

SENSORIMOTOR

Basic Research

Abrams, D., Bhatara, A., Ryali, S., Balaban, E., Levitin, D., & Menon, V. (2010). Decoding temporal structure in music and speech relies on shared brain resources but elicits different fine-scale spatial patterns. *Cerebral Cortex*, 21(7), 1507-1518.

Alluri V, Toiviainen P, Jääskeläinen IP, Glerean E, Sams M, Brattico E. 2012. Large-scale brain networks emerge from dynamic processing of musical timbre, key and rhythm. *Neuroimage*. 59(4), 3677-89.

Antic, S., Galinovic, I., Lovrendic-huzan, A., Vukovic, V., Jurasic, M.J., & Demarin, V. 2008. Music as an auditory stimulus in stroke patients. *Collegium Antropologicum*, 32, 19-23.

Aschersleben, G. & Prinz, W. 1995. Synchronizing actions with events: The role of sensory information. *Perception & Psychophysics*, 57, 305-317.

Baev, K.V., Esipenko, V.B., Shimansky, Y.P. 1991. Afferent control of central pattern generators: Experimental analysis of locomotion in the decerebrate cat. *Neuroscience*, 43, 237-247.

Bengtsson, S.L., Ullen, F., Ehrsson, H.H., Hashimoto, T., Kito, T., Naito, E., Forssberg, H. & Sadato, N. 2009. Listening to rhythms activates motor and premotor cortices. *Cortex*, 45, 62-71.

Brown, S.W. 2006. Timing and executive function: bidirectional interference between concurrent temporal production and randomization tasks. *Memory & Cognition*, 34(7), 1464-71.

Brown, S.H., Thaut, M.H., Benjamin, J., Cooke, J.D. 1993. Effects of rhythmic auditory cueing on temporal sequencing of complex arm movements. *Proceedings Society for Neuroscience*, 227.2. [Abstract]

Buhusi, C.V. & Meck, W.H. 2005. What makes us tick? Functional and neural mechanisms of interval timing. *Nature Reviews Neuroscience*, 6 (10), 755-765.

Butefisch, C., Hummelsheim, H., Denzler, P., & Mauritz, K.H. 1995. Repetitive training of isolated movements improves the outcome of motor rehabilitation of the centrally paretic hand. *Journal of the Neurological Sciences*, 130, 59-68.

Cadalbert, A., Landis, T., Regard, M., & Graves, R. 1994. Singing with and without words: Hemispheric asymmetries in motor control. *Journal of Clinical and Experimental Neuropsychology*, 16 (5), 664-670.

Chapman, C.E., Spidalieri, G., & Lamarre, Y. 1986. Activity of dentate neurons during arm movements triggered by visual, auditory, and somesthetic stimuli in the monkey. *Journal of Neurophysiology*, 55, 203-226.

Chen, J.L., Penhune, V.B. & Zatorre, R.J. 2008. Listening to musical rhythms recruits motor regions of the brain. *Cerebral Cortex*, 18, 2844-2854.

Chen, Y., Ding, M., & Kelso, J.A.S. 2001. Origins of timing errors in human sensorimotor coordination. *Journal of Motor Behaviors*, 33, 3-8.

Chen, J.L., Penhune, V.B., Zatorre, R.J. Moving on Time: Brain Network for Auditory-Motor Synchronization is modulated by Rhythm Complexity and Musical Training. *Journal of Cognitive Neuroscience*, 20(2), 226-239.

Chollet, F., DiPiero, V., Wise, R.J.S., Brooks, D.J., Dolan, R.J., & Frackowiak, R.S.J. 1991. The functional anatomy of motor recovery after stroke in humans: A study with positron emission tomography. *Annals of Neurology*, 29, 63-71.

Cicchini, G., Arrighi, R., Cecchetti, L., Giusti, M., & Burr, D. (2012). Optimal encoding of interval timing in expert percussionists. *Journal of Neuroscience*, 32(3), 1056-1060.

Craig LH, Svircev A, Haber M, Juncos JL. 2006. Controlled pilot study of the effects of neuromuscular therapy in patients with Parkinson's disease. *Mov Disord*. 21(12), 2127-33.

Dakin, M.A. & Thaut, M.H. 2001. Possible anatomical correlates of auditory-motor integration. *Journal of Cognitive Neuroscience* (suppl), Cognitive Neuroscience Society 8th Annual Conference, 156. [Abstract]

Effenberg, A.O. & Mechling, H. 1998. Bewegung horbar machen-Warum? Zur Zukunftsperspektive einer systematischen Umsetzung von Bewegung in Klaenge. *Psychologie und Sport*, 5, 28-38. [Abstract in English].

Epstein, D. 1985. Tempo relations: A cross-cultural study. *Music Theory Spectrum*, 7, 34-71.

Evans, B. 1993. Enhancing scientific animations with sonic maps. In The Proceedings of SIGGRAPH '93: An Introduction to Data Sonification (Course notes 81). Anaheim 1993, 3.5-3.12.

Felix, II, R.A., Fridberger, A., Leijon, S., Berrebi, A.S., Magnusson, A.K., (2011). Sound Rhythms are Encoded by Postinhibitory Rebound Spiking in the Superior Paraolivary Nucleus. *Journal of Neuroscience*. 31 (35), pp.12566-12578.

Fujioka, T., Trainor, L., Large, E., & Ross, B. (2012). Internalized timing of isochronous sounds is represented in neuromagnetic beta oscillations. *Journal of Neuroscience*, 32(5), 1791-1802.

Furuya, S., Kinoshita, H. 2007. Organization of the upper limb movement for piano key-depression differs between expert pianists and novice players. *Experimental Brain Research*. [E-Publication]

Gerloff, C., Richard, J., Hadley, J., Schulman, A.E., Honda, M., & Hallett, M. 1998. Functional coupling and regional activation of human cortical motor areas during simple, internally paced and externally paced finger movements. *Brain*, 121, 1513-1531.

Georgiou, N., Iansek, R., Bradshaw, J.L., Phillips, J.G., Mattingley, J.B., & Bradshaw, J.A. 1993. An evaluation of the role of internal cues in the pathogenesis of Parkinsonian hypokinesia. *Brain*, 116, 1575-1587.

Grahn JA, Rowe JB. 2012. Finding and Feeling the Musical Beat: Striatal Dissociations between Detection and Prediction of Regularity. *Cereb Cortex*. Apr 11. [Epub ahead of print].

Grahn, J.A., Brett, M. 2009. Impairment of beat-based rhythm discrimination in Parkinson's disease. *Cortex*, 45, 54-61.

Harrington, D.L., Haaland, K.Y., & Hermanowicz, N. 1998. Temporal processing in the basal ganglia. *Neuropsychology*, 12, 3-12.

Harrington, D.L., Haaland, K.Y., & Knight, R.T. 1998. Cortical networks underlying mechanisms of time perception. *Journal of Neuroscience*, 18, 1085-1095.

Haas, F., Distenfeld, S., & Axen, K. 1986. Effects of perceived music rhythm on respiratory patterns. *Journal of Applied Physiology*, 61, 1185-1191.

Hasan, M.A. & Thaut, M.H. 1999. Autoregressive moving average modeling for finger tapping with an external stimulus. *Perceptual & Motor Skills*, 88, 1331-1346.

Hasan, M.A., & Thaut, M.H. 2004. Statistical analysis for finger tapping with a periodic external stimulus. *Perceptual & Motor Skills*, 99, 643-661.

Hausdorff, J.M., Schaafsma, J.D., Balash, Y., Bartels, A.L., Gurevich, T., & Giladi, N. 2003. Impaired regulation of stride variability in Parkinson's disease subjects with freezing of gait. *Experimental Brain Research*, 149 (2), 187-194.

Hopyan T, Schellenberg EG, Dennis M. 2009. Perception of strong-meter and weak-meter rhythms in children with spina bifida meningomyelocele. *J Int Neuropsychol Soc*. 15(4),521-8.

Hund-Georgiadis, M. & von Cramon, D.Y. 1999. Motor-learning-related changes in piano players and non-musicians revealed by functional magnetic-resonance signals. *Experimental Brain Research*, 125, 417-425.

Ivry, R.B. & Keele, S.W. 1989. Timing function of the cerebellum. *Journal of Cognitive Neuroscience*, 1, 136-151.

Jeffery, D.R. & Good, D.C. 1995. Rehabilitation of the stroke patient. *Current Opinion in Neurology*, 8, 62-68.

Keller, P. and Repp, B. (2005). Staying offbeat: Sensorimotor syncopation with structured and unstructured auditory sequences. *Psychological Research*, 69(4), 292-309.

Kenyon, G.P., Irwin, A.E., McIntosh, G.C., & Thaut, M.H. 2000. Fast motor adaptations to subliminal frequency shifts in auditory rhythm during syncopated sensorimotor synchronization. *Proceedings Society for Neuroscience*, 63.9. [Abstract]

Kenyon, G.P., McIntosh, G.C., & Thaut, M.H. 1999. Kinematic limb instability modulation by rhythmic auditory stimulation. Proceedings Society for Neuroscience, 365.4. [Abstract]

Kenyon, G.P. & Thaut, M.H. 1998. Analysis of index finger trajectory in banjo finger picking: Correlates to movement disorders. *Medical Problems of Performing Artists*, 13, 127-135.

Kenyon, G.P. & Thaut, M.H. 2003. Rhythm-driven optimization of motor control. *Recent Research and Developments in Biomechanics*, 1, 29-47.

Konoike, N., Kotozaki, Y., Miyachi, S., Miyauchi, C., Yomogida, Y., Akimoto, Y., Kuraoka, K., Sugiura, M., Kawashima, R., & Nakamura, K. (2012). Rhythm information represented in the fronto-parieto-cerebellar motor system. *Neuroimage*, 15(63), 328-338.

Kornysheva K, von Cramon DY, Jacobsen T, Schubotz RI. 2010. Tuning-in to the beat: Aesthetic appreciation of musical rhythms correlates with a premotor activity boost. *Hum Brain Mapp*. 31(1),48-64.

Kramer, G. 1994. An introduction to auditory display. In G. Kramer (Ed.), *Auditory Display: Sonification, Audification, and Auditory Interfaces: Proceedings* (Santa Fe Institute Studies in the Sciences of Complexity). New York, NY: Addison Wesley Publishing Company.

Lahav, A., Saltzman, E., Schlaug, G. 2007. Action Representation of Sound: Audiomotor Recognition Network While Listening to Newly Acquired Actions. *The Journal of Neuroscience*, 27(2), 308-314.

Lang, W., Obrig, H., Lindinger, G., Cheyne, D., & Deecke, L. 1990. Supplementary motor area activation while tapping bimanually different rhythms in musicians. *Experimental Brain Research*, 79, 504-514.

Luo C, Guo ZW, Lai YX, Liao W, Liu Q, Kendrick KM, Yao DZ, Li H. 2012. Musical training induces functional plasticity in perceptual and motor networks: insights from resting-state fMRI. *PLoS One*. 7(5), e36568.

Malherbe, V., Breniere, Y., & Bril, B. 1992. How do cerebral palsied children with hemiplegia control their gait. In M. Woollacott & F. Horak (Eds.), *Posture and Control Mechanisms*, vol 2. Eugene, OR: University of Oregon Books, 102-105.

Mates, J., Radil, T., & Poppel, E. 1992. Cooperative tapping: Time control under different feedback conditions. *Perception and Psychophysics*, 52, 691-704.

McIntosh, G.C., Prassas, S.G., Kenyon, G., & Thaut, M.H. 1998. Movement synchronization during rhythmic tracking: Period versus phase cuing. Proceedings Society for Neuroscience, 455.8. [Abstract]

Meegan, D.V., Aslin, R.N., & Jacobs, R.A. 2000. Motor timing learned without motor training. *Nature Neuroscience*, 3, 860-862.

Miller, R.A., Thaut, M.H., & Aunon, J. 1996. Event-related brain wave potentials in an auditory-motor synchronization task. In R. Pratt & R. Spintge (Eds.), *Music Medicine*, Vol. II (pp. 76-84). St. Louis, MO: MMB Music.

Mitra, S., Riley, M.A., & Turvey, M. 1997. Chaos in human rhythmic movement. *Journal of Motor Behavior*, 29, 195-198.

Molinari, M., Leggio, M.G., DeMartin, M., Cerasa, A., & Thaut, M.H. 2003. The neurobiology of rhythmic motor entrainment: A neurorehabilitation perspective. *Proceedings of the New York Academy of Sciences*, 999, 313-321.

Molinari, M., Thaut, M.H., Gioia, C., Fillipini, V., Cerasa, A., & Leggio, M.G. 2001. Motor entrainment to auditory rhythm is not affected by cerebellar pathology. *Proceedings Society for Neuroscience*, 950.2. [Abstract]

Mushiake, H., Inase, M., & Tanji, J. 1991. Neuronal activity in the primate premotor, supplementary, and precentral motor cortex during visually guided and internally determined sequential movements. *Journal of Neurophysiology*, 66, 705-718.

Mutschler, I. Schulze-Bonhage, A., Glauche, V., Demandt, E., Speck, O., Ball, T. 2007. A Rapid Sound-Action Association Effect in Human Insular Cortex. *PLoS one*, February. [E-Publication]

Nagasaki, H. 1989. Asymmetric velocity and acceleration profiles of human arm movements. *Experimental Brain Research*, 74, 319-326.

Nikouline, V.V., Ilmoniemi, R.J., & Kulikov, G.A. 1998. Event-related magnetic fields in the auditory cortex of man during unilateral movements: a discriminant function analysis. *Neuroscience Letters*, 255, 91-94.

Nozaradan, S et al. (2011). Tagging the neuronal entrainment to beat and meter. *The Journal of Neuroscience*, 31(28), 10234-10240.

Nudo, R.J., Wise, B.M., SiFuentes, F., & Milliken, G.W. 1996. Neural substrates for the effects of rehabilitative training on motor recovery after ischemic infarct. *Science*, 272 (5269), 1791-1794.

Paltsev Y.I. & Elner, A.M. 1967. Change in the functional state of the segmental apparatus of the spinal cord under the influence of sound stimuli and its role in voluntary movement. *Biophysics*, 12, 1219-1226.

Parsons, L.M., Sergent, J., Hodges, D.A., & Fox, P.T. The brain basis of piano performance. *Neuropsychologia*, 43(2), 199-215.

Pascual-Leone, A., Cohen, L.G., Dang, N., Brasil-Neto, J.P., Cammarota, A., & Hallett, M. 1993. Acquisition of fine motor skills in humans is associated with the modulation of cortical motor outputs. *Neurology*, 43 (suppl.2), p. A157.

Penhune, V.B., Zatorre, R.J., & Evans, A.C. 1998. Cerebellar contributions to motor timing: A PET study of auditory and visual rhythm reproduction. *Journal of Cognitive Neuroscience*, 10, 752-765.

Penhune, V.B., Zatorre, R.J., & Feindel, W.H. 1999. The role of auditory cortex in retention of rhythmic patterns as studied in patients with temporal lobe removals including Heschl's gyrus. *Neuropsychologia*, 37, 315-331.

Phillips-Silver, J. & Trainor, L.J. 2007. Hearing what the body feels: auditory encoding of rhythmic movement. *Cognition*, 105, 533-546.

Roberts, S., Eyckholt, R., & Thaut, M.H. 2000. Search for correlates and evidence for deterministic chaos in rhythmic motor control of the human brain. *Physical Review E*, 62, 2597-2606.

Rosenkranz K, Butler K, Williamon A, Rothwell JC. 2009. Regaining motor control in musician's dystonia by restoring sensorimotor organization. *J Neurosci*. 29(46), 14627-36.

Rosenkranz, K., Williamon, A., Rothwell, J.C. 2007. Motorcortical Excitability and Synaptic Plasticity is Enhanced in Professional Musicians. *The Journal of Neuroscience*, 27(19): 5200-5206.

Rossignol, S. & Melvill Jones, G. 1976. Audiospinal influences in man studied by the H-reflex and its possible role in rhythmic movement synchronized to sound. *Electroencephalography & Clinical Neurophysiology*, 41 (1), 83-92.

Rossini, P.M., Caltagirone, C., Castriota-Scanderbeg, A., Cicinello, P., Del Gratta, C., Demartin, M., Pizzella, V., Traversa, R., & Romani, G.L. 1998. Hand motor cortical area reorganization in stroke: A study with fMRI, MEG, and TCS maps. *Neuroreport*, 9 (9), 2141-2146.

Safranek, M.G., Koshland, G.F., & Raymond, G. 1982. The influence of auditory rhythm on muscle activity. *Physical Therapy*, 2, 161-168.

Sanes, J.N., DeMartin, M., Weckel, J., & Thaut, M.H. 2001. Brain activation patterns for producing symmetrically and asymmetrically synchronized movement rhythms. *Neuroimage*, 13, 1249. [Abstract]

[Sejdić E, Fu Y, Pak A, Fairley JA, Chau T](#). 2012. The effects of rhythmic sensory cues on the temporal dynamics of human gait. *PLoS One*. 7(8), e43104.

Scaletti, C. 1993. Sound synthesis algorithms for auditory data representations. In *The Proceedings of SIGGRAPH '93: An Introduction to Data Sonification*, Course notes 81. Anaheim 1993, 2.2-2.25.

Schwartze M, Keller PE, Patel AD, Kotz SA. 2011. The impact of basal ganglia lesions on sensorimotor synchronization, spontaneous motor tempo, and the detection of tempo changes. *Behav Brain Res*. 216(2),685-91.

Semjen, A., Vorberg, D., & Schulze, H.H. 1998. Phase and period corrections. *Psychological Research*, 61, 44-55.

Shaffer, L.H. 1981. Performances of Chopin, Bach, and Bartok: Studies in motor programming. *Cognitive Psychology*, 13, 326-376.

Simen, P, Balci, F, deSouza, L, Cohen, JD, & Holmes, P. 2011. A model of interval timing by neural intergration. *Journal of Neuroscience*, 31(25). 9238-9253.

Spidalieri, G., Busby, L., & Lamarre, Y. 1983. Fast ballistic arm movements triggered by visual auditory, and somesthetic stimuli in monkey: II Effects of unilateral dentate lesion on discharge of precentral cortical neurons and reaction time. *Journal of Neurophysiology*, 50, 1259-1378.

Stephan, K.M., Thaut, M.H., Wunderlich, G., Schicks, W., Tian, B., Tellmann, L., Schmitz, T., Herzog, H., McIntosh, G.C., Seitz, R.J., Hoemberg, V. 1999. Different awareness levels of sensorimotor processing involve distinct anatomical areas within prefrontal cortex. *Neuroimage*, 8, 1256. [Abstract]

Stephan, K.M., Thaut, M.H., Wunderlich, G., Schicks, W., Tian, B., Tellmann, L., Schmitz, T., Herzog, H., McIntosh, G.C., Seitz, R.J., Hoemberg, V. 2002. Conscious and subconscious sensorimotor synchronization: Prefrontal cortex and the influence of awareness. *Neuroimage*, 15 (2), 345-352.

Stephan, K.M., Thaut, M.H., Wunderlich, G., Schicks, W., Tellmann, L., Herzog, H., McIntosh, G.C., Kraemer, M., Hoemberg, V., & Seitz, R.J. 2002. Cortico-cerebellar circuits and temporal adjustments of motor behavior. *Proceedings Society for Neuroscience*, 462.8. [Abstract]

Stephan, K.M., Thaut, M.H., Wunderlich, G., Schicks, W., Tellmann, L., Herzog, H., McIntosh, G.C., Seitz, R.J., & Hoemberg, V. 2003. Distinct cerebro-cerebellar circuits underlie temporal adjustment of motor behavior. *European Journal of Neuroscience*, In Press.

Sumbre, G., Muto, A., Baier, H. & Poo, M.M. 2008. Entrained rhythmic activities of neuronal ensembles as perceptual memory of time interval. *Nature*, 456, 102-106.

Sutton, K. 1984. The development and implementation of a music therapy physiological measures test. *Journal of Music Therapy*, 21, 160.

Szmedra, L. & Bacharach, D.W. 1998. Effect of music on perceived exertion, plasma lactate, norepinephrine, and cardiovascular hemodynamics during treadmill running. *International Journal of Sports Medicine*, 19, 32-37.

Tachibana RO, Yanagida M, Riquimaroux H. 2010. Novel approach for understanding the neural mechanisms of auditory-motor control: pitch regulation by finger force. *Neurosci Lett*. 482(3),198-202.

Teasell, R.W., Bhogal, S.K., Foley, N.C., & Speechley, M.R. 2003. Gait retraining post-stroke. *Topics in Stroke Rehabilitation*, 10 (2), 34-65.

Tecchio, G., Salustri, C., Thaut, M.H., Weckel, J., Pasqualetti, P., Pizzella, V., Romani, G.L., & Rossini, P.M. 1998. Synchronization of motor tasks to rhythmic auditory stimuli: A MEG study. *Neuroimage*, 7, 375. [Abstract]

Teki, S., Manon, G., Kumar, S., & Griffiths, T. (2011). Distinct neural substrates of duration-based and beat-based auditory timing. *Journal of Neuroscience*, 31(10), 3805-3812.

Terry, P.C., Karageorghis, C.I., Saha, A.M., D'Auria, S. (2012). Effects on synchronous music on treadmill running among elite triathletes. *J Sci Med Sport*. 15(1), 52-57.

Thaut, M.H. 1990. Physiological and motor responses to music. In R.F. Unkefer (Ed.), Music Therapy in the Treatment of Adults with Mental Disorders (pp. 33-49). New York, NY: Schirmer Books.

Thaut, M.H. 1999. Training Manual for Neurologic Rehabilitation. Colorado State University: Center for Biomedical Research in Music.

Thaut, M.H. 1999. Neurologische Musiktherapie: Zusammenfassung der klinischen Methodik, der rational-wissenschaftlichen Grundlagen und der bisherigen Forschungsergebnisse. In K.R.H. Wild, V. Hoemberg, & A. Ritz (Eds.), Das schaedelhirnverletzte Kind: Strategien motorischer Rehabilitation, Qualitaetssicherung in der Rehabilitation (pp. 272-280). Muenchen, Germany: W. Zuckschwerdt Verlag. [In German]

Thaut, M.H. 2003. Neural basis of rhythmic timing networks in the human brain. Proceedings of the New York Academy of Sciences, 999, 364-373.

Thaut, M.H., Bin, T., & Azimi-Sadjadi, M. 1998. Rhythmic finger-tapping sequences to cosine-wave modulated metronome sequences. Human Movement Science, 17, 839-863.

Thaut, M.H., Brown, S.H., Benjamin, J., & Cooke, J.D. 1996. Rhythmic facilitation of movement sequencing: Effects on spatio-temporal control and sensory modality dependence. In R. Pratt & R. Spintge (Eds.), Music Medicine, Vol. II (pp. 104-112). St. Louis: MMB Music.

Thaut, M.H., DeMartin, M., & Sanes, J.N. 2008. Brain networks for integrative rhythm formation. PLoS ONE, 3, e2312

Thaut, M.H. & Kenyon, G.P. 2003. Fast motor adaptations to subliminal frequency shifts in auditory rhythm during syncopated sensorimotor synchronization. Human Movement Science, 22, 321-338.

Thaut, M.H., McIntosh, G.C., Prassas, S.G., & Rice, R.R. 1992. The effect of rhythmic auditory cuing on temporal stride and EMG patterns in normal gait. Journal of Neurologic Rehabilitation, 6, 185-190.

Thaut, M.H. & Miller, R.A. 1994. Multiple synchronization strategies in tracking of rhythmic auditory stimulation. Proceedings Society for Neuroscience, 146.11. [Abstract]

Thaut, M.H., Miller, R.A., & Schauer, M.L. 1997. Rhythm in human motor control: Adaptive mechanisms in movement synchronization. In D.J. Schneck & J.K. Schneck (Eds.), Music in Human Adaptation (pp. 191-198). Blacksburg, VA: Virginia Polytechnic Institute and State University.

Thaut, M.H., Miller, R.A., & Schauer, L.M. 1998. Multiple synchronization strategies in rhythmic sensorimotor tasks: phase versus period adaptation. Biological Cybernetics, 79, 241-250.

Thaut, M.H., Nickel, A., & Hoemberg, V. 2004. Neurologic music therapy: Compendium of scientific background and clinical methodology. Musiktherapeutische Umschau, 25, 35-44. [In German]

- Thaut, M.H., Rathbun, J., & Miller, R.A. 1997. Music versus metronome timekeeper in a rhythmic motor task. *International Journal of Arts Medicine*, 5, 4-12.
- Thaut, M.H. & Schauer, M.L. 1997. Weakly coupled oscillators in rhythmic motor synchronization. *Proceedings Society for Neuroscience*, 298.20. [Abstract]
- Thaut, M.H., Schleifers, S., & Davis, W.B. 1991. Analysis of EMG activity in biceps and triceps muscle in a gross motor task under the influence of auditory rhythm. *Journal of Music Therapy*, 28, 64-88.
- Thaut, M.H., Stephan, K.M., McIntosh, G.C., Wunderlich, G., Schicks, W., Tellmann, L., Herzog, H., Hoemberg, V., & Seitz, R.J. 2003. Functional anatomy of rhythmic sensorimotor synchronization. *Neuron*, In Press.
- Thaut, M.H., Tian, B., Azimi, M.R. 1998. Rhythmic finger tapping to cosine wave modulated metronome sequences: Evidence for subliminal entrainment. *Human Movement Science*, 17, 839-863.
- Thaut, M.H., Stephan, K.M., Wunderlich, G., Schnicks, W., Tellmann, L., Herzog, H., McIntosh, G.C., Seitz, R.J., & Homberg, V. 2008. Distinct cortico-cerebellar activations in rhythmic auditory motor synchronization. *Cortex*, 45, 44-53.
- Thiem, B., Green, D., Prassas, S.G., & Thaut, M.H. 1994. The effect of peripheral timing on left arm EMG patterns in cello performance. *Medical Problems of Performing Artists*, 9, 89-96.
- Touge, T., Taylor, J.L., & Rothwell, J.C. 1998. Reduced excitability of cortico-spinal system during the warning period of a reaction time task. *Electroencephalography and Clinical Neuropsychology*, 109, 489-495.
- Verwey, W.B. 2001. Concatenating familiar movement sequences: The versatile cognitive processor. *Acta Psychologica*, 106, 69-95.
- Vorberg, D. & Wing, A. 1996. Modeling variability and dependence in timing. In H. Heurer & S.W. Keele (Eds.), *Handbook of Perception and Action* (Vol. 2) (pp. 181-262). London: Academic Press.
- Williams, S.M. 1993. Perceptual principles of sound grouping. In *The Proceedings of SIGGRAPH '93: An Introduction to Data Sonification*, Course notes 81 (4.66-4.91). Anaheim, CA: SIGGRAPH.
- Zatorre RJ, Chen, JL, Penhune, VB. (2007). When the brain plays music: auditory-motor interactions in music perception and production. *Nat Rev Neurosci*. 8(7), 547.
- Zehr, E.P. & Chua, R. 1998. Modulation of human cutaneous reflexes during rhythmic upper limb movement. *Proceedings Society for Neuroscience*, 837.14.
- Zielinska, J. 1996. Coupled oscillators utilized as gait rhythm generators of a two-legged walking machine. *Biological Cybernetics*, 74, 263-273.