Magnetic Expansion Control (MAGEC) Master Technique

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MAGEC™ SYSTEM

- Titanium Rod Implant
- External Remote Controller (ERC)
MAGEC™ ERC

• EXTERNAL REMOTE CONTROLLER
MAGEC™ ERC

ERC2 Proper Patient Positioning
MAGEC™ ERC

Rotational force of the internal turning magnet creates an axial force on the lengthening rod

Internal rod magnet - Rare Earth Magnets Neodymium Iron Boron (NdFeB)

ERC - Rare Earth Magnets Neodymium Iron Boron (NdFeB)
MAGEC™ IMPLANTS

- 4.5mm and 5.5mm Diameter
- Anchored with compatible sized screws and hooks
MAGEC™ IMPLANTS

90mm Actuator Rod – 48mm distraction capability

70mm Actuator Rod – 28mm distraction capability
Single Rod Construct
Dual Rod Construct

OFFSET ROD

STANDARD ROD
Dual Rod Construct

2 STANDARD RODS
Surgical Technique

• Standard approach

• Prepare the sub-muscular bed

• Insertion of anchors
  • Proximal – Screws and/or hooks
  • Distal – Screws

• Rod cutting and contouring – cannot bend the actuator portion of the rod

• Manual test distraction before implantation

• Placement of one cross connector
Manual Test Distraction

Figure 1 Manual Distracting Test for Offset Rod

_Sterilization Recommendations:_

The MAGEC™ Manual Distractor has been qualified in a double wrapped configuration (Cardinal Health Converters Bio-Shield Regular Sterilization Wrap, 40" x 40", REF 4040) using the following autoclave sterilization cycle:
Manual Distractor
Distraction Techniques

• Outpatient clinic setting

• Clunking vs Non-Clunking

• Vast range of opinion surrounding frequency and technique of distraction
  – Kenneth Cheung, Hong Kong – 1/12
  – Hilali Noordeen, RNOH Stanmore – 6/12
  – Colin Nnadi, Oxford - Tail-gating – Dimeglio’s growth curve

• Fluoro technique – 40-50x less radiation (Ability to assess integrity of anchor points and rods)
Dimeglio Spinal Growth Velocity – (T1-L5)

- ‘Tail-gating’ Principle
- Birth-5 years - Less than 20kg – 2.2cm per annum
- 5-10 years – 20-30kg – 1.1cm per annum
- Harnessing natural growth
- Less stress on anchor points
- ‘Controlled’ distraction
- ‘Scientific’ approach
Fluoro Images
Ultra Sound Distraction Measurement Landmarks
Pre-op
T1-s1: 375mm
Cobb  62

Post-op
T1-s1:  368 mm
Cobb  52°

After 5 distractions:
T1-s1: 415 mm
Cobb  42°