

# Whole Body Vibration

Pilot Study

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**Perth  
Integrated  
Health Clinic**

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# Whole Body Vibration

- Neuromuscular treatment method
- Vibrating platform stimulates body's natural stretch reflexes
  - ⇒ Causes controlled muscle contractions
- Stimulates paraspinal nerves
- Sends messages to brain via spinal cord
- Effects activity of paraspinal muscles

# Whole Body Vibration cont.

- Harmonic frequency of muscles
  - Pathology = harmonic frequency interrupted
- Controlled muscle contractions and stimulation of nerve pathways allows harmonic frequency to be restored

# Methodology

- Subjects participate in a 3 week program using the WBV 3000 machine on the following protocols:
  - a. Twice a week frequency over the said duration
  - b. Each treatment duration will be for 10 minutes
- Selection criteria protocol
  - Contraindications to use
- Consent form

# Instrumentation

- Baseline data obtained for each research subject using the Millennium Thermal EMG Scanner
  - Objective measure
- Postural assessment performed

# Instrumentation cont.

- Prior to each treatment session, subjects undergo specific stretch exercises
- During treatment on the WBV 3000:
  - Eyes forward
  - Hold onto handle bars
  - Flexion at the hips and knees
  
  - Speed 1 for 1<sup>st</sup> minute
  - Speed 6 for remaining 9 minutes
  - Total = 10 minutes

# Data

- Following the 1<sup>st</sup> treatment session, subjects are asked to give feedback on any felt changes (positive or negative) each consecutive session
  - Subjective data
- Following the treatment period, subjects undergo a re-scan using the Millennium Thermal EMG Scanner
  - Compare to initial EMG scan
  - Objective data

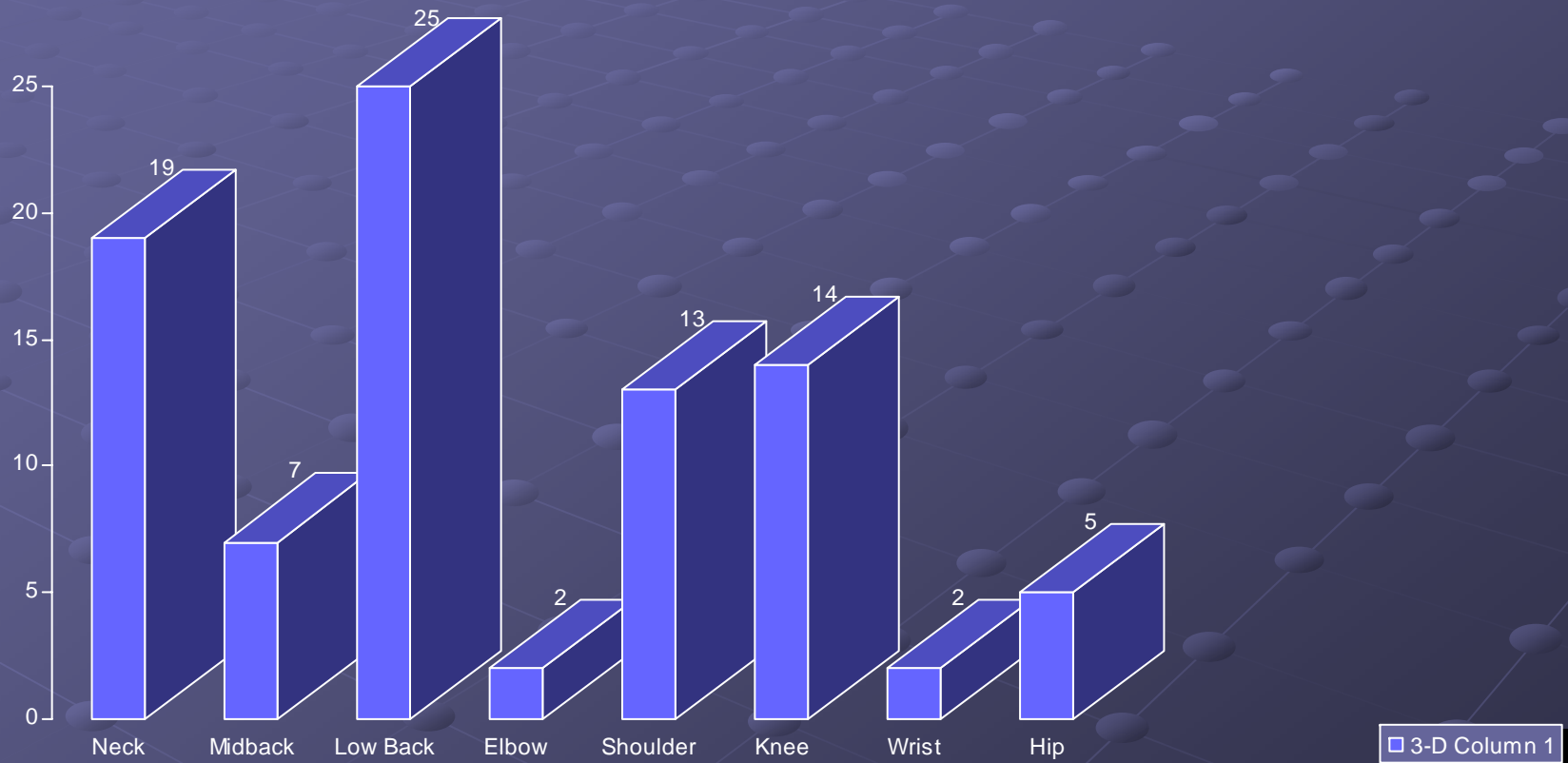


# Subject Demographics

- Total number of subjects: 33
  - Total females: 21
  - Total males: 12
  - Average age of subjects: 43 years
  - Desk-related jobs, self-employed, students, physical labour etc



# Proportion of Pain Areas



# Analysis of Data

- Compare EMG scans pre- and post-treatment using WBV
- Thermal EMG scanner measures skin temperature on both sides of the spine
  - Where there is postural misalignment, spaces between vertebrae compress on nerves that exit

Compressed nerves = nerve irritation = ↑ heat

# Analysis of Data cont.

- Comparing temperature differentials pre-treatment and post-treatment:
  - NEGATIVE temperature = REDUCTION in nerve irritation = IMPROVEMENT!
  - POSITIVE temperature = INCREASE in nerve irritation = NO IMPROVEMENT!

# Analysis of Data cont.

- Average Temperature Differential for Cervical Region
  - -0.89
  - Reduction in nerve irritation / heat
    - IMPROVEMENT

# Analysis of Data cont.

- Average Temperature Differential for Thoracic Region
  - +1.78
  - Increase in nerve irritation / heat
    - NO IMPROVEMENT

# Analysis of Data cont.

- Average Temperature Differential for Lumbar Region
  - -0.13
  - Reduction in nerve irritation / heat
    - IMPROVEMENT

# Subjective Reports

- Less tension in neck and shoulders
- Increased motivation
- No more headaches
- Less stiffness in neck
- Less stiffness in low back
- Increased flexibility in low back
- More stability in knees



# Subjective Reports cont

- Increased confidence in movement
- Feel looser
- Less pain
- No pain
- No 'catching'
- Increased strength in legs
- Increased energy

# Clinical Applications cont

- Adjunct to hands-on (static) treatment
- Best results in initial stages of treatment
  - To stabilise harmonic frequency
- Used also in maintenance treatment
  - Patients put themselves on WBV prior to hands-on treatment
    - As according to WBV Treatment Plan given by OT

# Clinical Applications

## ● Cervical region

- Headaches
- Nervousness
- Pain and discomfort

## ● Low back region

- Weakness
- Tightness
- Referral down leg

# For More Information

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- Complimentary assessment to determine if WBV can be of assistance to you