is complex and requires a multidisciplinary approach; diagnosis and conventional orthodontic treatment need to be modified.

In the literature the interest of promoting less invasive treatments for the management of TMJ disorders in which physical therapy, postural changes, among others, are presented as alternatives to control this dysfunction is evident.

Research to assess the impact of these treatments illustrate how the approach from this perspective is underdeveloped by orthodontists.

Postural training should be used for the treatment of TMD because of the obvious link between TMJ disorders and craniocervical posture.

COMPARED RESULTS

>Garcia de Paula e Silva FW, Mussolino de Queiroz A, Díaz-Serrano KV. Alteraciones posturales y su repercusión en el sistema estomatognático. Acta Odontológica Venezolana.2008 46(4):1-7

>Grossi DB, Chaves TC. Physiotherpeutic treatment for temporal disorders (TMD). Braz J Oral Sci.2004;3(10): 492-497

STUDY	CARACTERISTICS
Nicolakis & al.	They implemented a protocol based on passive movement correcting posture and relaxation techniques in 20 patients wit TMJ articular displacement and observed increase in mouth openir and pain reduction and treatment effect.
Wright & al.	They selected 60 patients with TMD and dysfunction of the masticatory muscles. The aim was to assess the efficacy of postural training and TMD guidance. They took a group to which the two interventions were offered while in the control group were offered only guidelines; The results showed that 10% of individuals undergoing TMD related symptoms disappeared.
This study	In this study of 65 patients with TMD, the AtlasPROfilax® therapy relieved the symptoms related to: **articular noise 29.3%, articular jump 26.1% Articular Pain 29.2%, lockjaw on opening 7.7% and Bruxism 10.7% of patients.**

LIMITATIONS

It is not a controlled trial (RCT).

However, from this observational study, bases were settled to develop a study related to this intervention in order to provide a higher level of evidence. This prospective observational study comparing people with and without TMD provides analytical advances.

In assessing the effectivness of the therapy by only one month after could lead to an underestimation of the effectiveness of AtlasPROfilax® therapy. The reason is that some patients may be at the stage of healing crisis or still improving, because the process of adjustment and the changes generated by the correct repositioning of the vertebra atlas needs time, several months, up to 24.

CONCLUSIONS AND RECOMMENDATIONS

The specialized orthodentist, interested in treating TMD must know and even have the skills to intervene cráneocervicofacial complex in addition to the dental one.

The AtlasPROfilax® therapy had effect on the symptoms associated with TMD, bruxism, and the relationship of dental midlines but requires ECC tracked at three and six months to continue evaluating the effectiveness of this therapeutic alternative.