Influence of haemorrhagic shock on fracture healing

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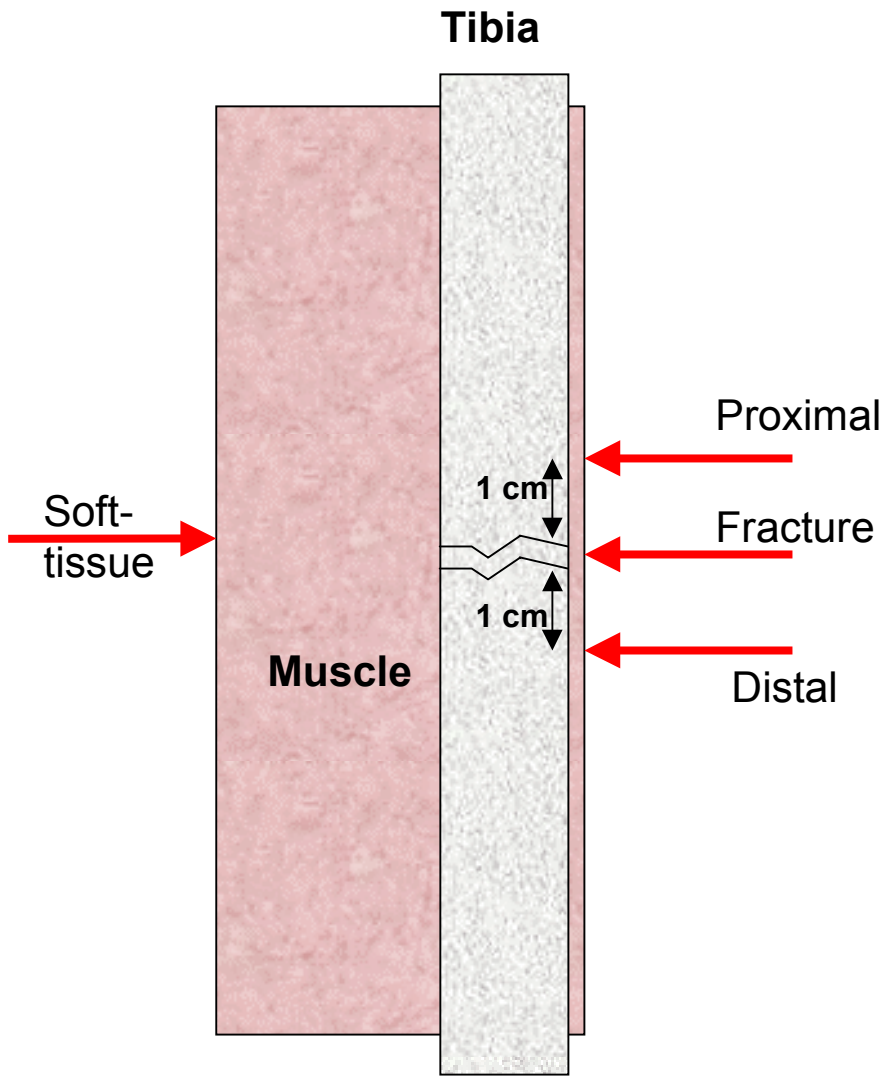
Measurement at the level of fracture (tibia, rats), 1cm distal/proximal and soft tissue with O2C(oxygen to see)
Blood loss of 12ml/kg body weight.

Shock group with volume resuscitation (colloid volume solution)
Control group without volume resuscitation



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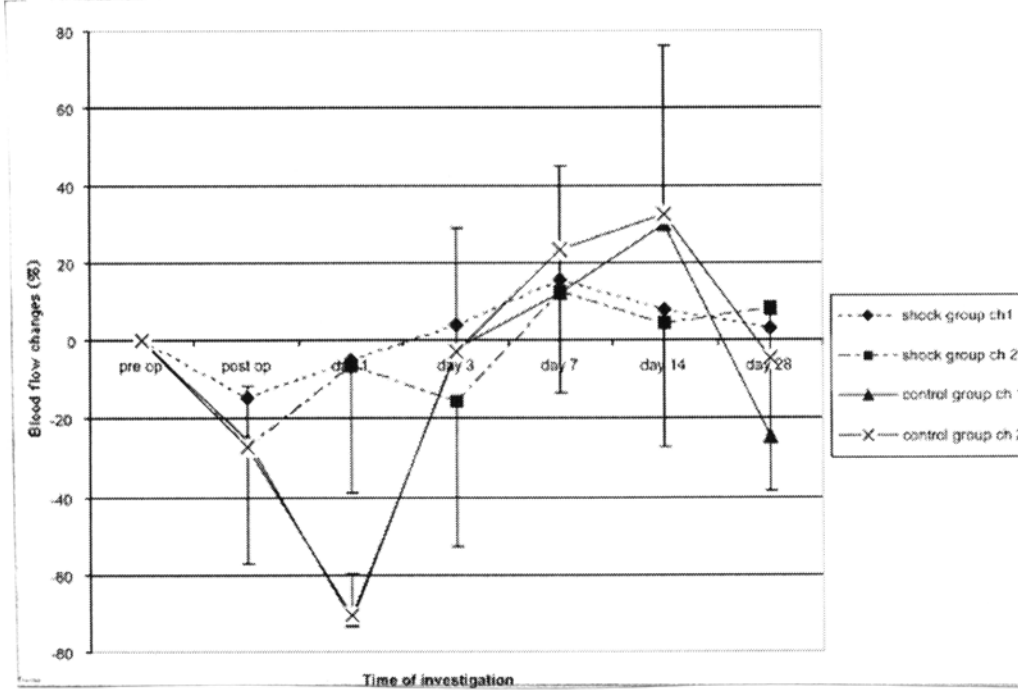
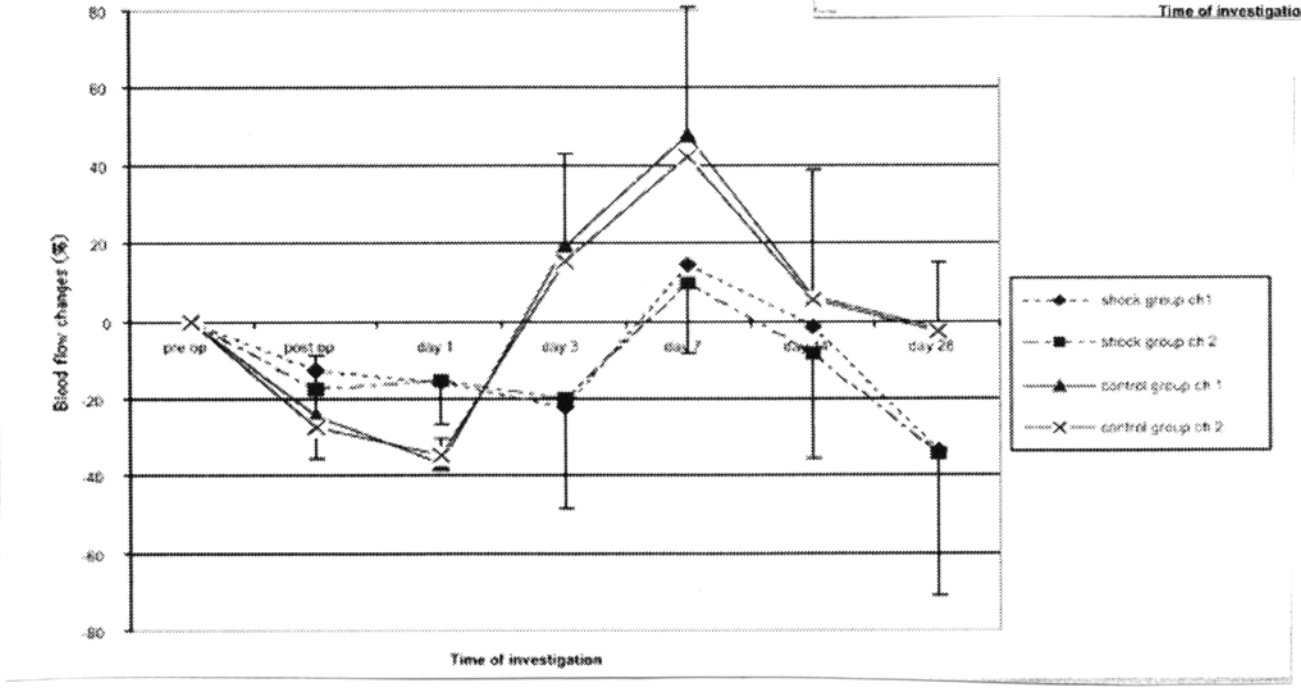
Blood flow pre-, post-Op, 1, 3, 7, 14, 28 day



Distal region

Soft tissue



Shock group has no reduction in blood flow in the distal and soft tissue regions during first 24h, while control group has 39% decrease

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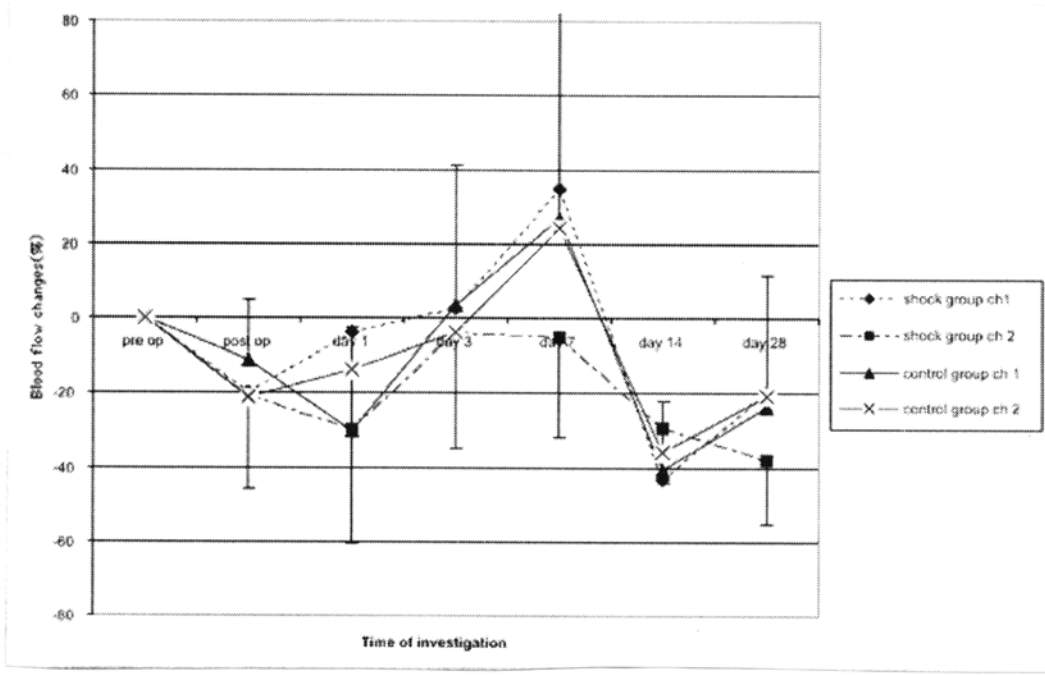
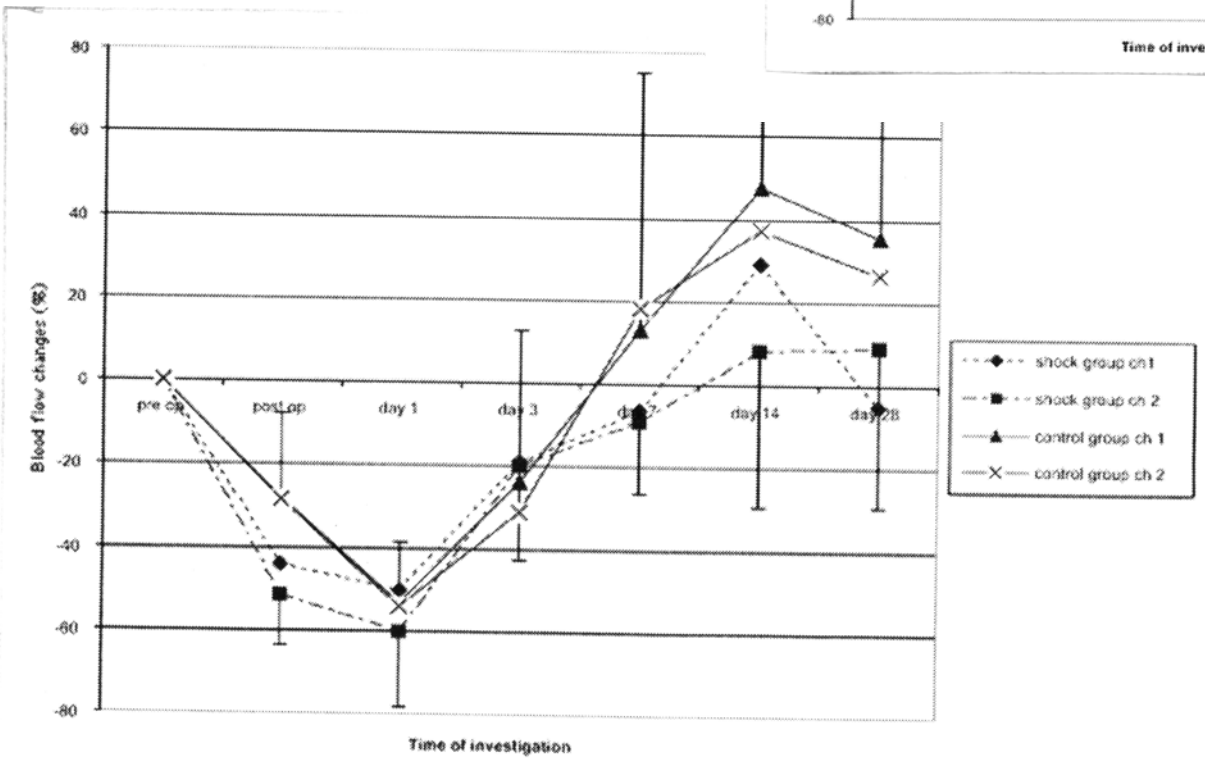


Proximal site

Fracture site



No significant difference at proximal and fractural regions in blood flow between shock and control group

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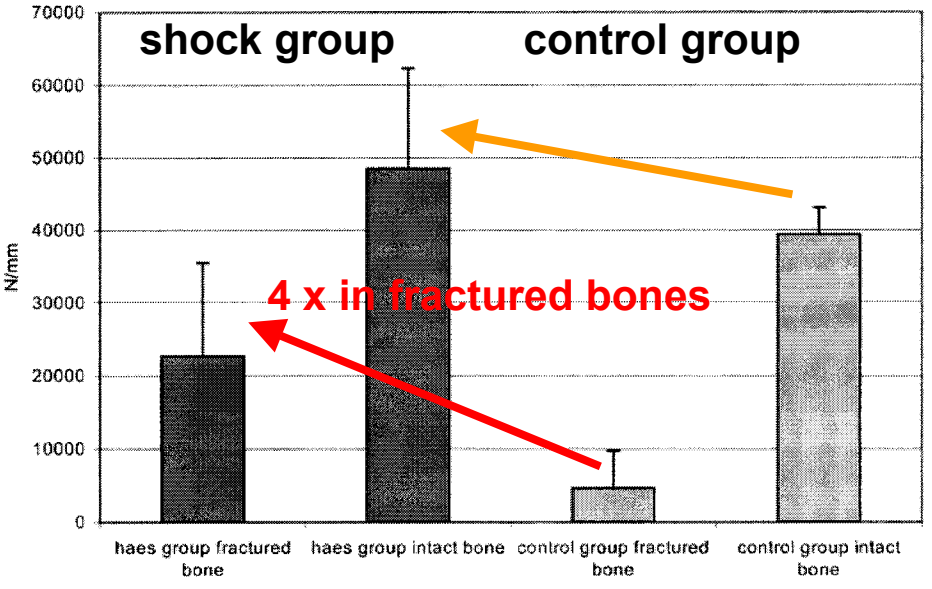
Shock group has no reduction in blood flow in the distal and soft tissue regions,
and
biomechanical testing after 4 weeks healing shows a better fracture healing outcome in the shock group:
4 times higher flexural rigidity
and
3 times higher failure load in fractured bone.
(flexural rigidity 23% higher in intact bones of shock group)

Flexural rigidity



Failure load