The Paulk Clinic
9905 N Davidson Pkwy.

THE RESULTS OF YOUR ANALYSIS

PREPARED FOR

DATE OF INJURY : 6/16/2016
DATE OF ANALYSIS : 11/22/2016
DATE OF IMAGES : 11/10/2016

REFERRING DOCTOR :
Patrick Kulmacz

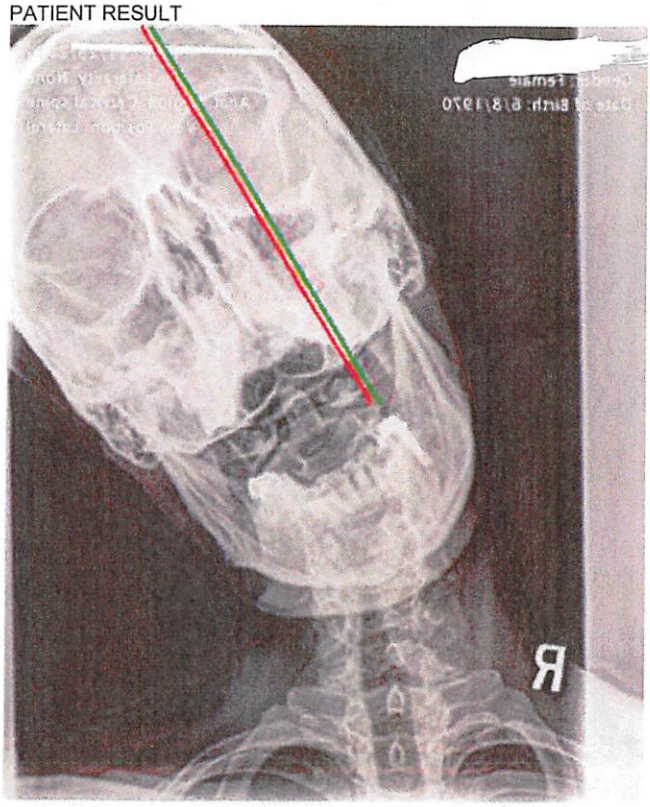
This report contains important information concerning structural changes that can be affecting your overall level of health and well-being. Spinal stability is a basic requirement for the protection of your nervous structures and the prevention of early mechanical deterioration of your spinal component

Instability is generally considered to be a global increase in the movements associated with the occurrence of back, neck, and/or nerve root pain. Damage to any spinal structure produces some degree of spinal instability.

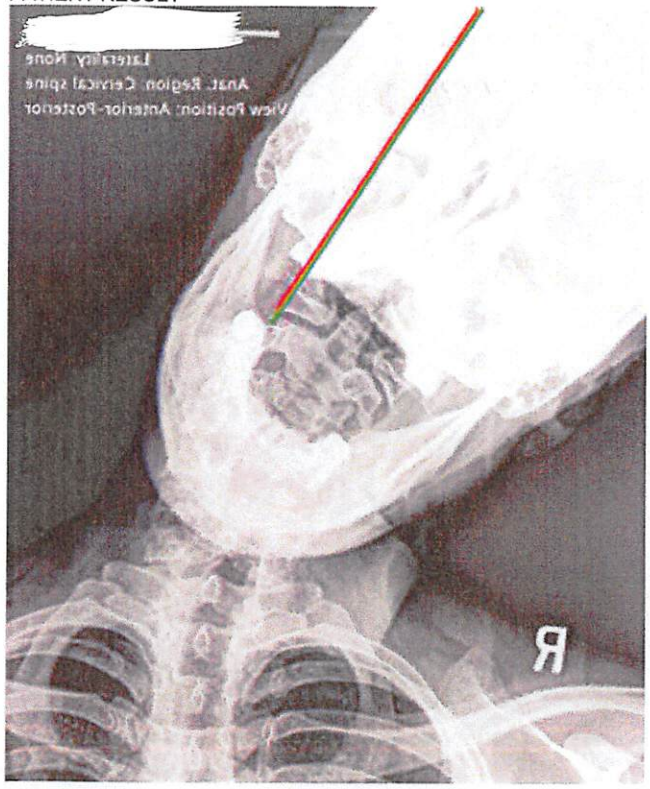
This computer aided digital analysis is an overview of your current level of spinal stability.

APOM Left / Right Lateral

PATIENT RESULT



PATIENT RESULT



The RED line denotes the lateral mass of the Atlas (C1) in lateral flexion.

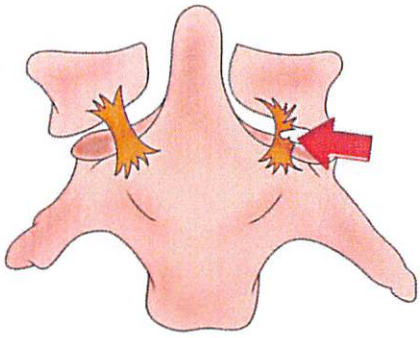
The GREEN line denotes the most lateral point of the superior articular process of Axis (C2).

A distance of more than 1.7 mm of the red line from the green line indicates subluxation. When the lateral shift of the red line from the green line is greater than 1.7 mm, clinical correlation is recommended.

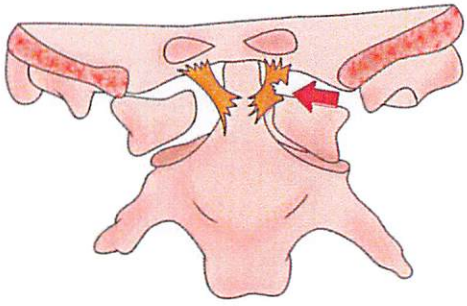
A lateral distance of more than 3.0 mm of the red line from the green line indicates probable Alar, Transverse, and/or Accessory ligament damage.

C1-C2 Left Lateral Translation	1.36 mm - Within Normal Limits
C1-C2 right Lateral Translation	2.41 mm - Subluxation

Accessory Ligament Failure



Alar/Transverse Ligament Failure



ADDENDUM:

1. Measurements greater than 1mm Translation and/or more than 7 degrees of Angular Variation are deemed to be clinically significant and in excess of normal flexibility of the cervical spine.

~ Lin, Tsai, Chu and Chang. SPINE 2001, February; 26(3): 256-261,

2. Abnormal measurements greater than 11 degrees of Angular Variation and/or more than or equal to 3.5mm of lateral Translation (Loss of Motion Segment Integrity) are by definition an indication of ligament damage which results in segmental instability and implies a whole person impairment.

~Guides to the Evaluation of Permanent Impairment, 5th Edition, AMA, 2000

3. Lateral shift of Atlas on Axis greater than 1.7mm is considered subluxation and is associated with a poor prognosis after whiplash injury.

~Krakenes J, Kaale BR, Moen G, Nordli H, Gilhus NE, Rovik J. MRI assessment of the alar ligaments in the late state of whiplash injury-structural abnormalities and observer agreement. Neuroradiology 2002 Jul;44(7); 617-24.

IMPAIRMENT RATING:

Cervical C1-C2 Anterio-Posterior Open Mouth Lateral Bending

PATIENT'S NAME:
DATE OF BIRTH:
DATE OF INJURY: 06/16/2016
DATE OF ANALYSIS: 11/22/2016

Cervical AP Open Mouth Lateral Flexion Views of the Cervical Spine Were obtained and Reviewed for Ligament Laxity.

This is not a radiology report,it is a distinct and separate biomechanical analysis and the findings should be clinically correlated by the treating physician.

.The integrity of the alar(atlanto-occipital)and accessory ligaments can be demonstrated two ways with plain film radiology.If the lateral mass of C1 overhangs on C2 when the patient laterally bends the head to the right or left or when there is a change in the para-odontoid space while bending the head laterally to the right or left. When the alar and/or the accessory ligaments permit excessive motion or hypermobility of C1 on C2 ligament damage has occurred and can be the cause of headaches and upper cervical pain. Symptoms of dizziness and/or vertigo may indicate the presence of vertebral artery compression

Digital Radiographic Mensuration Analysis (DRMA)

DRMA analysis is a digital radiologic analysis necessary to determine alignment andligamentous stability after trauma. DRMA technology provides an accurate diagnosis.

Translation or "shifting" of more than 1.7 mm of C1 on C2 in indicative of subluxation and clinical correlation is advised with shifting greater than 1.7 mm accoring to krakenes j,kaale Br,Moen G,Narali H,Githus NE,Rovik J,MRI assessment of the alar ligaments in the late state of whiplash injury-structural abnormalities and abserver agreement.Neararadiology 2002 jul.

Lateral Shifting or translation of more than 3.0 mm indicates laxity of the alar and/or accessory ligaments accoring to porterfield JA, DeRosa C. Mechanical Neck Pain; Perspectives in functinal anatomy. Philadelphia,Pa:WB Sounde Rs Co;1995 Panjabi MM,Summers DJ,Pelker RR,et al: Three dimensional load displacement curves due to forces on the cervical spine. j Orthop

IMPRESSIONS :

1. 1.36 mm - Within Normal Limits C1-C2 Left Lateral Translation indicating hypermobile subluxation.
2. 2.41 mm - Subluxation C1-C2 right Lateral Translation indicating laxity of the Alar and/or Accessory ligaments.

NOTE: SpineTech Pro software (CRMA) correlates with the AMA Guidelines 4th Edition (p.98-99, 1 09), 51h Edition (p.378-79 and the 6th Edition. 578-79, 564). The 6th Edition requires that objective evidence be utilized when evaluating permanent impairment. SpineTech Pro software uses X-ray image overlays technology and qualifies as "Evidence Based Objective Impairment Rating". This software is designed to detect and evaluate ratable impairment established by the AMA Guidelines.