Vertebra Compression MGP_CTV_001

Purpose

To assess the mechanical force that vertebrae can withstand.

Experimental Design

- **Minimum number of animals :** 1M or 1F
- **Age at test:** Week 16

Equipment

- Instron 5543 Materials testing frame
- Compression analysis load cell (500N)
- Bluehill 2 software
- Faxitron Machine
- Scalpel
- Small petri dish
- 70% Ethanol
- Superglue
- Forceps

Procedure

1. Set up and calibrate the Instron and Faxitron machines.
2. Take an x-ray image of the tail and identify caudal vertebrae 6 and 7 (Ca6 and Ca7) counting from caudal vertebrae 4. Cut out Ca6 and Ca7 using a sharp scalpel placing them in petri dish with 70 % ethanol.
3. Select one of the vertebrae and place on a small drop of superglue at the centre of the base of the load area of Instron ensuring it is straight and upright. Push lightly on the top of the vertebrae using forceps to straighten and secure it.
4. Start the compression keeping an eye on the graph being generated and stop the test once 1 mm compression is reached.
5. Repeat for the remaining vertebra.

Notes

Data analysis

1. Plot load-displacement curves and determine yield and maximum loads.
2. Calculate stiffness from the linear part of the load displacement curve by the least squares method.
3. Repeat for both of the vertebrae and record the average.

Parameters and Metadata

Vertebra Yield Load MGP_CTV_001_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** true

Unit Measured: N

Description: vertebra_yield_load

Vertebra Max Load MGP_CTV_002_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** true

Unit Measured: N

Description: vertebra_max_load

Vertebra Stiffness MGP_CTV_003_001 | v1.0

simpleParameter

Req. Analysis: false **Req. Upload:** false **Is Annotated:** true

Unit Measured: N/mm

Description: vertebra_stiffness

Equipment manufacturer MGP_CTV_004_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** false **Is Annotated:** false

Description: equipment_manufacturer

Equipment model MGP_CTV_005_001 | v1.0

procedureMetadata

Req. Analysis: true **Req. Upload:** false **Is Annotated:** false

Description: equipment_model