

CURRICULUM VITAE Professor Dr. med. L.M. Benneker

Personal Data

Full Name Lorin Michael Benneker (Male)
E-mail lorin.benneker@insel.ch
Date of Birth 4th December 1970
Nationality Swiss
Marital Status Married (2002), 2 children (2003, 2006)
Academic Title Associate Professor, Dr.med.
Professional Position Head of Spine Unit, Orthopaedic Department
Inselspital (Leitender Arzt), University of Bern, Switzerland

Education

1990-1993 University Medical School, Fribourg, Switzerland
1996 – 1999 University Medical School, Bern, Switzerland
2002 M.D. University of Bern, Switzerland
2002 Basic Exams for Surgery, Bern Switzerland
2006 FMH in Orthopaedic Surgery (Swiss specialist examination)
2011 Habilitation (PD) in Orthopaedic and Spine Surgery University of Bern
2016 Associate Professor in Orthopaedic and Spine Surgery University of Bern

Professional Career

since 2015 Head of Spine Unit, Inselspital, University of Bern, Switzerland
2012 Clinical Fellow, Spine Unit, University Hospital Utrecht, The Netherlands
2009-2015 Deputy Head of Spine Unit, Inselspital, University of Bern, Switzerland
2007-2009 Consultant, Orthopaedic Department, Inselspital, University of Bern, Switzerland
2006 Consultant, Trauma Unit, Inselspital, University of Bern, Switzerland
2003-2006 Registrar, Orthopaedic Department, Inselspital, University of Bern, Switzerland
2001-2002 Registrar, General Surgery, Schwerpunktspital Bülach, Switzerland
2000 Research Fellow, Royal Victoria Hospital, Mc Gill University, Montreal, Canada
2000-2001 Research Fellow, AO Research Institute, Davos, Switzerland

Scientific and Professional Societies

since 2000 Verband Schweizerischer Assistenz- und Oberärzte (VSAO)
since 2002 Schweizerischer Aerzteverband (FMH)
2004-2011 AO Alumni Association
since 2005 AO Spine International (board member since 2010(nat), 2013 (internat.))
Chairperson of AOSpine Europe and Southern Africa (since 2019)
Trustee AO Foundation (since 2017)
Steering Comitee Member Knowledge Forum Trauma (since 2016)
since 2006 AO Trauma International (Faculty member since 2007)
since 2006 Swiss Society of Orthopedic Surgeons (SGOT)
2008-2012 ARTORG Spine Research Center University of Bern
since 2010 World Spinal Column Society
since 2012 Swiss Association against Osteoporosis (SVGO) (board member)

since 2012 Swiss Society for Trauma and Insurance Medicine (SGTV)
since 2012 Eurospine
since 2013 AOSpine Research Network
since 2013 Swiss Society for Spinal Surgery

Thesis

Correlation of radiographic and MRI parameters to morphological and biochemical assessment of intervertebral disc degeneration. Eur Spine J. 2005 Feb;14(1):27-35. Epub 2004 Jun 26.

Awards

2004 Young investigator Award of the Spine Journal. ISSLS Meeting May 2005, NYC, USA: Vertebral endplate marrow contact channel occlusions and intervertebral disc degeneration.

2011 Hans Jörg Wyss Foundation Award (Co Applicant), Global Spine Congress, March 2011 Barcelona, Spain: Biological Response of Mesenchymal Stem Cells seeded in Thermo-Reversible HA-Hydrogel implanted in Intervertebral Disc Organ Culture under Twisting Motion

1st poster prize at the 7th annual congress of the German Spine Society DWG, December 2012, Stuttgart Germany: `Ein reproduzierbares Papain-induziertes Bandscheibendegenerations-Modell mit reduziertem GAG und Wassergehalt`

Finalist best presentation award, 7th annual congress of the German Spine Society DWG, December 2012, Stuttgart Germany: Erste klinische Erfahrung mit intraoperativer Messung der Knochenqualität bei dorsaler Stabilisierung mit Pedikelschrauben

1st poster prize at the 44th ISSLS annual meeting (Int. Society for the Study of the Lumbar Spine), June 2015, San Francisco, USA: Nucleus Pulposus Cells inhibit Osteogenesis of Mesenchymal Stem Cells

1st poster prize at annual meeting of the Swiss Society for Biomaterials and Regenerative Medicine, June 2015, Lausanne, Switzerland: Annulus Fibrosus Repair with the help of a novel Silk membrane-fleece and Genipin-enhanced Fibrin Hydrogel

Prix Champagne at the 75th annual meeting of swiss orthopedics (SGOT) June 2015, Basel Switzerland: Replik zum SMB Bericht zur Behandlung von lumbalen Bandscheibenvorfällen

Scientific communications

91 original articles in int. peer reviewed journals
15 reviews
3 case reports
1 letter to the editor
4 book chapters
101 invited lectures
>200 abstracts from conference proceedings
6 media articles
31 H-index (google scholar)
59 i10-index (google scholar)
3092 citations (google scholar)

Peer reviewed articles

1. **Benneker LM**, Heini PF, Anderson SE, Alini M, Ito K
2004 Young Investigator Award Winner: vertebral endplate marrow contact channel occlusions and intervertebral disc degeneration.
Spine. 2005 Jan 15;30(2):167-73.
2. **Benneker LM**, Heini PF, Anderson SE, Alini M, Ito K
Correlation of radiographic and MRI parameters to morphological and biochemical assessment of intervertebral disc degeneration.
Eur Spine J. 2005 Feb;14(1):27-35. Epub 2004 Jun 26.
3. Franz T, Hasler RM, **Benneker LM**, Zimmermann H, Siebenrock KA, Exadaktylos AK. Severe Spinal Injuries In Alpine Skiing And Snowboarding: A six-year review of Tertiary Trauma Center for the Bernese Alps Ski Resorts, Switzerland. Br J Sports Med. 2008, Jan;42(1):55-8.Epub 2007 Jan 11
4. Watanabe A, **Benneker LM**, Boesch C, Watanabe T, Obata T, Anderson SE. Classification of intervertebral disc degeneration with axial T2 mapping. AJR Am J Roentgenol. 2007 Oct;189(4):936-42.
5. Hilty M, Behrendt I, **Benneker LM**, Martinolli L, Stoupis C, Buggy DJ, Zimmermann H, Exadaktylos AK. Pelvic radiography in ATLS algorithms: a diminishing role? World J Emerg Surg. 2008 Mar 4;3(1):11
6. Exadaktylos AK, **Benneker LM**, Jeger V, Martinolli L, Bonel H, Eggli S, Potgieter H, Zimmermann H. Total-body digital X-ray in trauma. An experience report on the first operational full body scanner in Europe and its possible role in ATLS. Injury. 2008 May; 39(5):525-9. Epub 2008 Mar 5
7. Braunstein V, Sprecher CM, Gisep A, **Benneker LM**, Yen K, Scheider E, Heini P, Milz S. Long-term reaction to bone cement in osteoporotic bone: new bone formation in vertebral bodies after vertebroplasty. J Anat. 2008 May; 212(5): 697-701. Epub Apr 10.
8. Xafis K, Thalmann G, **Benneker LM**, Stoupis C, Buggy DJ, Zimmermann H, Exadaktylos AK . Forget the blood – not the stone. Microhematuria in acute urolithiasis and the role of early CT scanning.' Emerg Med J. 2008 Oct;25(10):640-4.
9. **Benneker LM**, Gisep A, Suhm N, Heini PF. The effect of pulsed jet lavage in vertebroplasty on injection forces of PMMA bone cement, material distribution and potential fat embolism; a cadaver study' Spine 2008 Nov 1;33(23):E906-10.
10. **Benneker LM**, Leitner C, Martinolli L, Kretschmer R, Zimmermann H, Exadaktylos AK. Isolated vertebral fractures give elevated serum protein S100B levels. Scand J Trauma Resusc Emerg Med. 2008 Nov 7;16(1):13.
11. Schwab P, **Benneker LM**, Eggli S, Zimmermann H, Exadaktylos AK. 'Outcome and patients' satisfaction after functional treatment of acute lateral ankle injuries at emergency departments versus family doctor offices.' BMC Fam Pract. 2008 Dec 23;9(1):69.

12. Deyle S, Wagner A, **Benneker LM (C)**, Jeger V, Eggli S, Bonel H, Zimmermann H, Exadaktylos AK. Could full-body total X ray (LODOX Statscan) screening in Trauma challenge conventional radiography? J Trauma. 2009 Feb;66(2):418-22.
13. Boger A, **Benneker LM**, Krebs J, Boner V, Heini PF, Gisep A. The effect of pulsatile Jet Lavage in Vertebroplasty on Injection Forces of PMMA Bone Cement : An Animal Study. Eur Spine J. 2009 Jul 1.
14. Deckelmann S, Schwyn R, van der Pol B, Windolf M, Heini PF, **Benneker LM**. Densiprobe™ Spine – a novel instrument for Intraoperative measurement of bone density intrapedicular screw fixation. Spine (Phila Pa 1976). 2010 Feb 26.
15. Hasler RM, Dubler S, **Benneker LM**, Berov S, Spycher J, Heim D, Zimmermann H, Exadaktylos AK. Are there risk factors in alpine skiers? A controlled multicenter survey of 1278 skiers.. Br J Sports Med. 2009 Oct 21.
16. Evangelopoulos D, Heitkemper S, Eggli, Haupt RU, Exadaktylos AK, **Benneker LM**. Percutaneous cement augmentation for the treatment of depression fractures of the tibial plateau. Knee Surgery, Sports Arthroscopy . 2010 Jul;18(7):911-5. Epub 2009 Dec 15
17. Kupcsik L, Stoddart M, Li Z, **Benneker LM**, Alini M. Improving chondrogenesis – potential and limitations of SOX9 gene therapy and mechanical stimulation for cartilage tissue engineering. Tissue Eng Part A. 2010 Feb 24.
18. Deyle S, Brehmer T, Evangelopoulos D, **Benneker LM**, Krause FG, Exadaktylos AK. Review of Lodox Statscan in the detection of peripheral skeletal fractures in multiple injury patients. Injury. 2010 Apr 27.
19. Krause FG, Brunner S, **Benneker LM**, Werrlen S, Mamisch CT, Weber M. Biochemical T2* MR quantification of ankle arthrosis in pes cavovarus.. J Orthop Res. 2010 Jun 29.
20. Hasler RM, Berov S, **Benneker LM**, Dubler S, Schötzau A, Spycher J, Heim D, Zimmermann h, Exadaktylos AK. Are there certain risk factors in snowboarding injuries? A case-control multicenter study of 599 snowboarders. Br J Sports Med. 2010 Sep;44(11):816-21
21. **Benneker LM**, Krebs J, Boner V, Boger A, Leskosek B, Heini PF, Gisep A. Cardiovascular changes during PMMA vertebroplasty in sheep: the effect of pulsed jet lavage. Eur Spine J. 2010 Aug 21
22. Gantenbein-Ritter B, **Benneker LM**, Alini M, Grad S. Differential response of human bone marrow stromal cells to either TGF-β(1) and GDF-5. Eur Spine J. 2010 Nov 18
23. Keel MJB, **Benneker LM**, Siebenrock KA, Bastian JD. Less invasive lumbopelvic stabilization (LILS) technique for treatment of posterior pelvic ring instability. J Trauma accepted Nov
24. Hasler RM, Gyssler L, **Benneker LM**, Martinolli L, Schotzau A, Zimmermann H, Exadaktylos AK. Protective and risk factors in amateur equestrians and description of injury patterns: A retrospective data analysis and a case - control survey. J Trauma Manag Outcomes. 2011 Feb 4;5(1):4.

25. Lippross S, Verrier S, Loibl M, **Benneker LM**, Hoppe S, Meury T, Alini M. Platelet Released Growth Factors boost expansion of Bone Marrow derived CD34+ and CD133+ Endothelial Progenitor Cells for Autologous Grafting. *Platelets*. 2011;22(6):422-32. Epub 2011 Apr 7.
26. Hasler RM, Exadaktylos A, Bouamra O, **Benneker LM**, Clancy M, Sieber R, Zimmermann H, Lecky F. Epidemiology and predictors of spinal injury in adult major trauma patients: European cohort study. *Eur Spine J*. 2011 Jun 5.
27. Hasler RM, Hüttner HE, Keel MJ, Durrer B, Zimmermann H, Exadaktylos AK, **Benneker LM**. Spinal and pelvic injuries in airborne sports: A retrospective analysis from a major Swiss trauma centre. *Injury*. 2011 Jul 13.
28. Diel P, Freiburghaus L, Röder C, **Benneker LM**, Popp A, Perler G, Heini PF. Safety, effectiveness and predictors for early reoperation in therapeutic and prophylactic vertebroplasty: short-term results of a prospective case series of patients with osteoporotic vertebral fractures. *Eur Spine J*. 2011 Aug 30.
29. Bastian JD, Keel MJB, Heini PF, Seidel U, **Benneker LM**. Sacroplasty assessed for complications due to cement leakage. *Acta Orthop Belg*. 2012 Feb;78(1):100-5.
30. Hasler R, Dubler S, **Benneker LM**, Kleim E, Zimmermann H, Exadaktylos AK. Does injury change protector wearing behaviour in alpine skiers and snowboarders? *Swiss Med Wkly*. 2011
31. Hasler R, Exadaktylos AK, Bouamra O, **Benneker LM**, Clancy M, Sieber R, Zimmermann H, Lecky F. Epidemiology and predictors of cervical spine injury in adult major trauma patients: European multicentre cohort study. *J Trauma Acute Care Surg*. 2012 Apr;72(4):975-981. PubMed PMID: 22491614.
32. **Benneker LM**, Gisep A, Krebs J, Boger A, Heini PF, Boner V. Development of an in vivo experimental model for percutaneous vertebroplasty in sheep. *Vet Comp Orthop Traumatol*. 2012 Mar 26;25(3).
33. Kinzl M, **Benneker LM**, Boger A, Zysset PK, Pahr D. The effect of standard and low-modulus cement augmentation on the stiffness, strength and endplate pressure distribution in vertebroplasty. *Eur Spine J*. 2012 May;21(5):920-9. Epub 2011 Dec 15
34. Illien-Jünger S, Pattappa G, Peroglio M, **Benneker LM**, Stoddart MJ, Sakai D, Mochida J, Grad S, Alini M. Homing of Mesenchymal Stem Cells in Induced Degenerative Intervertebral Discs in a Whole Organ Culture System. *Spine (Phila Pa 1976)*. 2012 Mar 16.
35. Hoppe S, Quirbach S, Mamisch TC, Krause FG, Werlen S, **Benneker LM**. Axial T2* mapping in intervertebral discs: a new technique for assessment of intervertebral disc degeneration. *Eur Radiol*. 2012 Apr 29.
36. Hoppe S, Alini M, **Benneker LM**, Milz S, Boileau P, Zumstein MA. Tenocytes of chronic rotator cuff tendon tears can be stimulated by platelet-released growth factors. *J Shoulder Elbow Surg*. 2012 Apr 20.
37. Evangelopoulos D, Kontovazenitis P, Kouris S, Zlatidou X, **Benneker LM**, Vlamis J, Korres D, Efsthopoulos N. Computerized tomographic morphometric analysis of the cervical spine. *Open Orthop J*. 2012;6:250-4. Epub 2012 Jun 29.

38. Seiler C, Gazdhar A, Reyes M, **Benneker LM**, Geiser T, Siebenrock KA, Gantenbein-Ritter B. Time-lapse microscopy and classification of 2D human mesenchymal stem cells based on cell shape picks up myogenic from osteogenic and adipogenic differentiation. *J Tissue Eng Regen Med*. 2012 Jul 19.
39. Duttenhoefer F, Egli S, Benneker LM, Richards G, Alini M, Verrier S. Coculture of Endothelial Progenitor Cells (EPC) and Coculture of Endothelial Progenitor Cells (EPC) and Mesenchymal Stem Cells (MSC) in polyurethane scaffolds (PU) promotes simultaneously implant neo-vascularization and bone neo-formation. *J Tissue Eng Regen Med*. 2012; 6 (1): 310-311, 2012 Sep
40. Malonzo C, Chan SCW, Kabiri A, Eglin D, Grad S, Bonél HM, **Benneker LM**, Gantenbein-Ritter B. A Papain-induced disc degeneration model for the assessment of thermo-reversible hydrogel-cells therapeutic approach. *J Tissue Eng Regen Med*. 2013 Jan 9. doi: 10.1002/term.1667. [Epub ahead of print]
41. Vadalà G, Russo F, Patappa G, Schiuma D, Peroglio M, **Benneker LM**, Grad S, Alini M, Denaro V. The transpedicular approach as an alternative route for intervertebral disc regeneration. *Spine (Phila Pa 1976)*. 2013 Jan 15. [Epub ahead of print]
42. Chan SCW, Bürki A, Bonél HM, **Benneker LM**, Gantenbein-Ritter B. Papain-induced in vitro disc degeneration model for the study of injectable nucleus pulposus therapy. *Spine J* 2013 Jan 23. [Epub ahead of print]
43. Keel MJ, Lustenberger T, Puipe G, **Benneker LM**, Bastian JD. Table-mounted ring retractor for consistent visualization in endoscopy-assisted anterior reconstruction of burst fractures of the thoracolumbar junction. *Acta Orthop Belg*. 2013 Feb;79(1):90-6
44. Peroglio M, Eglin D, **Benneker LM**, Alini M, Grad S. Thermoreversible hyaluron-based hydrogel supports in vitro and ex vivo disc-like differentiation of human mesenchymal stem cells. *Spine J* accepted May 2013
45. Diel P, Röder C, Perler G, Vordemvenne T, Scholz M, Kandziora F, Fürderer S, Eiskjaer S, Maestraetti G, Rotter R, **Benneker LM**, Heini PF. Radiographic and safety details of vertebral body stenting: results from a multicenter chart review. *BMC Musculoskelet Disord*. 8;14(1):233. 2013
46. Kohlhof H, Seidel U, Hoppe S, Keel MJB, **Benneker LM**. Cement-augmented anterior screw fixation of type II odontoid fractures in elderly patients with osteoporosis. *Spine J* July 2013
47. Popp A, Schwyn R, Lippuner K, Keel MJB, **Benneker LM**. DensiProbe™ Spine: an intraoperative measurement of bone quality in spinal instrumentation. A clinical feasibility study. *Spine J* May 2013
48. Duttenhofer F, Lara R, Meury T, Loibl M, **Benneker LM**, Alini M, Verrier S. 3D scaffolds co-seeded with Human Endothelial Progenitor and Mesenchymal Stem Cells: Evidence of prevascularization within 7 days. *Eur Cell Mater*. July 2013

49. Aghayev E, Zuellig N, Diel P, Dietrich D, **Benneker LM**. Development and validation of a quantitative method to assess pedicle screw loosening in posterior spine instrumentation on plain radiographs. *Eur Spine J*. 2013
50. Maquer G, Brandejsky V, **Benneker LM**, Watanabe A, Vermathen P, Zysset PK. Human intervertebral disc stiffness correlates better with the Otsu threshold computed from axial T2 map of its posterior annulus fibrosus than with clinical classifications. *J Med Engineering and Physics*. accepted Sep 2013
51. Bucher C, Gazdhar A, **Benneker LM**, Geiser T, Gantenbein-Ritter B. Non-viral Gene Delivery of Growth and Differentiation Factor 5 (GDF5) to human Mesenchymal Stem Cells injected into a 3D bovine Intervertebral Disc Organ Culture System. *Stem Cells International*. Nov 2013
52. Pattappa G, Peroglio M, Sakai D, Mochida J, **Benneker LM**, Alini M, Grad S. CCL5/RANTES is a key chemoattractant released by degenerative intervertebral discs in organ culture. *Eur Cell Mater*. Feb 2014
53. Hoppe S, Loosli Y, Baumgartner D, Heini PF, **Benneker LM**. Influence of screw augmentation in posterior dynamic and rigid stabilization systems in osteoporotic lumbar vertebrae: a biomechanical cadaver stud. *Spine J* Dec 2013
54. **Benneker LM**, Roenn C, Aghayev E, Exadaktylos EK, Sturzenegger M, Anderson SE, Heini PF. Psychometric Properties of the German Version of the Whiplash Disability Questionnaire. *J Spine* Feb 2014
55. Caprez S, Peroglio M, Janki M, DeWild M, **Benneker LM**, Alini M, Grad S. Effect of fibrin gel in whole intervertebral discs under loading. *J Tissue Eng Regen Med*. 8 (1): 127-128, 2014
56. Pirvu T, Blanquer S, **Benneker LM**, Grijpma DW, Richards RG, Alini M, Eglin D, Grad S, Li Z. A combined biomaterial and cellular approach for annulus fibrosus rupture repair. *Biomaterials* Epub Dec 2014
57. Gantenbein B, Calandriello E, Wuertz-Kozak K, **Benneker LM**, Keel MJB, Chan SCW. Activation of Intervertebral Disc Cells by Co-culture with Notochordal Cells, Conditioned Medium and Hypoxia. *BMC Musculoscl. Dis*, 2014 Dec 11;15:422.
58. Bara JJ, Herrmann M, Menzel U, **Benneker LM**, Alini M, Stoddard MJ. Three-dimensional culture and characterization of mononuclear cells from human bone marrow. *Cytotherapy*. Feb 2015.
59. Guggisberg S, **Benneker LM**, Keel MJ, Gantenbein B. Mechanical Loading promoted Discogenic Differentiation of human Mesenchymal Stem Cells incorporated in 3D-PEG scaffolds with rhGDF5 and RGD. *International Journal of Stem Cell Research & Therapy*, accepted March 2015
60. Hoppe S, Wangler S, Aghayev E, Gantenbein B, Boger A, **Benneker LM**. Reduction of cement leakage by sequential PMMA injection in a vertebroplasty model. *European Spine Journal*. April 2015

61. Bastian JD, Bergmann M, Schwyn R, Keel MJB; **Benneker LM**
Bone strength assessment of the posterior pelvic ring in human cadavers by mechanical torque measurement. J Invest. Surgery. Aug2015
62. Bastian JD, Jost J, Cullmann JL, Aghayev E, Keel MJ, **Benneker LM**
Percutaneous screw fixation of the iliosacral joint: Optimal screw pathways are frequently not completely intraosseous. Injury. Aug 2015
63. Bastian JD, Ansorge A, Buechler L, Tomagra S, Siebenrock KA, **Benneker LM**, Keel MJB
Anterior fixation of unstable pelvic ring fractures using the modified Stoppa approach: Mid-term results are independent on patients` age. EJOT accepted Sep 2015
64. Hoppe S, Elfiky T, Keel MJ, Ecker TM, **Benneker LM**
Lavage prior to vertebral augmentation reduces the risk for cement leakage. Eur Spine J. Aug 2015
65. Rügsegger N, Ahmad SS, **Benneker LM**, Berlemann U, Keel MJ, Hoppe S
The 100 Most Influential Publications in Cervical Spine Research
Spine (Phila Pa 1976). 2015 Nov 2.
66. Chan SC, Tekari A, **Benneker LM**, Heini PF, Gantenbein B
Osteogenic differentiation of bone marrow stroma cells is hindered by the presence of intervertebral disc cells. Arthritis Res Ther. 2015 Dec 25;18:29
67. Hoppe S, Budminger M, Bissig P, Aghayev E, **Benneker LM**
Lordoplasty: midterm outcome of an alternative augmentation technique for vertebral fractures. J Neurosurg Spine. 2016 Jun;24(6):922-7
68. Zdreic I, Steinmetz P, **Benneker LM**, Sprecher C, Roehrl O, Windolf M, Boger A, Gueorguiev B
Bone cement allocation analysis in artificial cancellous bone structures. J of Orthopaedic Translation. 2016 Oct; 8:40-48
69. May RD, Tekari A, Frauchiger DA, Krismer A, **Benneker LM**, Gantenbein B
Efficient Nonviral Transfection of Primary Intervertebral Disc Cells by Electroporation for Tissue Engineering Application. Tissue Eng Part C Methods. 2017 Jan;23(1):30-37
70. Tekari A, May RD, Frauchiger DA, Chan SC, **Benneker LM**, Gantenbein B. The BMP2 variant L51P restores the osteogenic differentiation of human mesenchymal stromal cells in the presence of intervertebral disc cells. Eur Cell Mater. 2017 Feb 23;33:197-210
71. Ecker TM, Jost J, Cullmann JL, Zech WD, Djonov V, Keel MJB, **Benneker LM**, Bastian JD. Percutaneous screw fixation of the iliosacral joint: A case-based preoperative planning approach reduces operating time and radiation exposure. Injury. 2017 Aug;48(8):1825-1830.
72. Hoppe S, Aghayev E, Ahmad S, Keel MJB, Ecker TM, Deml M, Benneker LM. Short Posterior Stabilization in Combination With Cement Augmentation for the Treatment of Thoracolumbar Fractures and the Effects of Implant Removal. Global Spine J. 2017 Jun;7(4):317-324

73. Frauchiger DA, Heeb SR, May RD, Wöltje M, **Benneker LM**, Gantenbein B. Differentiation of MSC and annulus fibrosus cells on genetically engineered silk fleece-membrane-composites enriched for GDF-6 or TGF- β 3. *J Orthop Res*. 2017 Oct 23.
74. Rushton A, Staal JB, Verra M, Emms A, Reddington M, Soundy A, Cole A, Willems P, **Benneker LM**, Masson A, Heneghan NR. Patient journey following lumbar spinal fusion surgery (LSFS): protocol for a multicentre qualitative analysis of the patient rehabilitation experience (FuJourn). *BMJ Open*. 2018 Jan 3;8(1)
75. Hoppe S, Albers CE, Elfiky T, Deml MC, Milavec H, Bigdon SF, **Benneker LM**. First Results of a New Vacuum Plasma Sprayed (VPS) Titanium-Coated Carbon/PEEK Composite Cage for Lumbar Interbody Fusion. *J Funct Biomater*. 2018 Mar 14;9(1)
76. May RD, Frauchiger DA, Albers CE, **Benneker LM**, Kohl S, Gantenbein B. Inhibitory Effects of Human Primary Intervertebral Disc Cells on Human Primary Osteoblasts in a Co-Culture System. *Int J Mol Sci*. 2018 Apr 13;19(4)
77. Peroglio M, Douma LS, Caprez TS, Janki M, **Benneker LM**, Alini M, Grad S. Intervertebral disc response to stem cell treatment is conditioned by disc state and cell carrier: An ex vivo study. *J Orthop Translat*. 2017 Mar 31;9:43-51
78. Rushton AB, Verra ML, Emms A, Heneghan NR, Falla D, Reddington M, Cole AA, Willems P, **Benneker L**, Selvey D, Hutton M, Heymans MW, Staal JB. Development and validation of two clinical prediction models to inform clinical decision-making for lumbar spinal fusion surgery for degenerative disorders and rehabilitation following surgery: protocol for a prospective observational study. *BMJ Open*. 2018 May 22;8(5):e021078. doi: 10.1136/bmjopen-2017-021078.
79. Frauchiger DA, Chan SCW, **Benneker LM**, Gantenbein B. Intervertebral disc damage models in organ culture: a comparison of annulus fibrosus cross-incision versus punch model under complex loading. *Eur Spine J*. 2018 May 22.
80. Frauchiger DA, May RD, Bakirci E, Tekari A, Chan SCW, Wöltje M, **Benneker LM**, Gantenbein B. Genipin-Enhanced Fibrin Hydrogel and Novel Silk for Intervertebral Disc Repair in a Loaded Bovine Organ Culture Model. *J Funct Biomater*. 2018 Jun 24;9(3).
81. Bäcker HC, Vosseller JT, **Benneker LM**, Noger M, Krause F, Hoppe S, Deml MC. Spinal injuries in airborne accidents: a demographic overview of 148 patients in a level-1 trauma center. *Eur Spine J*. 2019 May;28(5):1138-1145.
82. Bäcker HC, Wu CH, Vosseller JT, Exadaktylos AK, **Benneker L**, Krause F, Hoppe S, Albers CE. Spinopelvic dissociation in patients suffering injuries from airborne sports. *Eur Spine J*. 2019 Apr 29.
83. Wangler S, Menzel U, Li Z, Ma J, Hoppe S, **Benneker LM**, Alini M, Grad S, Peroglio M. CD146/MCAM distinguishes stem cell subpopulations with distinct migration and regenerative potential in degenerative intervertebral discs. *Osteoarthritis Cartilage*. 2019 Jul;27(7):1094-1105.

84. Frauchiger DA, Tekari A, May RD, Džafro E, Chan SCW, Stoyanov J, Bertolo A, Zhang X, Guerrero J, Sakai D, Schol J, Grad S, Tryfonidou M, **Benneker LM**, Gantenbein B. Fluorescence-Activated Cell Sorting Is More Potent to Fish Intervertebral Disk Progenitor Cells Than Magnetic and Beads-Based Methods. *Tissue Eng Part C Methods*. 2019 Oct;25(10):571-580.
85. Deml MC, **Benneker LM**, Schmid T, Sakai D, Albers CE, Hoppe S, Zeiter S. Ventral Surgical Approach for an Intervertebral Disc Degeneration and Regeneration Model in Sheep Cervical Spine: Anatomic Technical Description, Strengths and Limitations. *Vet Comp Orthop Traumatol*. 2019 Sep;32(5):389-393.
86. Milavec H, Kellner C, Ravikumar N, Albers CE, Lerch T, Hoppe S, Deml MC, Bigdon SF, Kumar N, **Benneker LM**. First Clinical Experience with a Carbon Fibre Reinforced PEEK Composite Plating System for Anterior Cervical Discectomy and Fusion. *J Funct Biomater*. 2019 Jul 2;10(3). pii: E29.
87. Herrmann M, Hildebrand M, Menzel U, Fahy N, Alini M, Lang S, **Benneker L**, Verrier S, Stoddart MJ, Bara JJ. Phenotypic Characterization of Bone Marrow Mononuclear Cells and Derived Stromal Cell Populations from Human Iliac Crest, Vertebral Body and Femoral Head. *Int J Mol Sci*. 2019 Jul 14;20(14). pii: E3454.
88. Albers CE, Schott PM, Ahmad SS, **Benneker LM**, Nieuwkamp N, Hoppe S. Vertebral Body Lavage Reduces Hemodynamic Response to Vertebral Body Augmentation With PMMA. *Global Spine J*. 2019 Aug;9(5):499-504. doi: 10.1177/2192568218803106. Epub 2018 Oct 15.
89. May RD, Frauchiger DA, Albers CE, Tekari A, **Benneker LM**, Klenke FM, Hofstetter W, Gantenbein B. Application of Cytokines of the Bone Morphogenetic Protein (BMP) Family in Spinal Fusion - Effects on the Bone, Intervertebral Discs, and Mesenchymal Stromal Cells. *Curr Stem Cell Res Ther*. 2019 Jun 27.
90. Häckel S, Albers CE, Bastian JD, Hoppe S, **Benneker LM**, Keel MJB. Direct anterior decompression of L4 and L5 nerve root in sacral fractures using the pararectus approach: a technical note. *Arch Orthop Trauma Surg*. 2019 Sep 13.
91. Gisler V, **Benneker L**, Sendi P. Late Spinal Implant Infection caused by *Cutibacterium acnes*. *J Bone Jt Infect*. 2019 Jul 25;4(4):163-166.

Reviews

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