Using Infra Red Thermal Imaging to assess Osteopathic treatment of Two Asian Elephants

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All aspects of osteopathic care for people, animals & birds

Introduction

- 2 adult female Asian Elephants (*Elephas maximus*)
- Veterinary surgeon diagnosed musculo-skeletal problems
- Treatment programme undertaken by the same osteopath
- IRTI taken prior to each osteopathic treatment under strict control conditions[1]
- Results interpreted using human and equine models as a guide to assess SNS output within the CNS[2]

Objectives

- To provide evidence that osteopathic intervention can make changes to SNS output of elephants
- When used in conjunction with other assessment tools, could assess changes in muscle tension states at rest, as well as improvement in the symmetry of gait when walked in a straight line
- To provide a visual measure as to the overall functioning of the musculo-skeletal system

Methods

- Each elephant was conditioned to squat down, and lay on each side
- Small amounts of food were then given to reinforce positive stimulus to experience
- Each elephant was treated by the author, whilst they were fully conscious
- Treatments were at 4 week intervals over a 21 month period
- IRTI scans were taken at each of these sessions prior to actual treatment using a FLIR Agema 400 Infra Red Thermal Imaging camera under strict control conditions[2]

Trial controls

- The subjects were kept in the elephant house, dry, brushed clean of any debris and food matter
- IRTI scans taken by an independent veterinary expert
- IRTI images were stored electronically, with paper print outs produced

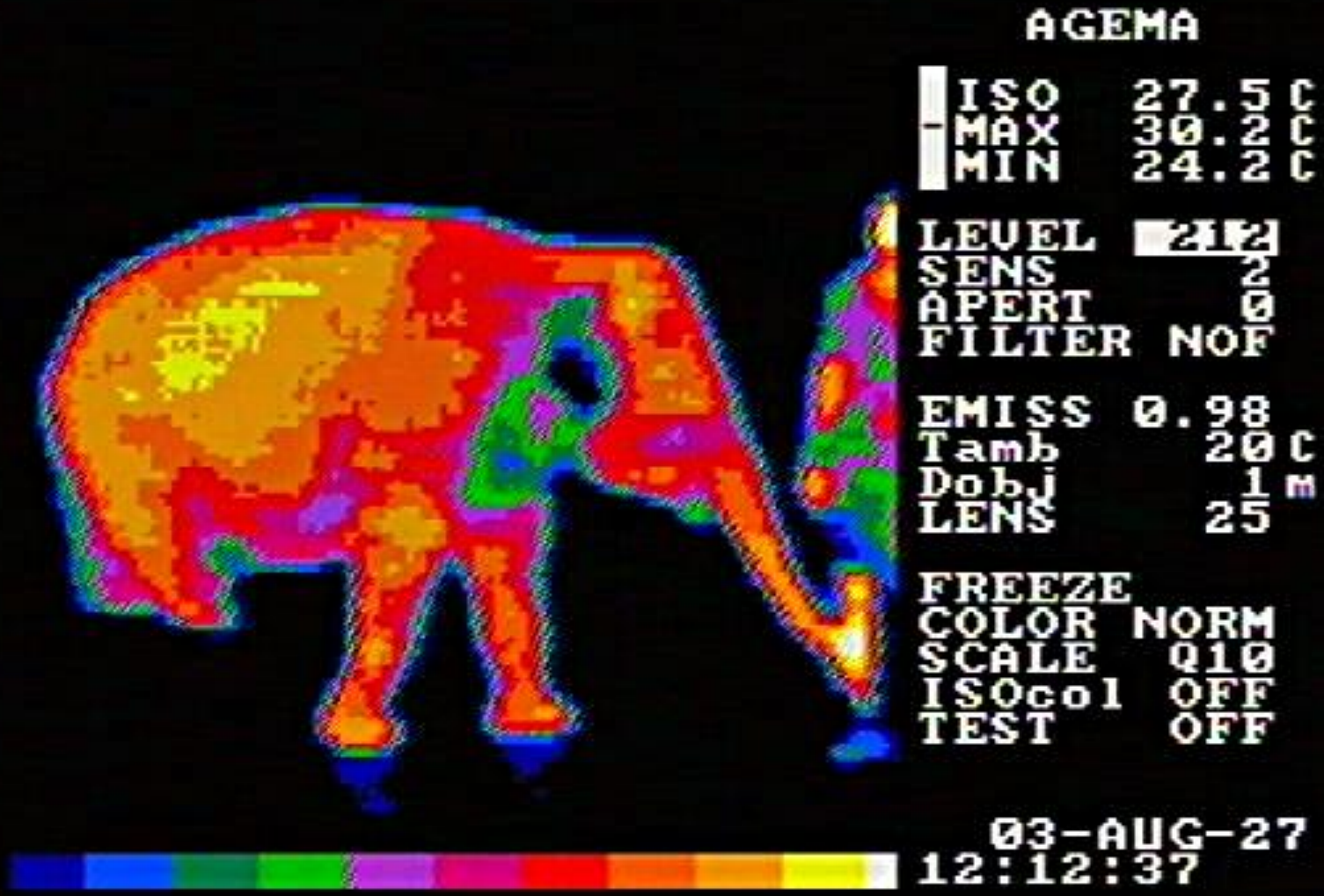
Results

- Both elephants showed progressive improvements in movement, independent visual gait assessment, and IRTI scan results
- Palpation confirmed/reinforced IRTI and visual findings
- IRTI scans showed one of the subjects had sustained tail pull trauma during the trial period
- IRTI provided a passive assessment confirming that regular osteopathic treatment over a sustained period of time could improve the physiological state of the musculo-skeletal system of Elephas maximus[3]

Osteopathic treatment protocols

- Replicable treatment programme created
- Assessing joint motility
- Quality & symmetry
- Springing SPs
- Functional release
- Tail traction
- Trigger point work

The IRTI Camera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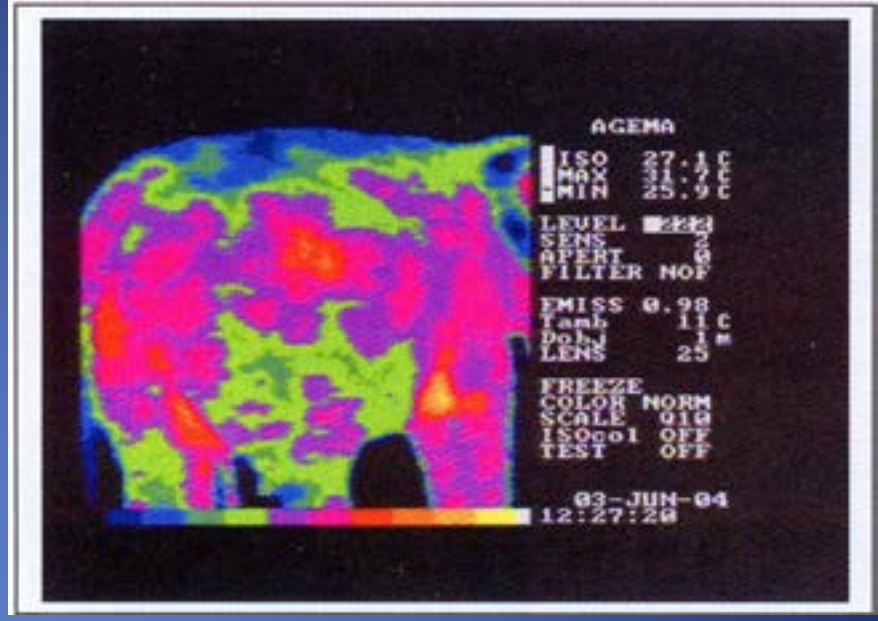
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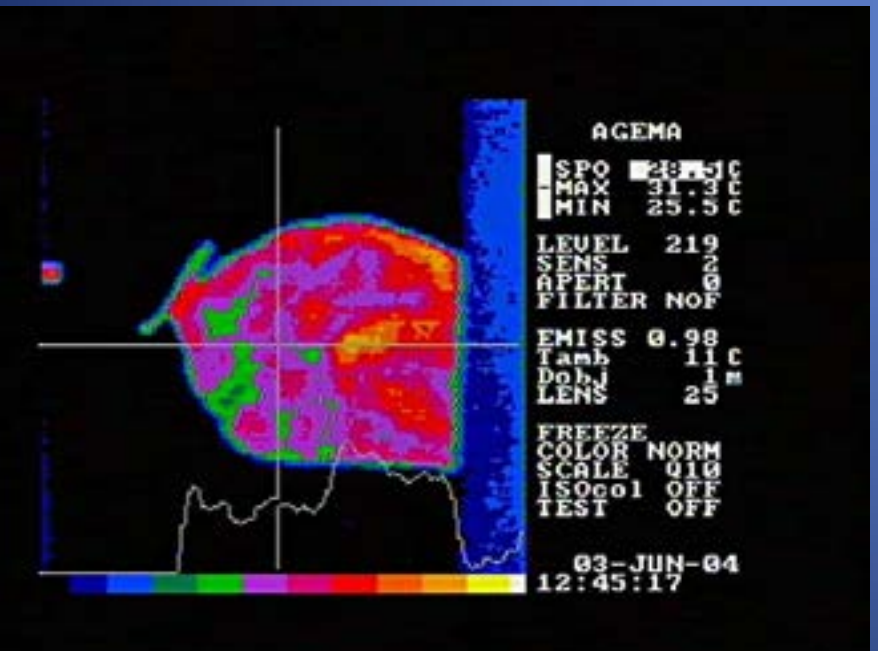
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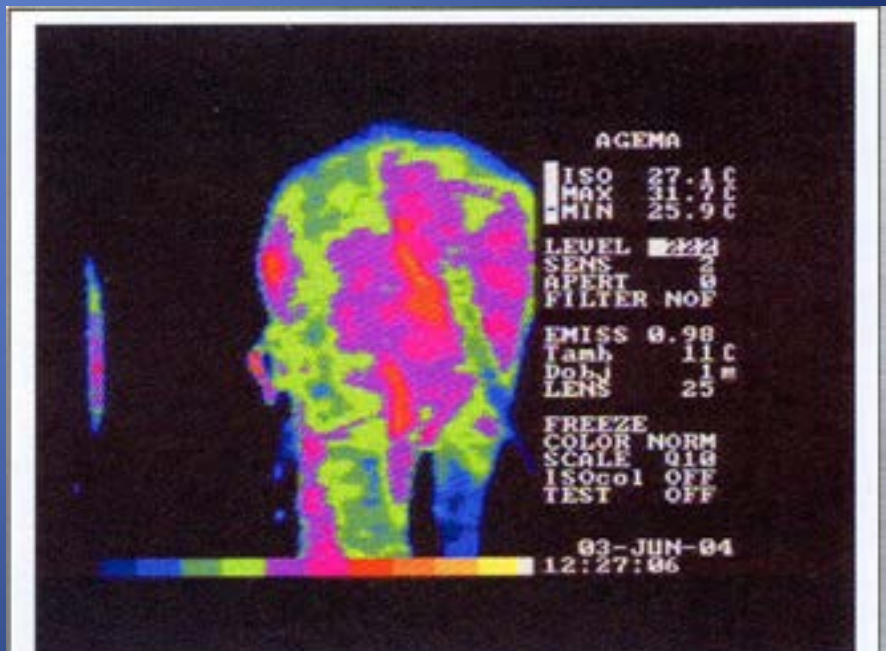
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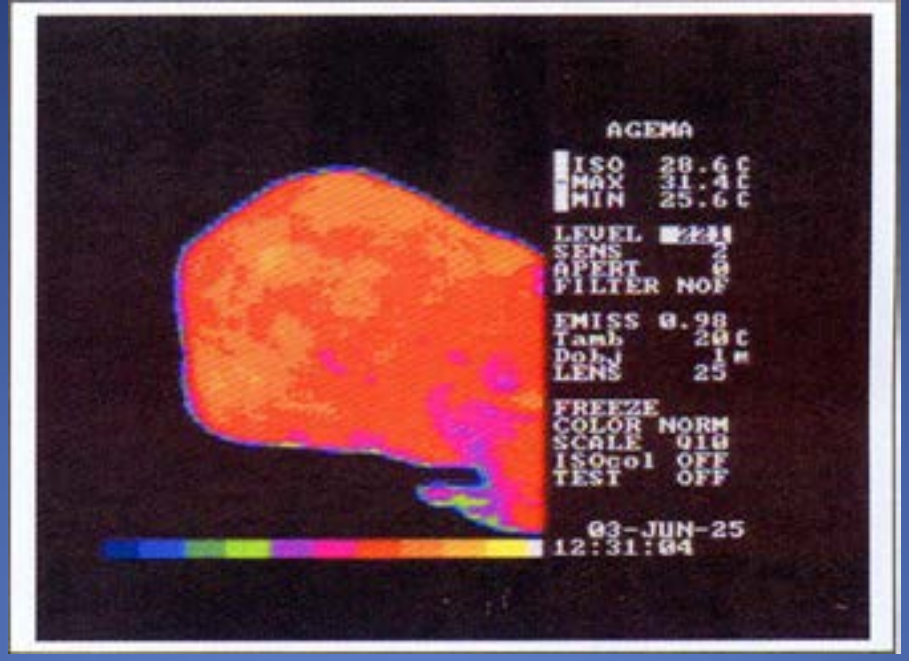
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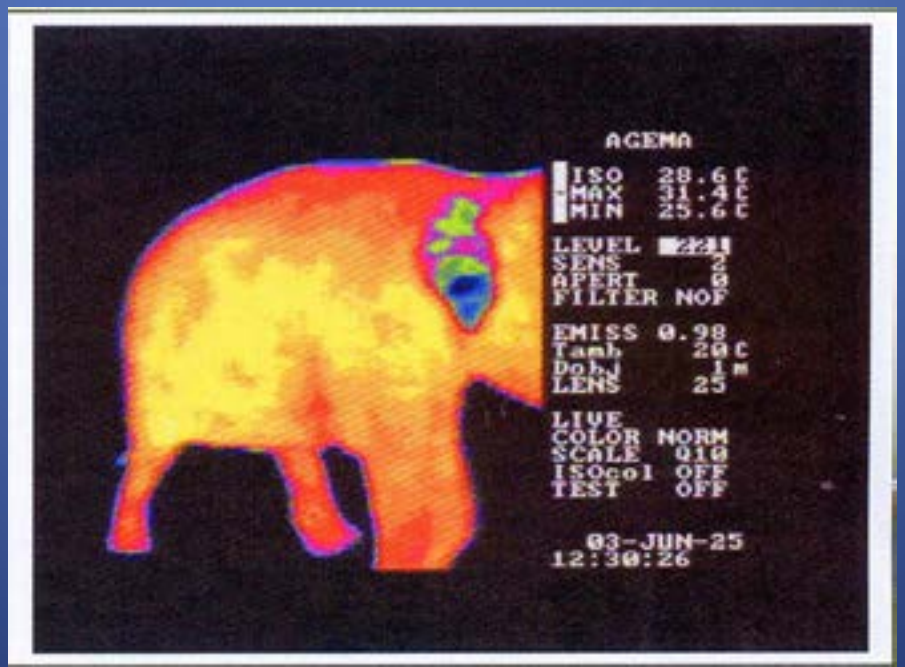
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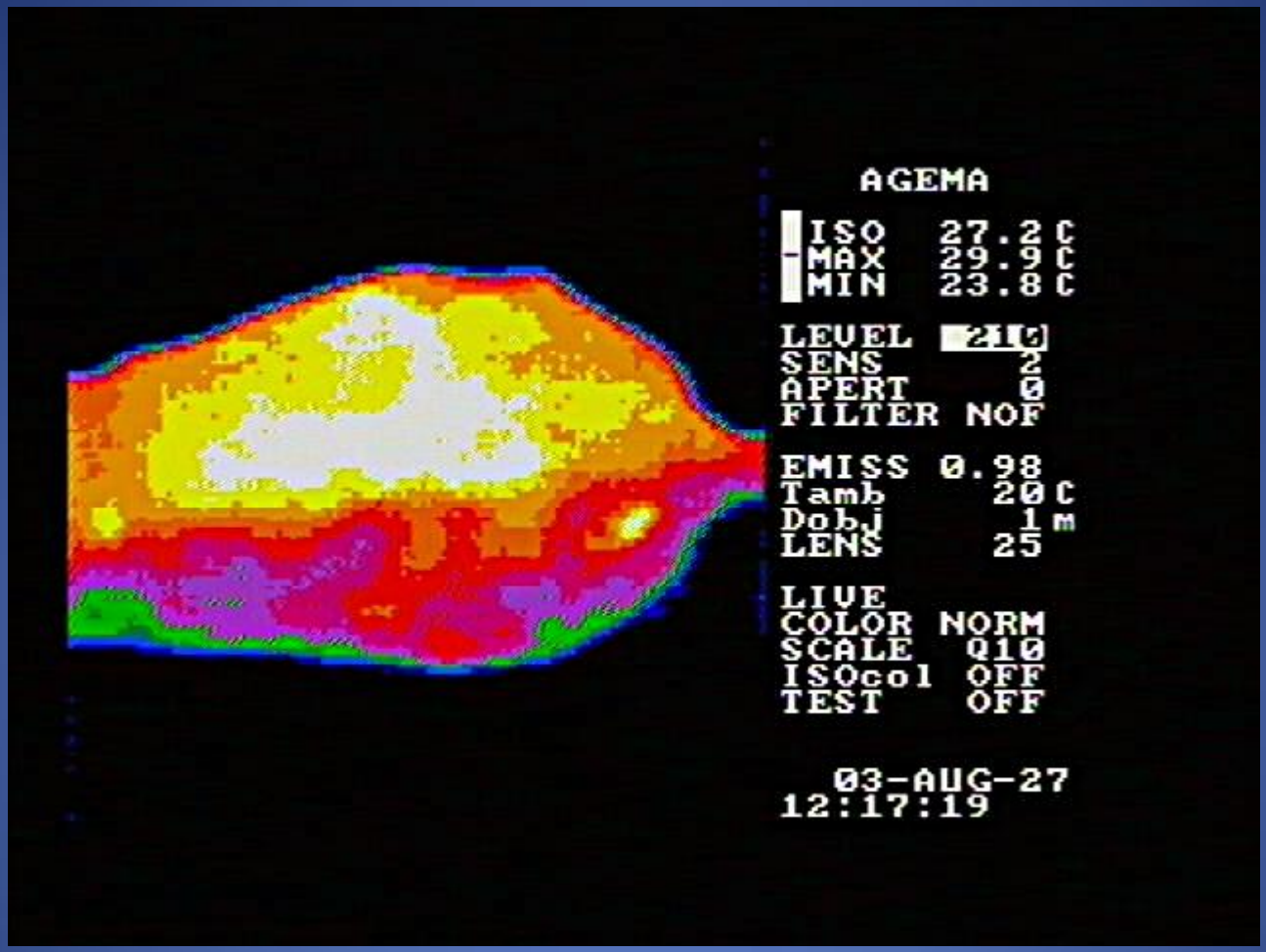
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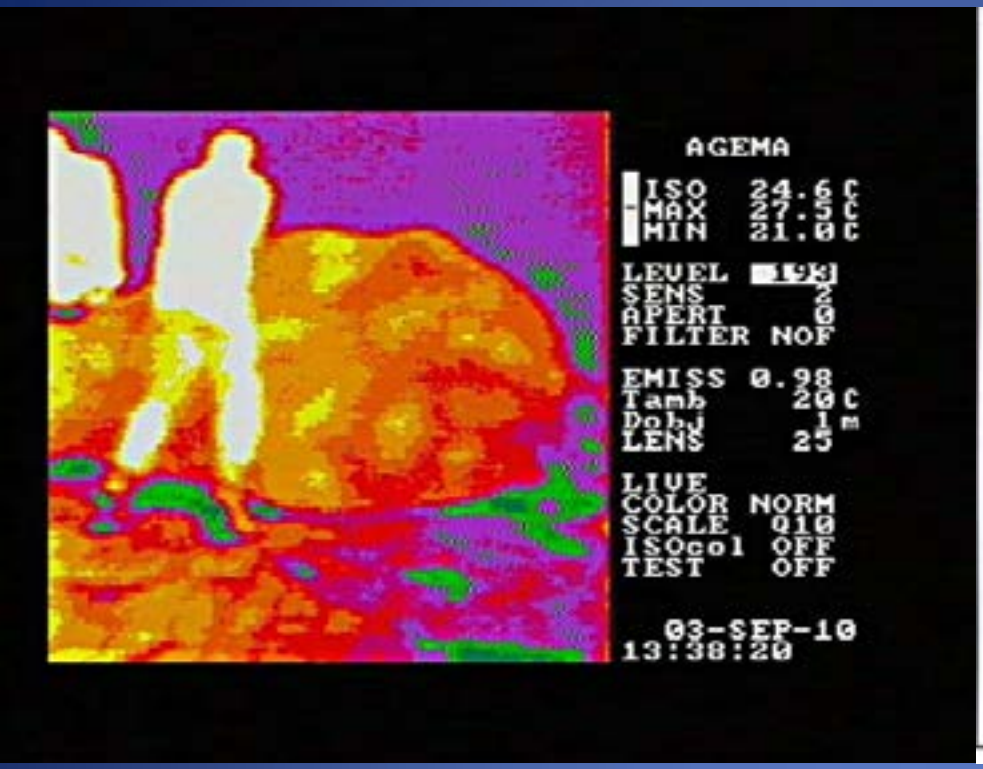

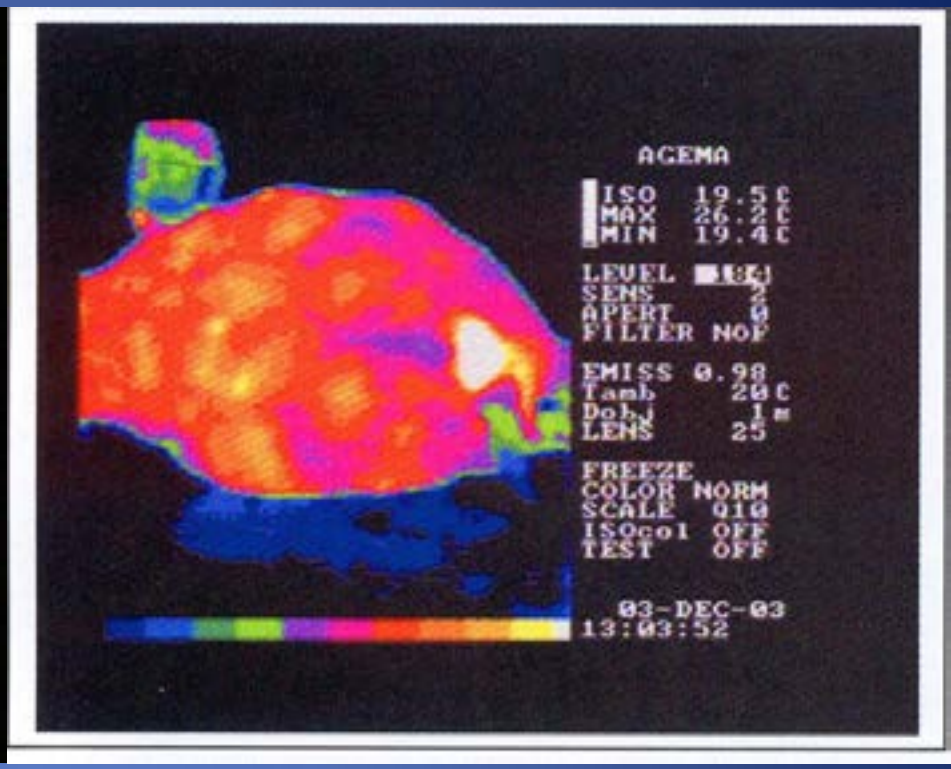

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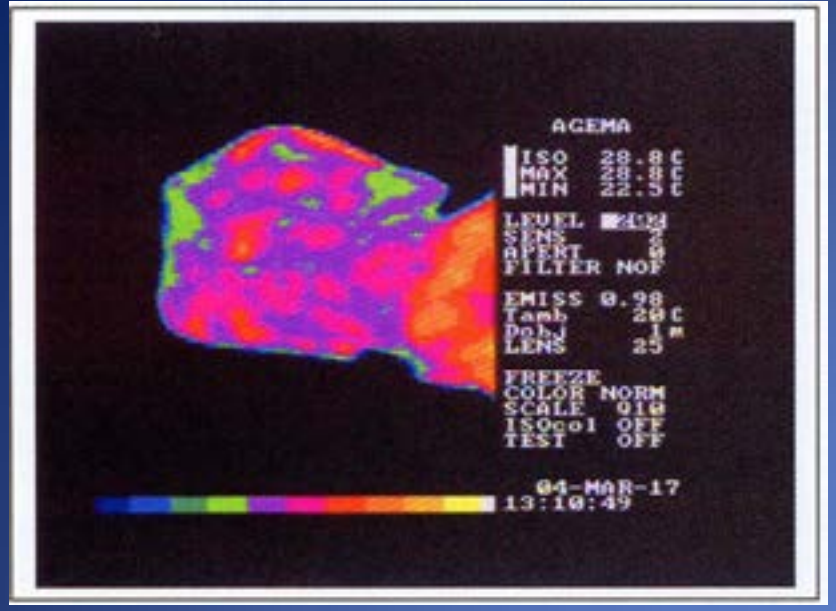

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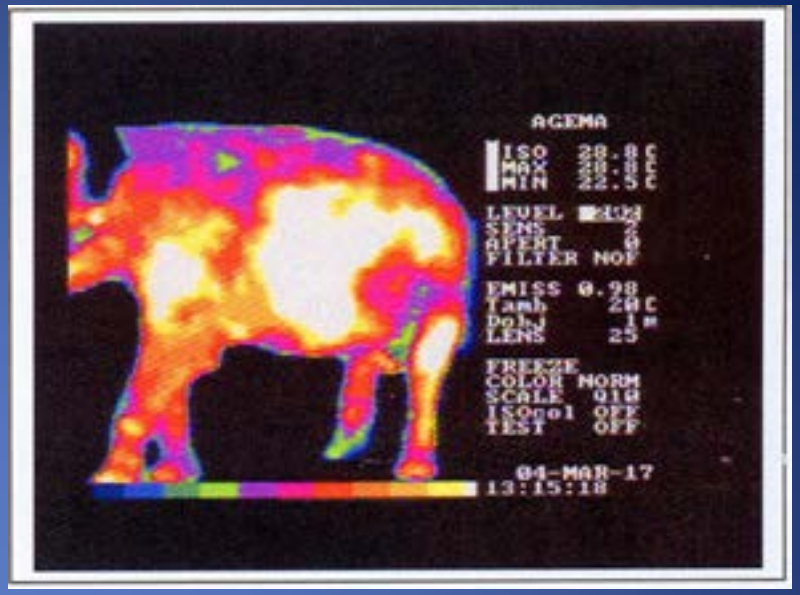

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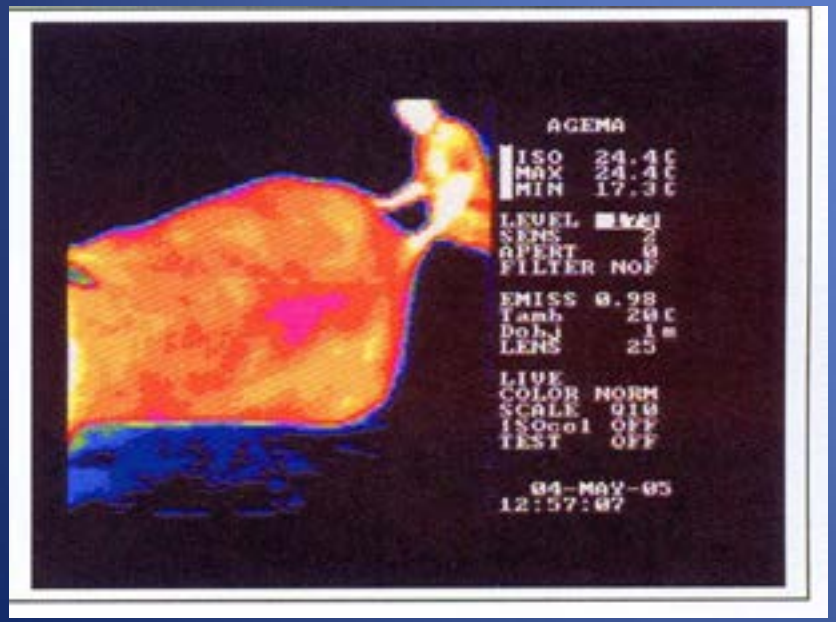

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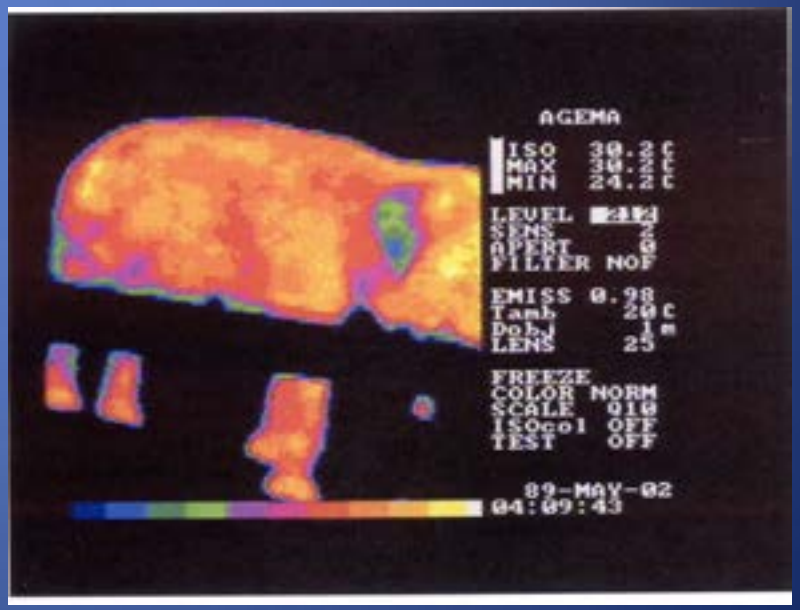

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Conclusions

- Osteopathic principles can be applied to animals as large as elephants
- IRTI can be used to monitor changes in surface temperature that matches changes in locomotor function[3]
- Treatment programmes for adult elephants are lengthy[3]

References

- [1]Tunley B V. and Henson F M D. (2004). Reliability and repeatability of thermographic examination and the normal thermographic image of the thoracolumbar region of the horse. Equine Vet J. **36** (4) 306-312
- [2]Colles C M., Holah G., Pusey A., (1995). Thermal imaging as an aid to the dignosis of back pain in the horse. Proceedings of the sixth European Congress of Thermology. Ed Ammer K. and Ring E. Published Vienna, Uhlen Verlag. P. 164-167
- [3]Nevin A. (2005). Using osteopathy to treat neuro-muscular-skeletal problems in two Burmese Elephants. Proceedings of the BIAZA seventh annual symposium on zoo research, Twycross Zoo, UK