2012

Biomechanical conditioning enhanced matrix synthesis in nucleus pulposus cells cultured in agarase constructs with TGF-β.
CHOWDHURY TT, Tilwani RK and Bader DL. *Journal Functional Biomaterials* vol. 3, 23-26. Editors: Goldsmith EC and Lin SK.

2010

Temporal effects of mechanical loading on deformation-induced damage in skeletal muscle tissue.

**ROLE OF ISCHAEMIA AND ISCHAEMIA/REPERFUSION IN THE AETIOLOGY OF PRESSURE-RELATED DEEP TISSUE INJURY.**

The importance of internal strain as opposed to interface pressure in the prevention of pressure related deep tissue injury.
Oomens CWJ, Loerakker S and Bader DL. *J Tissue Viability* vol. 19, (2) 35-42.

Numerical analysis of ischemia- and compression-induced injury in tissue-engineered skeletal muscle constructs.
Ceelen KK, Gawlitta D, Bader DL and Oomens CWJ. *Ann Biomed Eng* vol. 38, (3) 570-582.

2009

The transport profile of cytokines in epidermal equivalents subjected to mechanical loading.

Changes in Intracellular Calcium during Compression of C2C12 Myotubes.

Differential regulation of gene expression in isolated tendon fascicles exposed to cyclic tensile strain in vitro.

2008

Compression-induced damage and internal tissue strains are related.

Biomechanical analysis of structural deformation in living cells.
Bader DL and Knight MM. *Medical and Biological Engineering and Computing* vol. 46, (10) 951-963.
Deep tissue injury: How deep is our understanding?.

Signal transduction pathways involving p38 MAPK, JNK, NF kappa B and AP-1 influences the response of chondrocytes cultured in agarose constructs to IL-1 beta and dynamic compression.

Mechanical loading modulates intracellular calcium signaling in human mesenchymal stem cells.
Campbell JJ, Bader DL and Lee DA. J Appl Biomater Biom vol. 6, (1) 9-15.

Strain-time cell-death threshold for skeletal muscle in a tissue-engineered model system for deep tissue injury.

Dynamic compression counteracts IL-1beta induced inducible nitric oxide synthase and cyclo-oxygenase-2 expression in chondrocyte/agarose constructs.

The free diffusion of macromolecules in tissue-engineered skeletal muscle subjected to large compression strains.

Dynamic compression influences interleukin-1 beta-induced nitric oxide and prostaglandin E-2 release by articular chondrocytes via alterations in iNOS and COX-2 expression.
Chowdhury TT, Akanji OO, Salter DM, Bader DL and Lee DA. Biorheology vol. 45, (3-4) 257-274.

2007

Time dependence of cyclic tensile strain on collagen production in tendon fascicles.

Temporal differences in the influence of ischemic factors and deformation on the metabolism of engineered skeletal muscle.
Gawlitta D, Oomens CWJ, Bader DL, Baaijens FPT and Bouten CVC. J Appl Physiol vol. 103, (2) 464-473.

Role of ischemia and deformation in the onset of compression-induced deep tissue injury: MRI-based studies in a rat model.

The relative contributions of compression and hypoxia to development of muscle tissue damage: An In vitro study.

2006

Cyclic compression of chondrocytes modulates a purinergic calcium signalling pathway in a strain rate- and frequency-dependent manner.

Mitochondrial dynamics in chondrocytes and their connection to the mechanical properties of the cytoplasm.

The influence of swelling and matrix degradation on the microstructural integrity of tendon.

Intracellular mechanics and mechanotransduction associated with chondrocyte deformation during pipette aspiration.
Ohashi T, Hagiwara M, Bader DL and Knight MM. Biorheology vol. 43, (3-4) 201-214.

Computational modeling to predict the temporal regulation of chondrocyte metabolism in response to various dynamic compression regimens.
Sengers BG, Oomens CWJ, Nguyen TQD and Bader DL. Biomech Model Mechan vol. 5, (2-3) 111-122.
Chondrocyte deformation induces mitochondrial distortion and heterogeneous intracellular strain fields.  

Integrin-mediated mechanotransduction in IL-1 beta stimulated chondrocytes.  

Compression-induced deep tissue injury examined with magnetic resonance imaging and histology.  

A new MR-compatible loading device to study in vivo muscle damage development in rats due to compressive loading.  

The relative contributions of different skin layers to the mechanical behavior of human skin in vivo using suction experiments.  
Hendriks FM, Brokken D, Oomens CWJ, Bader DL and Baaijens FPT. Med Eng Phys vol. 28, (3) 259-266.

Rate of oxygen consumption by isolated articular chondrocytes is sensitive to medium glucose concentration.  
Heywood HK, Bader DL and Lee DA. Journal of Cellular Physiology vol. 206, (2) 402-410.

Anti-inflammatory effects of IL-4 and dynamic compression in IL-1beta stimulated chondrocytes.  

Mechanical compression and hydrostatic pressure induce reversible changes in actin cytoskeletal organisation in chondrocytes in agarose.  

Dynamic compression counteracts IL-1beta induced iNOS and COX-2 activity by human chondrocytes cultured in agarose constructs.  
Chowdhury TT, Bader DL and Lee DA. Biorheology vol. 43, (3,4) 413-429.

2005

Activation of chondrocytes calcium signalling by dynamic compression is independent of number of cycles.  

Cyclic tensile strain upregulates collagen synthesis in isolated tendon fascicles.  

Nutrient utilization by bovine articular chondrocytes: a combined experimental and theoretical approach.  

The influence of noncollagenous matrix components on the micromechanical environment of tendon fascicles.  

Mechanical and failure properties of single attached cells under compression.  
Peeters EAG, Oomens CWJ, Bouten CVC, Bader DL and Baaijens FPT. J Biomech vol. 38, (8) 1685-1693.

Viscoelastic properties of single attached cells under compression.  

A biomechanical analysis of an instrumented spinal fixator under torsional loads.  
Alkalay RN, Sharpe D and Bader DL. J Biomech vol. 38, (4) 865-876.

Pressure ulcer research: current & future perspectives.  
BADER DL, Bouten CVC, Cofin D and Oomens CWJ. Springer-Verlag.

Compression-induced damage in a muscle cell model in vitro.  
Autologous chondrocyte implantation. Culture in a TGF-beta-containing medium enhances the re-expression of a chondrocytic phenotype in passaged human chondrocytes in pellet culture.

2004

Local Strain Measurement within Tendon.

Anisotropic, three-dimensional deformation of single attached cells under compression.

Crosslinking density influences the morphology of chondrocytes photoencapsulated in PEG hydrogels during the application of compressive strain.

Cellular utilization determines viability and matrix distribution profiles in chondrocyte-seeded alginate constructs.
Heywood HK, Sembi PK, Lee DA and Bader DL. Tissue Eng vol. 10, (9-10) 1467-1479.

Integrin-mediated mechanotransduction processes in TGFbeta-stimulated monolayer-expanded chondrocytes.

Confocal analysis of local and cellular strains in chondrocyte-agarose constructs subjected to mechanical shear.

Crosslinking density influences chondrocyte metabolism in dynamically loaded photocrosslinked poly(ethylene glycol) hydrogels.

An investigation into the effects of the hierarchical structure of tendon fascicles on micromechanical properties.

Passage in monolayer influences the response of chondrocytes to dynamic compression.
Wiseman M, Bader DL, Reisler T and Lee DA. Biorheology vol. 41, (3-4) 283-298.

Increased presence of cells with multiple elongated processes in osteoarthritic femoral head cartilage.

2003

Compression induced cell damage in engineered muscle tissue: an in vitro model to study pressure ulcer aetiology.

A theoretical analysis of damage evolution in skeletal muscle tissue with reference to pressure ulcer development.
Breuls RG, Bouten CV, Oomens CW, Bader DL and Baaijens FP. J Biomech Eng vol. 125, (6) 902-909.

Temporal regulation of chondrocyte metabolism in agarose constructs subjected to dynamic compression.

Dynamic compression counteracts IL-1 beta-induced release of nitric oxide and PGE2 by superficial zone chondrocytes cultured in agarose constructs.
Chowdhury TT, Bader DL and Lee DA. Osteoarthritis Cartilage vol. 11, (9) 688-696.

Influence of external uniaxial cyclic strain on oriented fibroblast-seeded collagen gels.
Berry CC, Shelton JC, Bader DL and Lee DA. Tissue Eng vol. 9, (4) 613-624.

Dynamic compressive strain inhibits nitric oxide synthesis by equine chondrocytes isolated from different areas of the cartilage surface.
Can loaded interface characteristics influence strain distributions in muscle adjacent to bony prominences?
Oomens CWJ, Bressers OFJT, Bosboom EMH, Bouten CVC and Blader DL. Comput Methods Biomech Biomed Engin vol. 6, (3) 171-180.

Live cell imaging using confocal microscopy induces intracellular calcium transients and cell death.

The etiology of pressure ulcers: skin deep or muscle bound?
Bouten CV, Oomens CW, Baaijens FP and Bader DL. Arch Phys Med Rehabil vol. 84, (4) 616-619.

Expansion of chondrocytes for tissue engineering in alginate beads enhances chondrocytic phenotype compared to conventional monolayer techniques.

Mechanical conditioning influences the metabolic response of cell-seeded constructs.
Shelton JC, Bader DL and Lee DA. Cells Tissues Organs vol. 175, (3) 140-150.

Dermal fibroblasts respond to mechanical conditioning in a strain profile dependent manner.
Berry CC, Cacou C, Lee DA, Bader DL and Shelton JC. Biorheology vol. 40, (1-3) 337-345.

Development of a technique to determine strains in tendons using the cell nuclei.

alpha5beta1 integrin mediates mechanotransduction processes in TGFbeta-stimulated human chondrocyte / agarose constructs and subjected to dynamic compression.
Chowdhury TT, LEE DA, Salter DM, Shelton JC and Bader DL. Osteoarthritis Cartilage vol. 11, (Suppl 1) S2-S3.

Control of mechanotransduction processes in dynamically stimulated human and bovine chondrocytes cultured in agarose constructs.
Chowdhury TT, Shelton JC, Bader DL and LEE DA. Internat. J. Artificial Organs vol. 26, (9) 858-858.

2002

The measurement of interface pressure and its role in soft tissue breakdown.
Swain ID and Bader DL. J Tissue Viability vol. 12, (4) 132-146.

The impact of bioengineering on tissue viability research.
Bader D. J Tissue Viability vol. 12, (4) 126-128.

Fatigue damage of human tendons.
Schechtman H and Bader DL. J Biomech vol. 35, (3) 347-353.

Cell and nucleus deformation in compressed chondrocyte-alginate constructs: temporal changes and calculation of cell modulus.

Non-collagenous matrix components influence the micromechanical environment of tenocytes within tendon fascicles subjected to tensile strain.
Bader DL, Shelton JC, Lee DA and SCREEN HRC. Eur. Cells Mat. vol. 4:S1, 41-42.

2001

Dynamic compression inhibits the synthesis of nitric oxide and PGE(2) by IL-1beta-stimulated chondrocytes cultured in agarose constructs.

Establishing predictive indicators for the status of loaded soft tissues.

Chondrocyte deformation within mechanically and enzymatically extracted chondrons compressed in agarose.
Knight MM, Ross JM, Sherwin AF, Lee DA, Bader DL and Poole CA. Biochim Biophys Acta vol. 1526, (2) 141-146.
Temporal changes in cytoskeletal organisation within isolated chondrocytes quantified using a novel image analysis technique.

Mechanical compression influences intracellular Ca2+ signaling in chondrocytes seeded in agarose constructs.

Compressive deformation and damage of muscle cell subpopulations in a model system.
Bouten CV, Knight MM, Lee DA and Bade DL. Ann Biomed Eng vol. 29, (2) 153-163.