

## IFOMPT Reference List

### Expanding our Understanding of the Inflammatory Process and its Role in Pain & Tissue Healing

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Best, T. M. et al. (2013). "Stem cells, angiogenesis and muscle healing: a potential role in massage therapies?" *Postgrad Med J* 89(1057): 666-670.

Bjordal, J. et al. (2006). "A randomised, placebo controlled trial of low level laser therapy for activated Achilles tendinitis with microdialysis measurement of peritendinous prostaglandin E2 concentrations." *Br J Sports Med* 40(1): 76-80; discussion 76-80.

Chamberlain, G. A. and G. R. Colborne (2016). "A review of the cellular and molecular effects of extracorporeal shockwave therapy." *Vet Comp Orthop Traumatol* 29(2).

Chow, D. et al. (2011). "Low-magnitude high-frequency vibration (LMHFV) enhances bone remodeling in osteoporotic rat femoral fracture healing." *J Orthop Res* 29(5): 746-752.

Chung, S. et al. (2014). "Low-magnitude high-frequency vibration enhances gene expression related to callus formation, mineralization and remodeling during osteoporotic fracture healing in rats." *J Orthop Res* 32(12): 1572-1579.

Dideriksen, K. (2014). "Muscle and tendon connective tissue adaptation to unloading, exercise and NSAID." *Connect Tissue Res* 55(2): 61-70

Dunn, S. L. and M. L. Olmedo (2015). "Mechanotransduction: Relevance to Physical Therapist Practice-Understanding Our Ability to Affect Genetic Expression Through Mechanical Forces." *Phys Ther* 96(5): 712-721.

Eliasson, P. et al. (2012). "Achilles tendon healing in rats is improved by intermittent mechanical loading during the inflammatory phase." *J Orthop Res* 30(2): 274-279.

Fernandes, K. et al. (2015). "Photobiomodulation with 660-nm and 780-nm laser on activated J774 macrophage-like cells: Effect on M1 inflammatory markers." *J Photochem Photobiol B* 153: 344-351.

Ferroni, P. et al. (2005). "Biological effects of a software-controlled voltage pulse generator (PhyBack PBK-2C) on the release of vascular endothelial growth factor (VEGF)." *In Vivo* 19(6): 949-958.

Friedl, K. et al. (2008). "Stress fracture and military medical readiness: bridging basic and applied research." *Med Sci Sports Exerc* 40(11 Suppl): S609-622.

Fujiwara, Y. et al. (2005). "Down-regulation of basic fibroblast growth factor production from cartilage by excessive mechanical stress." *J Orthop Sci* 10(6): 608-613.

Handschin, C. and B. Spiegelman (2008). "The role of exercise and PGC1[alpha] in inflammation and chronic disease." *Nature* 454(7203): 463-469.

Ingber, D. (2003). "Mechanobiology and diseases of mechanotransduction." *Annals of Medicine* 35: 564-577.

Jeon, J.-K. et al. (2015). "Effects of high voltage pulsed current stimulation with a visible contraction intensity on expression of TGF-β1 and synthesis of type I collagen in wound-induced white rats." *Journal of Physical Therapy Science* 27(5): 1485-1490.

Kaada, B. and O. Torsteinbo (1989). "Increase of plasma beta-endorphins in connective tissue massage." *Gen Pharmacol* 20(4): 487-489.

- Khan, K. and A. Scott (2009). "Mechanotherapy: how physical therapists' prescription of exercise promotes tissue repair." *Br J Sports Med* 43(4): 247-252.
- Khanna, A. et al. (2009). "The effects of LIPUS on soft-tissue healing: a review of literature." *Br Med Bull* 89: 169-182
- Kim, H. et al. (2006). "The anti-inflammatory effects of low- and high-frequency electroacupuncture are mediated by peripheral opioids in a mouse air pouch inflammation model." *Journal of Alternative & Complementary Medicine* 12(1): 39-44.
- Kido, S. et al. (2009). "Mechanical stress induces Interleukin-11 expression to stimulate osteoblast differentiation." *Bone* 45(6): 1125-1132.
- Kubota, K. et al. (1995). "Overview of effects of electrical stimulation on osteogenesis and alveolar bone." *J Periodontol* 66(1): 2-6.
- Leung, K. et al. (2009). "Low-magnitude high-frequency vibration accelerates callus formation, mineralization, and fracture healing in rats." *J Orthop Res* 27(4): 458-465.
- Leung, M. et al. (2006). "Therapeutic ultrasound enhances medial collateral ligament repair in rats." *Ultrasound Med Biol* 32(3): 449-452.
- Li, J. et al. (2003). "Cytokine release from osteoblasts in response to ultrasound stimulation." *Biomaterials* 24(13): 2379-2385.
- Loghmani, M. and S.Warden (2013). "Instrument-assisted cross fiber massage increases tissue perfusion and alters microvascular morphology in the vicinity of healing knee ligaments." *BMC Complement Altern Med* 13: 240.
- Lohman, E. et al. (2007). "The effect of whole body vibration on lower extremity skin blood flow in normal subjects." *Med Sci Monit* 13(2): CR71-76.
- McBrier, N. (2005). Influence of post-injury ultrasound treatments on skeletal muscle regeneration. Physical Activity and Educational Services, Ohio State University. PhD
- Marcos, R. et al. (2011). "Infrared (810 nm) low-level laser therapy in rat achilles tendinitis: a consistent alternative to drugs." *Photochem Photobiol* 87(6): 1447-1452.
- Matheny Jr, R. et al. (2010). "Minireview: Mechano-growth factor: a putative product of IGF-I gene expression involved in tissue repair and regeneration." *Endocrinology* 151(3): 865-875.
- Mesquita-Ferrari, et al. (2011). "Effects of low-level laser therapy on expression of TNF-alpha and TGF-beta in skeletal muscle during the repair process." *Lasers Med Sci* 26(3): 335-340.
- Nelson, N. (2013). "Delayed onset muscle soreness: Is massage effective?" *Journal of Bodywork and Movement Therapies* 17(4): 475-482.
- Nussbaum, E. and M. Locke (2007). "Heat shock protein expression in rat skeletal muscle after repeated applications of pulsed and continuous ultrasound." *Arch Phys Med Rehabil* 88(6): 785-790
- Ostrowski, K. et al. (2000). "Physical activity and plasma interleukin-6 in humans--effect of intensity of exercise." *Eur J Appl Physiol* 83(6): 512-515.
- Padilla, F. et al. (2014). "Stimulation of bone repair with ultrasound: a review of the possible mechanic effects." *Ultrasonics* 54(5): 1125-1145.
- Palomares, K. et al. (2009). "Mechanical stimulation alters tissue differentiation and molecular expression during bone healing." *J Orthop Res* 27(9): 1123-1132.
- Petrofsky, J. et al. (2005). "Effects of electrical stimulation on skin blood flow in controls and in and around stage III and IV wounds in hairy and non hairy skin." *Med Sci Monit* 11(7): CR309-316.
- Rego, E. et al. (2010). "Ultrasound stimulation induces PGE(2) synthesis promoting cementoblastic differentiation through EP2/EP4 receptor pathway." *Ultrasound Med Biol* 36(6): 907-915.

- Reid, B. and M. Zhao (2014). "The Electrical Response to Injury: Molecular Mechanisms and Wound Healing." *Adv Wound Care (New Rochelle)* 3(2): 184-201.
- Safavi, S. et al. (2008). "Effects of low-level He-Ne laser irradiation on the gene expression of IL-1beta, TNF-alpha, IFN-gamma, TGF-beta, bFGF, and PDGF in rat's gingiva." *Lasers Med Sci* 23(3): 331-335.
- Saxena, A. et al. (2013). "Vibration and pressure wave therapy for calf strains: a proposed treatment." *Muscles Ligaments Tendons J* 3(2): 60-62.
- Saygun, I. et al. (2008). "Effects of laser irradiation on the release of basic fibroblast growth factor (bFGF), insulin like growth factor-1 (IGF-1), and receptor of IGF-1 (IGFBP3) from gingival fibroblasts." *Lasers Med Sci* 23(2): 211-215.
- Schulze-Tanzil, G. et al. (2011). "The role of pro-inflammatory and immunoregulatory cytokines in tendon healing and rupture: new insights." *Scand J Med Sci Sports* 21(3): 337-351.
- Shin, T. and J. S. Bordeaux (2012). "The role of massage in scar management: a literature review." *Dermatol Surg* 38(3): 414-423.
- Silverberg, R. et al. (1996). "The effects of soft tissue mobilization on the immature burn scar: results of a pilot study." *J Burn Care Rehabil* 17(3): 252-259.
- Smith, C. et al. (2008). "The inflammatory response to skeletal muscle injury: illuminating complexities." *Sports Med* 38(11): 947-969
- Stoltz, J. (2012). "Response of cells and tissues to mechanical stimulations." *Series on Biomechanics* 27(1-2): 17-32.
- Takao, M. et al. (2011). "Role of heme oxygenase-1 in inflammatory response induced by mechanical stretch in synovial cells." *Inflamm Res* 60(9): 861-867.
- Threlkeld, A. (1992). "The effects of manual therapy on connective tissue." *Phys Ther* 72(12): 893-902.
- Tim, C. et al. (2015). "Effects of low level laser therapy on inflammatory and angiogenic gene expression during the process of bone healing: A microarray analysis." *J Photochem Photobiol B* 154: 8-15.
- Vincent, H. et al. (2014). "Acute Effects of Enhanced Eccentric and Concentric Resistance Exercise on Metabolism and Inflammation." *Journal of Novel Physiotherapies* 4: 200.
- Wang, J. H., et al. (2006). "Biomechanical basis for tendinopathy." *Clin Orthop Relat Res* 443: 320-332.
- Wang, L. et al. (2015). "Modulation of extracellular ATP content of mast cells and DRG neurons by irradiation: studies on underlying mechanism of low-level-laser therapy." *Mediators Inflamm* 2015: 630361.
- Watson, T. (2003). "Soft Tissue Healing." *In Touch* 104: 2-9.
- Watson, T. (2006). "Tissue repair: The current state of the art." *Sportex-Medicine*. 28: 8-12.
- Watson, T. (2011). *An Extended Model of Physical Therapy Modes of Action*. 16th International WCPT Congress. Amsterdam, Physiotherapy (2011)(). 97: A-210-0032-02387.
- Waugh, C. M., et al. (2015). "In vivo biological response to extracorporeal shockwave therapy in human tendinopathy." *Eur Cell Mater* 29: 268-280.
- Wehrle, E. et al. (2014). "Distinct frequency dependent effects of whole-body vibration on non-fractured bone and fracture healing in mice." *Journal of Orthopaedic Research* 32(8): 1006-1013.
- Wilson, C. et al. (2014). "Patterning expression of regenerative growth factors using high intensity focused ultrasound." *Tissue Eng Part C Methods* 20(10): 769-779.
- Wilson, J. et al. (2002). "Healing venous ulcers with cycloidal multidirectional vibration therapy." *Journal of Wound Care* 11(10): 395-398.
- Xia, P. et al. (2015). "Low-Intensity Pulsed Ultrasound Affects Chondrocyte Extracellular Matrix Production via an Integrin-Mediated p38 MAPK Signaling Pathway." *Ultrasound Med Biol* 41(6): 1690-1700.

Zhao, M. et al. (2004). "Electrical stimulation directly induces pre-angiogenic responses in vascular endothelial cells by signaling through VEGF receptors." *J Cell Sci* 117(Pt 3): 397-405.

Zhang, J. and J. Wang (2010). "Mechanobiological response of tendon stem cells: implications of tendon homeostasis and pathogenesis of tendinopathy." *J Orthop Res* 28(5): 639-643.

Zhu, H. et al. (2015). "Low-intensity pulsed ultrasound enhances bone repair in a rabbit model of steroid-associated osteonecrosis." *Clin Orthop Relat Res* 473(5): 1830-1839.

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