

Influence of additional weight carrying on load-induced changes after rotator cuff tears – an *in vivo* study

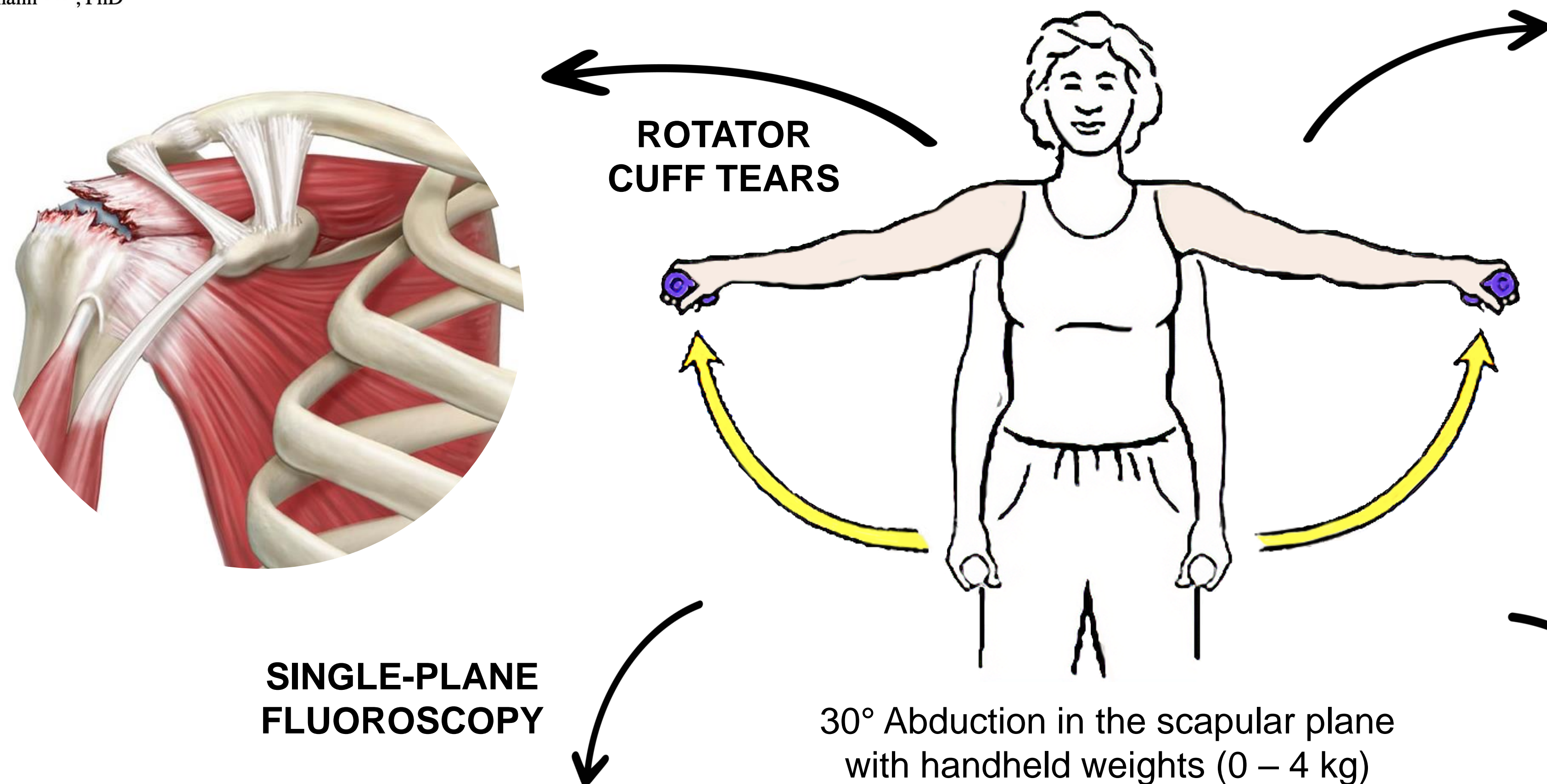
Eleonora Croci, Hanspeter Hess, Jeremy Genter, Cornelia Baum, Balazs Kovacs, Corina Nüesch, Daniel Baumgartner, Kate Gerber, Andreas Marc Müller, Annegret Mündermann

JMIR RESEARCH PROTOCOLS Croci et al

Protocol

Load-Induced Glenohumeral Translation After Rotator Cuff Tears: Protocol for an In Vivo Study

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ROTATOR CUFF TEARS

MAGNETIC RESONANCE IMAGING

SINGLE-PLANE FLUOROSCOPY

MOTION CAPTURE ELECTROMYOGRAPHY

30° Abduction in the scapular plane with handheld weights (0 – 4 kg)

- Healthy (n = 43)
- Rotator cuff tendinopathy (n = 24)
- Asymptomatic rotator cuff tears (n = 38)
- Symptomatic rotator cuff tears (n = 25)

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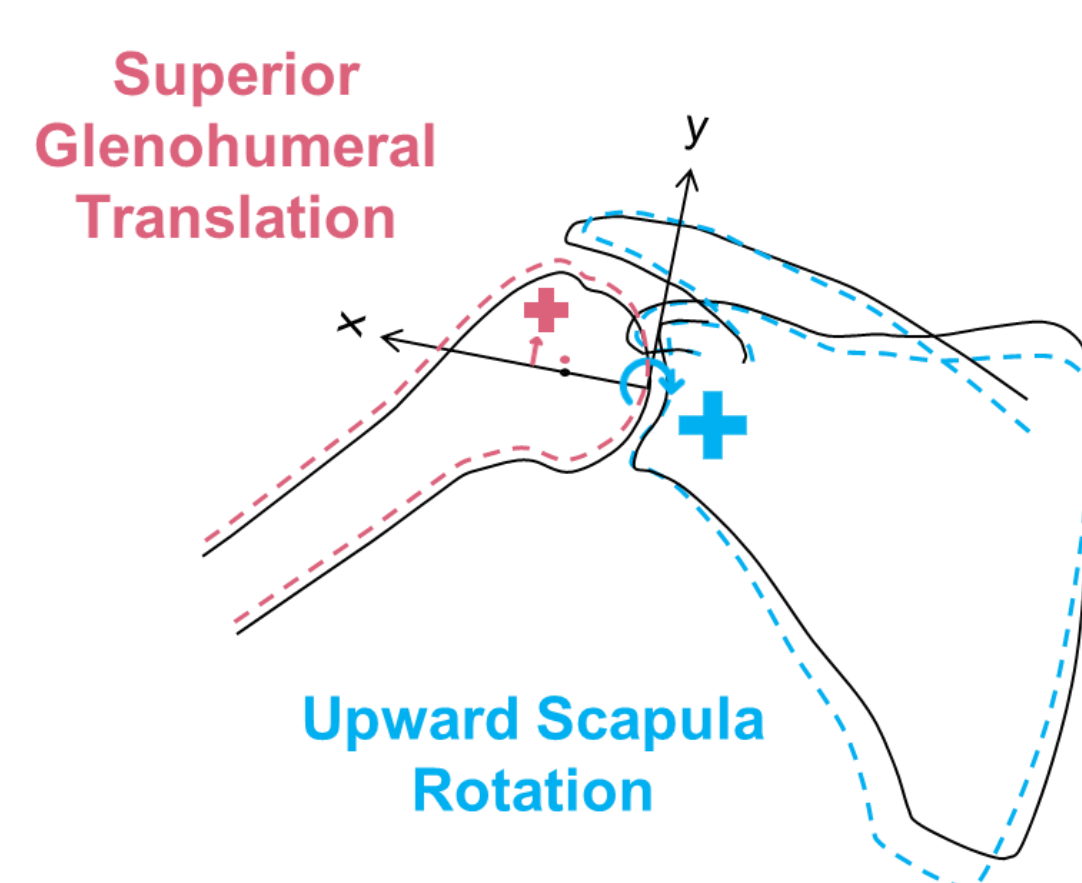
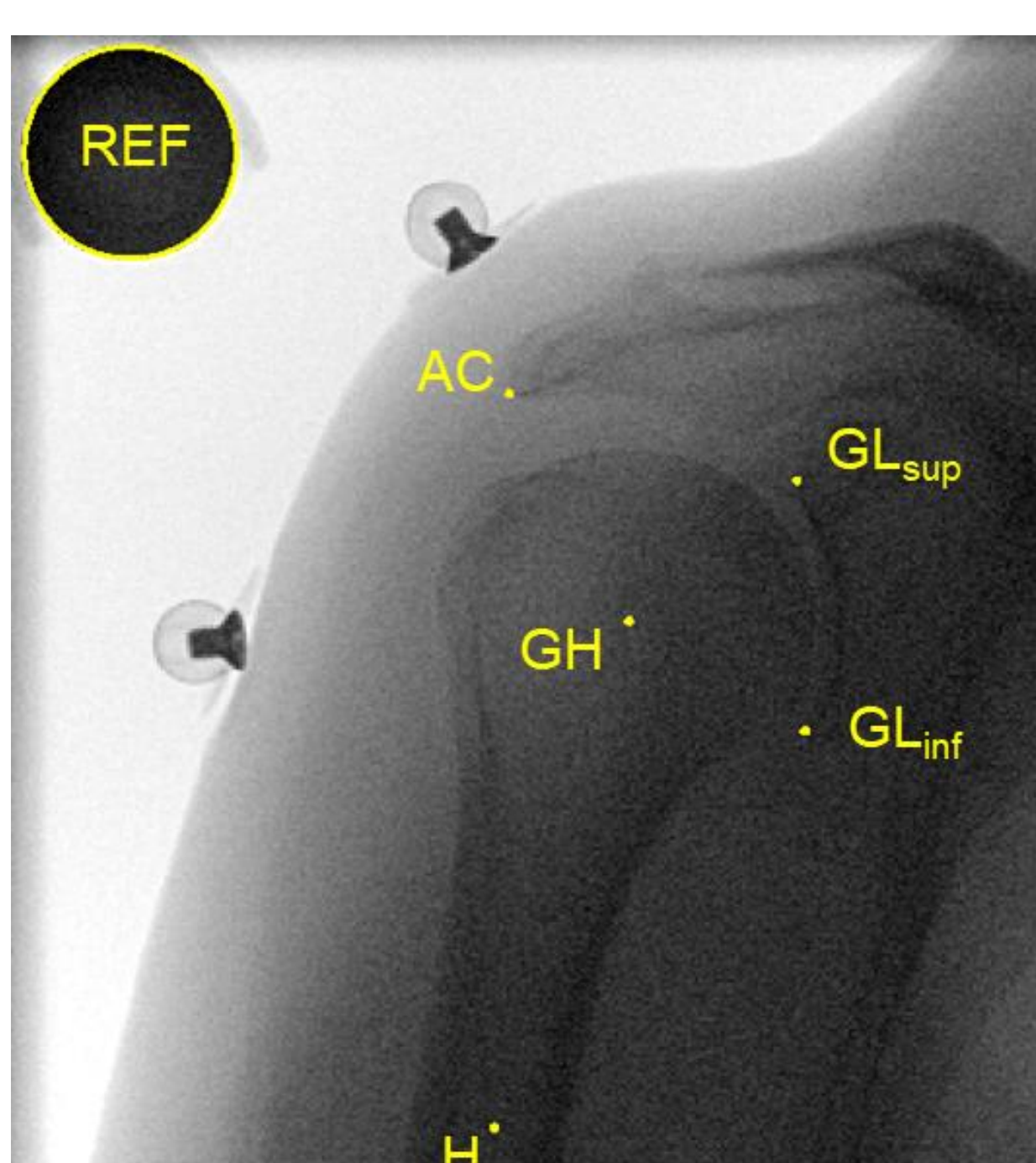
MUSCULOSKELETAL

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Journal of Orthopaedics and Traumatology

Fully automatic algorithm for detecting and tracking anatomical shoulder landmarks on fluoroscopy images with artificial intelligence

Eleonora Croci^{1,2}, Hanspeter Hess³, Fabian Warmuth², Marina Künzler², Sean Börlin², Daniel Baumgartner⁴, Andreas Marc Müller², Kate Gerber², Annegret Mündermann^{1,2,5,6}



Shoulder Kinematics

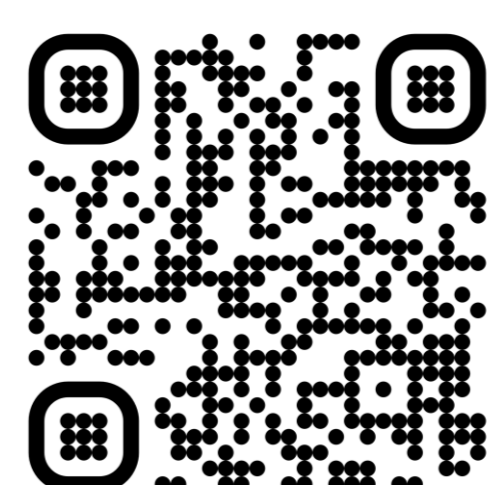
- Load-induced increase in upward scapula rotation
- Greater upward scapula rotation in rotator cuff tears
- Scapula compensation in rotator cuff tears



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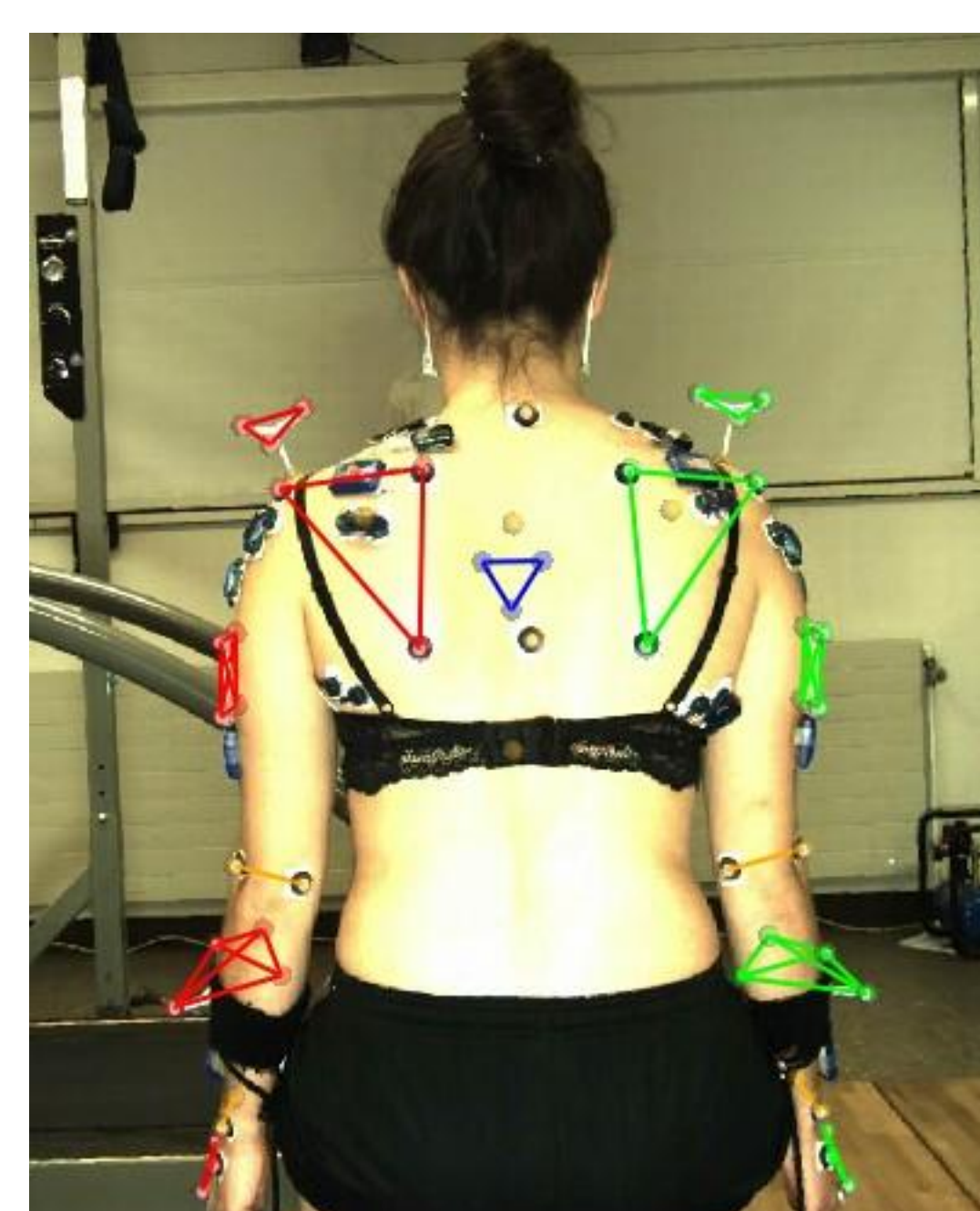

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ORIGINAL ARTICLE

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Load-induced increase in muscle activity during 30° abduction in patients with rotator cuff tears and control subjects

Eleonora Croci^{1,2*}, Fabian Warmuth², Cornelia Baum^{2,3}, Balazs Krisztian Kovacs⁴, Corina Nüesch^{1,2,5,6}, Daniel Baumgartner⁷, Andreas Marc Müller² and Annegret Mündermann^{1,2,5,6}



Muscle Activity

- Load-induced increase in muscle activity
- Greater relative muscle activity in rotator cuff tears
- Not only deltoid and infraspinatus compensate for rotator cuff tears but also the surrounding muscles