

()

*

mhaghpanahi@yahoo.com

s.sohrabi@yahoo.com

*

ali.gorginzadeh@gmail.com :

:

:

:

%

%

. []

%

. []

N N

. [] %

. []

. [] (C)

%

. []

(C)

. []

(

%

¹ Axis; 2nd Cervical Vertebra
⁵ Teo

² Atlas; 1st Cervical Vertebra
⁶ Tan

³ D'Alonzo

4 Anderson



(CT)

.()



[]

/

MPa

)

(

C

[]

CT

N

.()

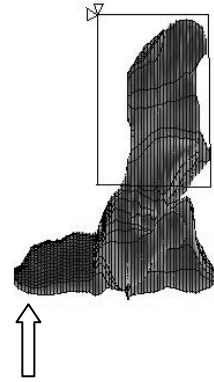
⁷ Computer Tomography
¹¹ MSC.PATRAN

⁸ DICOM
¹² Young's module

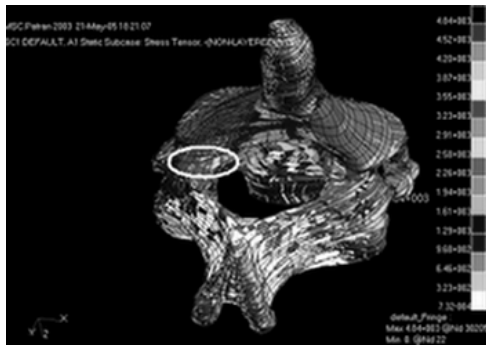
⁹ Mimics
¹³ Mega Pascal

¹⁰ IGES
¹⁴ MSC.NASTRAN

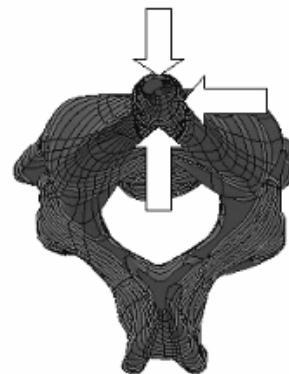
Tx,Ty,Tz,
Rx,Ry,Rz



[]



()

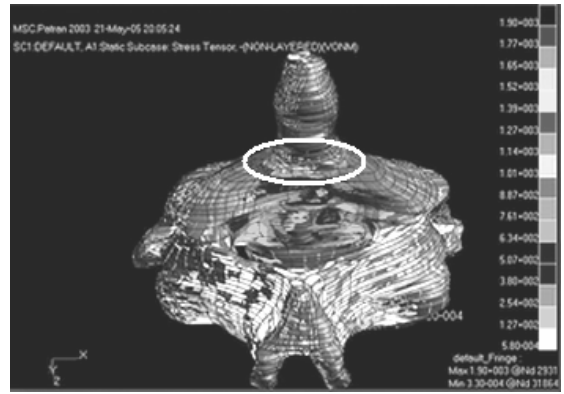
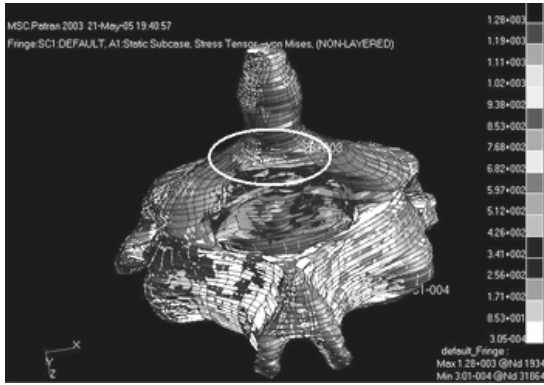


N

N

/ MPa

/ MPa



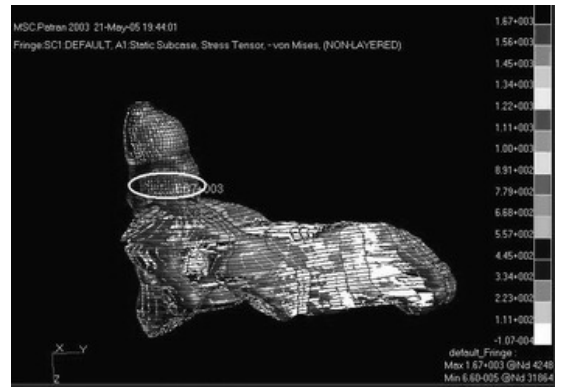
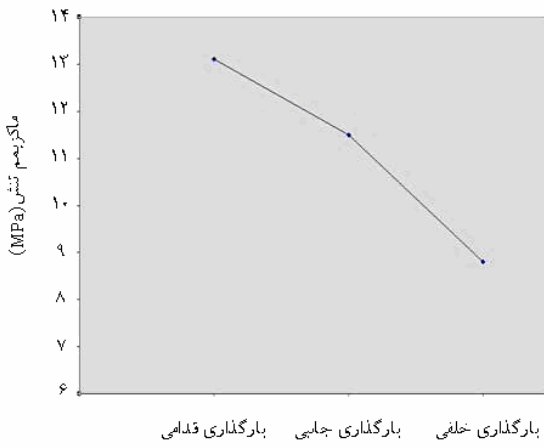
N

N

()

()

/ MPa



N

- [1] Huelke DF, O' Day J, Mendelsohn RA; Cervical injuries suffered in automobile crashes; *Journal of Neurosurgery* 1981; 54: 316-322.
- [2] Ersmark H, Lowenhielm P; Factors influencing the outcome of cervical spine injuries; *Journal of Trauma* 1988; 28: 407-410.
- [3] Wang GJ, Mabie KN, Whitehill R; The nonsurgical management of odontoid fractures in adults; *Spine* 1984; 9: 229-230.
- [4] Dickman CA, Hadley MN, Brower C; Neurosurgical management of acute atlas- axis combination fractures- A review of 25 cases; *Journal of Neurosurgery* 1989; 70: 45-49.
- [5] McBride AD, Mukherjee DP, Kruse RN, Albright JA; Anterior screw fixation of type II odontoid fractures- A biomechanical study; *Spine* 1995; 20: 1855-1860.
- [6] Morandi X, Hanna A, Hamlat A; Anterior screw fixation of odontoid fractures; *Surgery and Neurology* 1999; 51: 236-240.
- [7] Green KA, Dickman CA, Marciano; Acute axis fractures, Analysis of management and outcome in 340 consecutive cases; *Spine* 1997; 22: 1843-1852.
- [8] Anderson LD, D' Alonzo RT; Fractures of the odontoid process of the axis; *Journal of Bone and Joint Surgery* 1974; 56: 1663-1674.
- [9] Teo EC, Paul JP, Evans JH, Ng HW; Experimental investigation of failure load and fracture patterns of C2 (axis); *Journal of Biomechanics* 2001; 34: 1005-1010.
- [10] Tan KW, Lee VSP, Teo EC, Zhang QH, Ng HW, Seng KY; A C2-C3 finite element model to determine the stress patterns of odontoid loads; *Summer Bioengineering Conference, Florida* 2003.
- [11] Teo EC, Ng HW; First cervical vertebra (atlas) fracture mechanism studies using finite element method; *Journal of Biomechanics* 2001; 34:13-21.