

dbc research

Publications in international peer-reviewed journals

1. Epidemiology, Etiology and Diagnostics

Karppinen J, Kurunlahti M, Taimela S, Haapea M, Vanharanta H, Tervonen O. **Determinants of lumbar artery occlusion among patients with sciatica: A three-year follow-up with magnetic resonance angiography.** *Eur Spine J.* 2005 Feb 19; Epub ahead of print. [PubMed](#)

Leinonen V, Kankaanpää M, Luukkonen M, Kansanen M, Hanninen O, Airaksinen O, Taimela S. **Lumbar paraspinal muscle function, perception of lumbar position, and postural control in disc herniation-related back pain.** *Spine.* 2003 Apr 15; 28(8): 842-8. [PubMed](#)

Leinonen V, Määttä S, Taimela S, Herno A, Kankaanpää M, Partanen J, Hanninen O, Airaksinen O. **Paraspinal muscle denervation, paradoxically good lumbar endurance, and an abnormal flexion-extension cycle in lumbar spinal stenosis.** *Spine.* 2003 Feb 15; 28(4): 324-31. [PubMed](#)

Leinonen V, Kankaanpää M, Hänninen O, Airaksinen O, Taimela S. **Paraspinal muscle responses during sudden upper limb loading.** *Eur J Appl Physiol.* 2002 Nov; 88(1-2): 42-9. Epub 2002 Aug 14. [PubMed](#)

Rissanen A, Heliövaara M, Alaranta H, Taimela S, Mälkiä E, Knekt P, Reunanen A, Aromaa A. **Does Good Trunk Extensor Performance Protect Against Back-Related Work Disability?** *J Rehabil Med* 2002; 34: 62-66. [PubMed](#)

Leinonen V, Määttä S, Taimela S, Herno A, Kankaanpää M, Partanen J, Kansanen M, Hänninen O, Airaksinen O. **Impaired Lumbar Movement Perception in Association With Postural Stability and Motor and Somatosensory-Evoked Potentials in Lumbar Spinal Stenosis.** *Spine* 2002; 27(9): 975-83. [PubMed](#)

Leinonen V, Kankaanpää M, Luukkonen M, Hänninen O, Airaksinen O, Taimela S. **Disc Herniation-Related Back Pain Impairs Feed-Forward Control of Paraspinal Muscles.** *Spine* 2001; 26(16): E367-72. [PubMed](#)

Luoto S, Taimela S, Hurri H, Alaranta H. **Mechanisms Explaining the Association Between Low Back Trouble and Deficits in Information Processing. A Controlled Study with Follow-Up.** *Spine* 1999; 24(3): 255-61. [PubMed](#)

Taimela S, Kankaanpää M, Luoto S. **The Effect of Lumbar Fatigue on the Ability to Sense a Change in Lumbar Position. A Controlled Study.** *Spine* 1999; 24(13): 1322-7. [PubMed](#)

Kankaanpää M, Taimela S, Laaksonen D, Airaksinen OV, Hänninen OO. **Back and Hip Extensor Fatigability in Chronic Low Back Pain Patients and Controls.** *Arch Phys Med Rehabil* 1998; 79: 412-417 [PubMed](#)

Taimela S, Kankaanpää M, Airaksinen OV. **A Submaximal Back Endurance Test Utilising Subjective Perception of Low Back Fatigue.** *Scand J Rehab Med* 1998 30: 107-112. [PubMed](#)

Peltonen JE, Taimela S, Erkintalo M, Salminen JJ, Oksanen A, Kujala UM. **Back Extensor and Psoas Muscle Cross-Sectional area, Prior Physical Training and Trunk Muscle Strength - a Longitudinal Study in Adolescent Girls.** *Eur J Appl Physiol* 1998; 77: 66-71. [PubMed](#)

Kankaanpää M, Laaksonen D, Taimela S, Kokko SM, Airaksinen OV, Hänninen OO. **Age, Sex and Body Mass Index as Determinants of Back and Hip Extensor Fatigue in Isometric Sorensen Back Endurance Test.** *Arch Phys Med Rehabil* 1998; 79: 1069-1075. [PubMed](#)

Luoto S, Taimela S, Alaranta H, Hurri H. **Psychomotor Speed and Postural Control in Chronic Low-Back Pain Patients and Healthy Controls - Determinants and Predictive Value for Functional Restoration Outcome.** *Eur J Phys Med Rehabil.* 1998; 8: 81-86. [PubMed](#)

Kankaanpää M, Taimela S, Airaksinen O. **Reference Change Limits of the Paraspinal Spectral EMG in Evaluation of Low Back Rehabilitation.** *Pathophysiology* 1998; 5: 217-224.

Luoto S, Taimela S, Alaranta H, Hurri H. **Psychomotor Speed in Chronic Low-Back Pain Patients and Healthy Controls: Construct Validity and Clinical Significance of the Measure.** *Percept Mot Skills* 1998(87): 1283-1296. [PubMed](#)

Luoto S, Aalto H, Taimela S, Hurri H, Pyykkö I, Alaranta H. **One-Footed and Externally Disturbed Two-Footed Postural Control in Patients with Chronic Low Back Pain and Healthy Control Subjects. A Controlled Study with Follow-Up.** *Spine* 1998; 23(19) :2081-9; discussion 2089-90. [PubMed](#)

Kankaanpää M, Taimela S, Webber CL, Airaksinen OV, Hänninen OO. **Lumbar Paraspinal Muscle Fatigability in Repetitive Isoinertial Loading: EMG Spectral Indices, Borg Scale and Endurance Time.** *Eur J Appl Physiol* 1997; 76: 236-242. [PubMed](#)

Taimela S, Kujala UM, Salminen JJ, Viljanen T. **The Prevalence of Low-Back Pain Among Children and Adolescents - A Nation-Wide Cohort-Based Questionnaire Survey in Finland.** *Spine* 1997; 22: 1132-1136 . [PubMed](#)

Laurén H, Luoto S, Alaranta H, Taimela S, Hurri H, Heliövaara M. **Arm Motion Speed and Risk of Neck Pain.** *Spine* 1997; 22: 2094-2099. [PubMed](#)

Kujala UM, Oksanen A, Taimela S, Salminen JJ. **Training Does Not Increase Maximal Lumbar Extension in Healthy Adolescents.** *Clin. Biomech.* 1997; 12: 181-184. [PubMed](#)

Taimela S. **Chronische Schmerzen des unteren Rückens. Prinzipien und Prognostische Faktoren Gymnastischer Übungen.** *Manuelle Medizin*, 1997; 35: 194-205.

Kujala UM, Taimela S, Videman T, Battie MC, Viljanen T. **Physical Loading and Performance as Predictors of Back Pain in Healthy Adults. A 5-Year Prospective Study.** *Eur. J.Appl. Physiol.* 1996; 73: 452-458. [PubMed](#)

Taimela S, Österman K, Alaranta H, Soukka A, Kujala UM. **Long Psychomotor Reaction Time in Patients with Chronic Low-Back Pain - Preliminary Report.** *Arch Phys Med Rehabil* 1993; 74: 1161-4. [PubMed](#)

2.Treatment

Taimela S, Negrini S, Paroli C. **Functional rehabilitation of low back disorders.** *Eura Medicophys.* 2004 Mar; 40(1): 29-36. [PubMed](#)

Timonen L, Rantanen T, Ryyänen OP, Taimela S, Timonen TE, Sulkava R. **A randomized controlled trial of rehabilitation after hospitalization in frail older women: effects on strength, balance and mobility.** *Scand J Med Sci Sports.* 2002 Jun; 12(3): 186-92. [PubMed](#)

Mannion AF, Müntener M, Taimela S, Dvorak J. **Comparison of Three Active Therapies for Chronic Low Back Pain: Results of a Randomized Clinical Trial with One-Year Follow-Up.** *Rheumatology* 2001; 40: 772-78. [PubMed](#)

Mannion AF, Junge A, Taimela S, Müntener M, Lorenzo K, Dvorak J. **Active Therapy for Chronic Low Back Pain. Part 3. Factors Influencing Self-Rated Disability and Its Change Following Therapy.** *Spine* 2001; 26(8): 920-29. [PubMed](#)

Käser L, Mannion AF, Rhyner A, Weber E, Dvorak J, Müntener M. **Active Therapy for Chronic Low Back Pain. Part 2. Effects on Paraspinal Muscle Cross-Sectional Area, Fiber Type Size, and Distribution.** *Spine* 2001; 26(8): 909-19. [PubMed](#)

Mannion AF, Taimela S, Müntener M, Dvorak J. **Active Therapy for Chronic Low Back Pain. Part 1. Effects on Back Muscle Activation, Fatigability, and Strength.** *Spine* 2001; 26(8): 897-908. [PubMed](#)

Taimela S, Diederich C, Hubsch M, Heinrichy M. **The Role of Physical Exercise Inactivity in Pain Recurrence and Absenteeism From Work After Active Outpatient Rehabilitation for Recurrent or Chronic Low Back Pain: A Follow-up Study.** *Spine* 2000; 25: 1809-1816 [PubMed](#)

Taimela S, Takala E-P, Asklöf T, Seppälä K, Parviainen S. **Active Treatment of Chronic Neck Pain: A Prospective Randomized Intervention.** *Spine* 2000; 25: 1021-1027. [PubMed](#)

Leinonen V, Kankaanpää M, Airaksinen O, Hänninen O. **Back and Hip Extensor Activities During Trunk Flexion/Extension: Effects of Low Back Pain and Rehabilitation.** *Arch Phys Med Rehabil* 2000; 81(1): 32-7. [PubMed](#)

Mannion AF, Muntener M, Taimela S, Dvorak J. **1999 Volvo Award Winner in Clinical Studies: A Randomized Clinical Trial of Three Active Therapies for Chronic Low Back Pain.** *Spine* 1999; 24(23): 2435-48. [PubMed](#)

Kankaanpää M, Taimela S, Airaksinen O, Hänninen O. **The Efficacy of Active Rehabilitation in Chronic Low Back Pain. Effect on Pain Intensity, Self-Experienced Disability, and Lumbar Fatigability.** *Spine* 1999; 24, (10): 1034-1042. [PubMed](#)

Arokoski JP, Kankaanpää M, Valta T, Juvonen I, Partanen J, Taimela S, Lindgren KA, Airaksinen O. **Back and Hip Extensor Muscle Function During Therapeutic Exercises.** *Arch Phys Med Rehabil* 1999; 80(7): 842-50. [PubMed](#)

Luoto S, Taimela S, Hurri H, Aalto H, Pyykkö I, Alaranta H. **Psychomotor Speed and Postural Control in Chronic Low-Back Pain Patients: A Controlled Follow-Up Study.** *Spine* 1996; 21: 2621-2627. [PubMed](#)

Taimela S, Härkäpää K. **Strength, Mobility, Their Changes and Pain Reduction in Active Functional Restoration for Chronic Low Back Disorders.** *J. Spin. Disord.* 1996; 9: 306-312. [PubMed](#)

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Rantonen J, Luoto S, Vehtari A, Hupli M, Karppinen J, Malmivaara A, Taimela S. **The effectiveness of two active interventions compared to self-care advice in employees with non-acute low back symptoms: a randomised, controlled trial with a 4-year follow-up in the occupational health setting.** *Occup Environ Med.* 2011 May 20. [Epub ahead of print] [PubMed PMID: 21602539.](#)

Rivinoja AE, Paananen MV, Taimela SP, Solovieva S, Okuloff A, Zitting P, Järvelin MR, Leino-Arjas P, Karppinen JI. **Sports, smoking, and overweight during adolescence as predictors of sciatica in adulthood: a 28-year follow-up study of a birth cohort.** *Am J Epidemiol.* 2011 Apr 15;173(8):890-7. Epub 2011 Mar 10. [PubMed PMID: 21393341.](#)

Takatalo J, Karppinen J, Niinimäki J, Taimela S, Näyhä S, Mutanen P, Sequeiros RB, Kyllönen E, Tervonen O. **Does lumbar disc degeneration on MRI associate with low back symptom severity in young Finnish adults?** *Spine (Phila Pa 1976).* 2011 Feb 24. [Epub ahead of print] [PubMed PMID: 21358475.](#)

Paananen MV, Taimela SP, Tammelin TH, Kantomaa MT, Ebeling HE, Taanila AM, Zitting PJ, Karppinen JI. **Factors related to seeking health care among adolescents with musculoskeletal pain.** *Pain.* 2011 Apr;152(4):896-903. Epub 2011 Feb 3. [PubMed PMID: 21295404.](#)

Paalanne N, Niinimäki J, Karppinen J, Taimela S, Mutanen P, Takatalo J, Korpelainen R, Tervonen O. **Assessment of association between low back pain and paraspinal muscle atrophy using Opposed-Phase MR imaging. A population-based study among young adults.** *Spine (Phila Pa 1976).* 2011 Feb 1. [Epub ahead of print] [PubMed PMID: 21289551.](#)

Paananen M, Taimela S, Auvinen J, Tammelin T, Zitting P, Karppinen J. **Impact of self-reported musculoskeletal pain on health-related quality of life among young adults.** *Pain Med.* 2011 Jan;12(1):9-17. doi: 10.1111/j.1526-4637.2010.01029.x. [PubMed PMID: 21223492.](#)

Paananen MV, Taimela SP, Auvinen JP, Tammelin TH, Kantomaa MT, Ebeling HE, Taanila AM, Zitting PJ, Karppinen JI. **Risk factors for persistence of multiple musculoskeletal pains in adolescence: a 2-year follow-up study.** *Eur J Pain.* 2010 Nov;14(10):1026-32. Epub 2010 Apr 18. [PubMed PMID: 20403716.](#)

Auvinen JP, Tammelin TH, Taimela SP, Zitting PJ, Järvelin MR, Taanila AM, Karppinen JI. **Is insufficient quantity and quality of sleep a risk factor for neck, shoulder and low back pain?** A longitudinal study among adolescents. *Eur Spine J.* 2010 Apr;19(4):641-9. Epub 2009 Nov 20. PubMed PMID: 19936804; PubMed Central PMCID: PMC2899838.

Paalanne NP, Korpelainen RI, Taimela SP, Auvinen JP, Tammelin TH, Hietikko TM, Kaikkonen HS, Kaikkonen KM, Karppinen JI. **Muscular fitness in relation to physical activity and television viewing among young adults.** *Med Sci Sports Exerc.* 2009 Nov;41(11):1997-2002. PubMed PMID: 19812519.

Takatalo J, Karppinen J, Niinimäki J, Taimela S, Näyhä S, Järvelin MR, Kyllönen E, Tervonen O. **Prevalence of degenerative imaging findings in lumbar magnetic resonance imaging among young adults.** *Spine (Phila Pa 1976).* 2009 Jul 15;34(16):1716-21. PubMed PMID: 19770614.

Paananen MV, Auvinen JP, Taimela SP, Tammelin TH, Kantomaa MT, Ebeling HE, Taanila AM, Zitting PJ, Karppinen JI. **Psychosocial, mechanical, and metabolic factors in adolescents' musculoskeletal pain in multiple locations: a cross-sectional study.** *Eur J Pain.* 2010 Apr;14(4):395-401. Epub 2009 Jul 28. PubMed PMID: 19640750.

Paalanne NP, Korpelainen R, Taimela SP, Remes J, Salakka M, Karppinen JI. **Reproducibility and reference values of inclinometric balance and isometric trunk muscle strength measurements in Finnish young adults.** *J Strength Cond Res.* 2009 Aug;23(5):1618-26. PubMed PMID: 19620899.

Auvinen JP, Paananen MV, Tammelin TH, Taimela SP, Mutanen PO, Zitting PJ, Karppinen JI. **Musculoskeletal pain combinations in adolescents.** *Spine (Phila Pa 1976).* 2009 May 15;34(11):1192-7. PubMed PMID: 19444067.

Auvinen JP, Tammelin TH, Taimela SP, Zitting PJ, Mutanen PO, Karppinen JI. **Musculoskeletal pains in relation to different sport and exercise activities in youth.** *Med Sci Sports Exerc.* 2008 Nov;40(11):1890-900. PubMed PMID: 18845965.

Paalanne N, Korpelainen R, Taimela S, Remes J, Mutanen P, Karppinen J. **Isometric trunk muscle strength and body sway in relation to low back pain in young adults.** *Spine (Phila Pa 1976).* 2008 Jun 1;33(13):E435-41. PubMed PMID: 18520931.

Karppinen J, Daavittila I, Solovieva S, Kuisma M, Taimela S, Natri A, Haapea M, Korpelainen R, Niinimäki J, Tervonen O, Ala-Kokko L, Männikkö M. **Genetic factors are associated with modic changes in endplates of lumbar vertebral bodies.** *Spine (Phila Pa 1976).* 2008 May 15;33(11):1236-41. PubMed PMID: 18469698.

Kuisma M, Karppinen J, Haapea M, Niinimäki J, Ojala R, Heliövaara M, Korpelainen R, Kaikkonen K, Taimela S, Natri A, Tervonen O. **Are the determinants of vertebral endplate changes and severe disc degeneration in the lumbar spine the same?** A magnetic resonance imaging study in middle-aged male workers. *BMC Musculoskelet Disord.* 2008 Apr 16;9:51. PubMed PMID: 18416819; PubMed Central PMCID: PMC2373785.

Shiri R, Solovieva S, Husgafvel-Pursiainen K, Taimela S, Saarikoski LA, Huupponen R, Viikari J, Raitakari OT, Viikari-Juntura E. **The association between obesity and the prevalence of low back pain in young adults: the Cardiovascular Risk in Young Finns Study.** *Am J Epidemiol.* 2008 May 1;167(9):1110-9. Epub 2008 Mar 11. PubMed PMID: 18334501.

Karppinen J, Daavittila I, Noponen N, Haapea M, Taimela S, Vanharanta H, Ala-Kokko L, Männikkö M. **Is the interleukin-6 haplotype a prognostic factor for sciatica?** *Eur J Pain.* 2008 Nov;12(8):1018-25. Epub 2008 Mar 5. PubMed PMID: 18321738.

Mikkonen P, Leino-Arjas P, Remes J, Zitting P, Taimela S, Karppinen J. **Is smoking a risk factor for low back pain in adolescents?** A prospective cohort study. *Spine (Phila Pa 1976).* 2008 Mar 1;33(5):527-32. PubMed PMID: 18317198.

Auvinen J, Tammelin T, Taimela S, Zitting P, Karppinen J. **Associations of physical activity and inactivity with low back pain in adolescents.** Scand J Med Sci Sports. 2008 Apr;18(2):188-94. Epub 2007 May 9. PubMed PMID: 17490453.

Virtanen IM, Karppinen J, Taimela S, Ott J, Barral S, Kaikkonen K, Heikkilä O, Mutanen P, Noponen N, Männikkö M, Tervonen O, Natri A, Ala-Kokko L. **Occupational and genetic risk factors associated with intervertebral disc disease.** Spine (Phila Pa 1976). 2007 May 1;32(10):1129-34. PubMed PMID: 17471097.

Kuisma M, Karppinen J, Niinimäki J, Ojala R, Haapea M, Heliövaara M, Korpelainen R, Taimela S, Natri A, Tervonen O. **Modic changes in endplates of lumbar vertebral bodies: prevalence and association with low back and sciatic pain among middle-aged male workers.** Spine (Phila Pa 1976). 2007 May 1;32(10):1116-22. PubMed PMID: 17471095.

Auvinen J, Tammelin T, Taimela S, Zitting P, Karppinen J. **Neck and shoulder pains in relation to physical activity and sedentary activities in adolescence.** Spine (Phila Pa 1976). 2007 Apr 20;32(9):1038-44. PubMed PMID: 17450080.

Leinonen V, Airaksinen M, Taimela S, Kankaanpää M, Kukka A, Koivisto T, Airaksinen O. **Low back pain suppresses preparatory and triggered upper-limb activation after sudden upper-limb loading.** Spine (Phila Pa 1976). 2007 Mar 1;32(5):E150-5. PubMed PMID: 17334276.

Kankaanpää M, Colier WN, Taimela S, Anders C, Airaksinen O, Kokko-Aro SM, Hänninen O. **Back extensor muscle oxygenation and fatigability in healthy subjects and low back pain patients during dynamic back extension exertion.** Pathophysiology. 2005 Nov 7. [Epub ahead of print] PubMed PMID: 16289763.

Taimela S, Negrini S, Paroli C. **Functional rehabilitation of low back disorders.** Eura Medicophys. 2004 Mar;40(1):29-36. PubMed PMID: 16030491.

Karppinen J, Kurunlahti M, Taimela S, Haapea M, Vanharanta H, Tervonen O. **Determinants of lumbar artery occlusion among patients with sciatica: a three-year follow-up with magnetic resonance angiography.** Eur Spine J. 2005 Sep;14(7):664-70. Epub 2005 Feb 19. PubMed PMID: 15723216.

Leinonen V, Kankaanpää M, Luukkonen M, Kansanen M, Hänninen O, Airaksinen O, Taimela S. **Lumbar paraspinal muscle function, perception of lumbar position, and postural control in disc herniation-related back pain.** Spine (Phila Pa 1976). 2003 Apr 15;28(8):842-8. PubMed PMID: 12698130.

Leinonen V, Määttä S, Taimela S, Herno A, Kankaanpää M, Partanen J, Hänninen O, Airaksinen O. **Paraspinal muscle denervation, paradoxically good lumbar endurance, and an abnormal flexion-extension cycle in lumbar spinal stenosis.** Spine (Phila Pa 1976). 2003 Feb 15;28(4):324-31. PubMed PMID: 12590204.

Leinonen V, Kankaanpää M, Hänninen O, Airaksinen O, Taimela S. **Paraspinal muscle responses during sudden upper limb loading.** Eur J Appl Physiol. 2002 Nov;88(1-2):42-9. Epub 2002 Aug 14. PubMed PMID: 12436269.

Timonen L, Rantanen T, Ryynänen OP, Taimela S, Timonen TE, Sulkava R. **A randomized controlled trial of rehabilitation after hospitalization in frail older women: effects on strength, balance and mobility.** Scand J Med Sci Sports. 2002 Jun;12(3):186-92. PubMed PMID: 12135452.

Rissanen A, Heliövaara M, Alaranta H, Taimela S, Mälkiä E, Knekt P, Reunanen A, Aromaa A. **Does good trunk extensor performance protect against back-related work disability?** J Rehabil Med. 2002 Mar;34(2):62-6. PubMed PMID: 12019581.

Leinonen V, Määttä S, Taimela S, Herno A, Kankaanpää M, Partanen J, Kansanen M, Hänninen O, Airaksinen O. **Impaired lumbar movement perception in association with postural stability and motor- and somatosensory-evoked potentials in lumbar spinal stenosis.** Spine (Phila Pa 1976). 2002 May 1;27(9):975-83. PubMed PMID: 11979174.

Mannion AF, Dvorak J, Taimela S, Müntener M. **[Increase in strength after active therapy in chronic low back pain (CLBP) patients: muscular adaptations and clinical relevance].** Schmerz. 2001 Dec;15(6):468-73. German. PubMed PMID: 11793153.

Leinonen V, Kankaanpää M, Luukkonen M, Hänninen O, Airaksinen O, Taimela S. **Disc herniation-related back pain impairs feed-forward control of paraspinal muscles.** Spine (Phila Pa 1976). 2001 Aug 15;26(16):E367-72. PubMed PMID: 11493866.

Mannion AF, Müntener M, Taimela S, Dvorak J. **Comparison of three active therapies for chronic low back pain: results of a randomized clinical trial with one-year follow-up.** Rheumatology (Oxford). 2001 Jul;40(7):772-8. PubMed PMID: 11477282.

Mannion AF, Junge A, Taimela S, Müntener M, Lorenzo K, Dvorak J. **Active therapy for chronic low back pain: part 3. Factors influencing self-rated disability and its change following therapy.** Spine (Phila Pa 1976). 2001 Apr 15;26(8):920-9. PubMed PMID: 11317114.

Mannion AF, Taimela S, Müntener M, Dvorak J. **Active therapy for chronic low back pain part 1. Effects on back muscle activation, fatigability, and strength.** Spine (Phila Pa 1976). 2001 Apr 15;26(8):897-908. PubMed PMID: 11317112.