

University "G. d'Annunzio" Chieti – Pescara

Department of Medical, Oral and Biotechnological Science Director Prof. Sergio Caputi

> Orthodontics Specialty School Director Prof. Felice Festa



Dalla diagnosi clinica alla diagnosi 3D (Dolphin 3D e scanner intraorali) Prof. Felice Festa



47th SIDO International Congress **"Patient-important outcomes in Orthodontics"**

Florence 13-15 October 2016

FORMIA



Formia is on a little gulf (Gaeta Gulf) on seaside between Rome and Naples



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Accession



A brief Nerva Biography

Bust of emperor Domitian. Capitoline Museums, Rome.

On 18 September, 96, Domitian was assassinated in a palace conspiracy organised by court officials.^[10] The *Fasti*

Ostienses, the Ostian Calendar, records that the same day the Senate proclaimed Marcus Cocceius Nerva emperor.



Last remaining columns from the largely blind <u>peristyle</u> surrounding a temple to <u>Minerva</u>, located at the heart of the <u>Forum</u> <u>of Nerva</u>. The visible door frame is not an original element but rather one of the many modifications suffered during the Middle Ages.

The change of government was a breath of relief for the Roman Senate, whose senators had suffered under the terrors of Domitian's regime. As an immediate gesture of goodwill towards his supporters, Nerva publicly swore that no senators would be put to death as long as he remained in

office.^[24] He called an end to trials based on <u>treason</u>, released those who had been imprisoned under these charges, and granted <u>amnesty</u> to many who had been <u>exiled</u>.^[21] All properties which had been confiscated by Domitian were returned to their respective families.^[21] Nerva also sought to involve the Senate in his government, but this was not entirely successful. He continued to rely largely on friends and advisors that were known and trusted, and by maintaining friendly relations with the pro-Domitianic faction of the Senate, he incurred hostility which may have been the <u>cause for at least one conspiracy against his life</u>.^{[25][26]}



Having been proclaimed emperor solely on the initiative of the Senate, a number of measures had to be introduced in order to gain support among the Roma www.felcefesta.it populace. As was custom by this time, a change of emperor was expected to bring with it a generous payment of gifts and money to the people and the army. Accordingly, a <u>congiarium</u> of 75 <u>denarii</u> per head was bestowed upon the citizens, while the soldiers of the Praetorian Guard received a <u>donativum</u> which may have amounted to as much as 5000 <u>denarii</u> per person.^[27] This was followed by a string of economic reforms intended to alleviate the burden of taxation from the most needy Romans.^[28] To the poorest, Nerva granted allotments of land worth up to 60 million <u>sesterces</u>.^[24] He exempted parents and their children from a 5% inheritance tax, and he made loans to Italian landowners on the condition that they pay interest of 5% to their municipality to support the children of needy families; alimentary schemes which were later expanded by Trajan, <u>Antoninus Pius</u>, and <u>Marcus Aurelius</u>.^[29] Furthermore, numerous taxes were remitted and privileges granted to Roman provinces.^[27]

Before long, Nerva's expenses strained the economy of Rome and, although perhaps not ruinous to the extent once suggested by Syme, [30] necessitated the





ically reduce expenditures.^[31] The most superfluous religious sacrifices, <u>games</u> and <u>horse races</u> were itian's former possessions, including the auctioning of ships, estates, and even furniture.^[24] Large amounts of tatues, and Nerva forbade that similar images be made in his honor.^[21]

Because he reigned only briefly, Nerva's public works were few, instead completing projects which had been initiated under Flavian rule. This included extensive repairs to the <u>Roman road</u> system and the expansion of the <u>aqueducts.^[32]</u> The latter program was headed by the former <u>consul Sextus Julius Frontinus</u>, who helped to put an end to abuses and later published a significant work on Rome's water supply, *De Aquis Urbis Romae*.^[33] The only major landmarks constructed under Nerva were a <u>granary</u>, known as the *Horrea Nervae*,^[34] and a small <u>Imperial Forum</u> begun by Domitian, which linked the <u>Forum of Augustus</u> to the <u>Temple of Peace</u>.^[35] Little remains, partly because the <u>Via dei Fori</u> Imperial cuts across it.

[edit] Crisis of succession

Roman <u>aureus</u> struck under Nerva, *c.* 97. The reverse reads <u>*Concordia Exercituum*</u>, symbolyzing the unity between the emperor and the <u>Roman army</u> with two clasped hands over an army standard.

[edit] Death and legacy

Roman <u>aureus</u> struck under Trajan, *c.* 115. The reverse commemorates both Trajan's natural father, <u>Marcus Ulpius Traianus</u> (right), and his <u>adoptive</u> father, the Deified Nerva (left).

On 1 January, 98, at the start of his fourth consulship, Nerva suffered a <u>stroke</u> during a private audience.^[48] Shortly thereafter he was struck by a fever and died at his villa in the Gardens of Sallust, on 27 January.^{[49][50]} He was deified by the Senate,^[49] and his ashes were laid to rest in the <u>Mausoleum of Augustus</u>.^[49] Nerva was succeeded without incident by his adopted son Trajan, who was greeted by the Roman populace with much enthusiasm. According to <u>Pliny the Younger</u>, Trajan dedicated a temple in honour of Nerva,^[52] yet no trace of it has ever been found; nor was a commemorative series of coins for the Deified Nerva issued until ten years after his death. According to Cassius Dio, however, the <u>Guard prefect</u> responsible for the mutiny against Nerva, Casperius Aelianus, was 'dismissed' upon Trajan's accession.



NETWORK >MANAGEMENT SOFTWARES> >TMJ/ORTHODONTICS CLINICAL CHART> >DOLPHIN 3D>

- Transition from 2D to 3D Orthodontics
- 1)Segmentation
- 2)Orientation
- 3)Virtual 2D X-Rays development (lateral>ortophantomography>TMJ>cross sections>postero-anterior>upper arch submento-vertex>lower arch submento-vertex
- 4)Cephalometrics >Transitipon to 3D cehalometrics4)Virtual 2D
- 5) Virtual 3D muscles Dissections: Right Masseter>Left Masseter

>INTRAORAL SCANNERS

http://www.felicefesta.it/congressi/econgress_sido2016.html



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Table 1a. Prevalence of TMDs signs and symptoms (expressed as percentage, %, of subjects that showed the TMD's signs and symptoms in the group) in the whole sample classified on the base of age. The chi-square analysis was employed to verify the existence of statistically significant differences between the two groups.

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TMD's symptoms	22.58	28.21	.490	.484
Bruxism	13.31	11.54	.040	.841
TMJ's sounds	1.75	8.21	3.600	.058
Grinding	6.18	4.87	.091	.763
Deviation during opening	1.08	5.13	2.667	.102
Reduced movements of opening/lateral/protrusive	0.27	2.82	1.000	.317
Myopain	5.11	14.10	4.263	.039*





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Case 12 TMJ Extrarticular: Muscular Occlusal Sense

Tension headache <u>facial right</u>, <u>cervical spine</u>, <u>Upper Trapezius</u>. Passive aligners for 2 months, tongue exercises, spine execises powering-stretchting contemporarely





CHIETI-MOSCOW DIAGNOSTIC PROTOCOL

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	×	E' portatore di estese ince posteriori?
The second		Ha perso denti nelle zone parziale rimovibile?
	X	E' portatore di protesi parzitamento per i suoi problemi dell'articolazio temporo-mandibol
	×	Ha mai ricevuto qualchi di ai denti o alle mascelle?
X		Si sveglia mai con fastili agree forte i denti durante il giorno?
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X		Ha mal di testa occasionan?
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	X	Sente bruciare tutta la bocca?
	be .	Sente bruciare parti della bocca (lingua, genel di aglia?)
×		Ha spesso fastidio ai muscoli del collo o mai di collo forgia del collo delle spalle o del dati
	X	Sente il dolore spostarsi da un punto all'altro della faccia, dei cono, delle spane o dei dol
N	F	I muscoli della mandibola si stancano facilmente?
4	V	Ha difficoltà ad aprire molto la bocca?
	2	Soffre o ha sofferto di artrite?
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		Ha qualche parto un urto nella zona del collo o della mandibola? Gioco dee o Form
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X		Ha mai avuto problemi alle offecenti damento provenienti dalla articolazione della mandi
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	X	Fuma le sigarette, la pipa o il sigaro?
	X	E' solito mangiarsi le unghie, le labbra o la lingua?
	X	Pensa che il suo dolore possa essere collegato allo stress?
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		Secondo lei durante il giorno i denti sono a contatto (anche leggero) per
		scegliere solo una delle seguenti voci
		$\square 2 \text{ minuti}$ $\square 2 \text{ ore}$ $\square 40 \text{ ore}$ $\square 24 \text{ ore}$

Anamnestic chart: patients touch also slightly teeth each other from 10 to 24 hours/day



A first Vas is performed (T0) where patient indicates pain areas



Facial-spine muscle palpation shows high (XXX or XXXX) muscle soreness at palpation T0 (09-04-

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2013)





TONGUE/SPINE THERAPY

- Day wear Lower essix passive aligner 0.3 mm
- Night wear Upper Essix passive aligner 0.3 mm.
- Patient is teached to utilize tongue to release facial-spine muscles and recorticalize brain occlusal sense reducing it from 10-24 hours to 2 min. per day occlusal contact. The result is got in 2 months.
- Patient signes every morning at awaking a pain analogic scale. If he has done the exercise the day before, because brain remember tongue exercises done the day before, the pain will go down day by day in two months.
- Patient is teached to perform spine postural powering-stretching exercises if there are'nt spine hernias/protrusion. The exercises can be performed in fitness center with a trainer.
- In case of severe diffuse spine pain are prescripted cervical ,dorsal, lombosacral RMN. If is completed a diagnosis of spine protrusions/hernias is necessary phisical therapy with light mobilization spine exercises.
- Tongue/spine exercise protocol:
- 1)Contract maximum bilateral masseter feeling with fingers bulging of muscles on face.
- 2)Release masseters without keeping teeth apart.
- 3)Keep little apart teeth releasing masseters again
- 4)Put tip of tongue on lingual surface of upper incisors feeling the masseters release more. Check in patient mouth if the distance between teeth is about 1.5 mm.
- Ask the patient to stay day time in this released muscle position(Modified Mudra/Yoga). The
 exercise could be repeated from the patient three times in a day toreinforce brain remembering
 exercise.







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Home analogig chart is signed every morning at awaking T0 (09-04-2013) T1 20-06-2013



T2 11-09-2013



pain at at paplpation is reduced of about 40-50%. It can'nt be reduced completely because the patient is a Class III and in any case mandible pushs back on retrofarigeal areas and

0 (00 04 amuscles remain little tightened

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VAS DURING THERAPY T0 09-04-2013

Starting therapy

T1 20-06-2013





T2 11-09-2013



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WHY IT HAPPENED?

GENOMIC ANTHROPOLOGY: Progressive expression change of muscles/tongue

In six Millions years Tongue changed shape to 90° curvature to help a better



Upright Schematic representation of the tongue. The upper part shows its flat projection in great apes (1), DGS dafeerthal man (2), and in modern *Homo*

sapiens (3). The vertical gray portion forms part of the anterior wall of the oropharynx. The tongue of *Homo erectus* (not shown) was similar to that of the

modern human. The lower part shows a lateral view of the topographical position of the tongue in relation to the oral cavity and oropharynx: completely

WHY WE NEED GENOMIC ANTHROPOLOGY IN ORTHODONTICS?





WHY WE NEED GENOMIC ANTHROPOLOGY IN ORTHODONTICS?



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ORTHODONTICS AND GENETICS EVOLUTION WORD WEBPORTAL

Sintetizzare il pensiero di Damasio sulle basi della genetica, dell'antropologia, dell'evoluzione e della terapia del dolore da disordine posturale di malati, a lungo ritenuti incurabili, e ritrovando nelle azioni dei nostri predecessori quei comportamenti innati che Spinoza aveva intuito, ma che sono stati a lungo il "primum movens" di ogni azione umana.





Confronto fra crani in area con forte imbriding. La distanza fra il cranio del vivente (dx) e quello del probabile antenato è di 4000 anni

OPI ARCH FORM







4000 YEARS

L'arcata superiore si è contratta soprattutto nella zona canina, premolare e del primo molare











Straight-wire -- less gene Self-ligating low friction ++ adaptation better gene adaptation

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>INTRAORAL SCANNERS

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NETWORK>MANAGEMENT SOFTWARES> >TMJ/ORTHODONTICS CLINICAL CHART> >DOLPHIN 3D>

- Transition from 2D to 3D Orthodontics
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>INTRAORAL SCANNERS



Article Title: Reproducibility of Visual Analog Scale (VAS) Pain Scores to Mechanical Pressure Auth ors Greg Goddard, D.D.S.; Hiroyuki Karibe, D.D.S., Ph.D.; Charles McNeill, D.D.S.



Abstract: ABSTRACT: This study tested the reproducibility of visual analog scale (VAS) pain scores to measure changes in masseter muscle pain evoked by maximally tolerable mechanical stimulation over a short time period in healthy subjects. This study also evaluated gender differences in reproducibility of VAS scores to mechanical stimulation. Ten healthy female and eight healthy male individuals participated in this study. The recordings of VAS pain scores to an identical mechanical pressure on the masseter muscle were performed at three different sessions (T1, T2, and T3). The subjects rated their pain on a VAS to a maximally tolerable stimulus that was at the first session. The algometer pressure reading was recorded for each subject and then used to duplicate the same identical mechanical stimulus at each of the three sessions. This identical pressure was repeated in the same marked spot at six minutes and after 30 minutes. The subjects rated the pain on a VAS to this identical stimulus at each session. There was no significant difference in VAS pain scores of all subjects at T1, T2, and T3. There was no significant difference in reproducibility of VAS pain scores in females compared to males. Intraclass correlation coefficients were 0.811 on the right masseter and 0.844 on the left masseter.

VAS pain scores to mechanical stimulation were reproducible over a short

ical

The Tanaka-Chieti Clinical Chart



TMJ CLINICAL DIAGNOSIS: INTRAARTICULAR

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EXTRAARTICULAR

 \rightarrow TMJ CLICKING, 20%

LOCKING

months



the splint therapy. These splints force the mandible to an anterior position for 24 hours a day. This therapy is associated to physical therapy, spray and stretch technique and biofeedback. Once the symptoms are reduced the clinician can go on to the second step.
 Phisical therapy. Tongue exercises+ spine exercises . 6



TMJ CLINICAL DIAGNOSIS: INTRAARTICULAR

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EXTRAARTICULAR

MJTPs/OCCLUSAL SENSE Lower passive aligner night wear aligners therapy. These aligners don't force the mandible to an anterior position for 24 hours a day. This therapy is associated with tongue exercises. Once the symptoms are reduced (2 months) the clinician can go on to the second step.

sical therapy. Tongue exercises+ spine exercises. 2 months.

e finishing sten During this phase braces or aligners


Orthodontics and Genetic evolution world portal www.felicefesta.it TEMPORALISTENDON Frontal bone mong Temporal bone Mandible



In GREY MOSCOW UNIVERSITY clinical chart area + In BLACK Chieti UNIVERSITY clinical chart area













In GREY MOSCOW UNIVERSITY clinical chart area + In WHITE Chieti UNIVERSITY clinical chart area



ESAME CLINICO







Case 31 TMJ Palpation Sympt. Class II Dolicofacial, Mild Maxillary Contraction, Upper and Lower Mild Crowding, 23 Impacted, 21 Dilaceration, Passsive Aligners, self ligating low friction + 21 Composite Crown + Passive Aligners Retention

TMJ palpation Sympt.: Light pain Temporalis Tendon L, Right Upper Trapezius

Age:13 years Passive Aligners 2 Months,18 Months Self Ligating Low Friction, Composite 21 Crown,12 Months Passive Aligners Retention





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Quick Solids Segmentation



For optimal X-ray image, properly segment hard tissue and soft tissue here.

Soft Tissue Seg: 🜏

> Hard Tissue Seg: ∢





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Build X-Rays Tool (** Patents Pending **)		Orthodontics and Genetic evolution world portal
View: Cross Sections Auto Apply Send Snapshot	Enhance Seg Prefs Measure: Remove All	Show Landmarks WWW.felicefesta.it
Collim Panoramic eft	2 Pt Line 0 3 Pt Ang	e
IMJ Cross Sections	Filters: Dolphin 1 Dolphin 2 Dolphin 3 Ray-Sum Emboss MIP Traced 🗹	Include "Traced" Filter
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The composite restorations were performed by Dr. Francesco De Angelis

























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