

Wesley C. Clapp

wesleyclapp@gmail.com

Education

Ph.D. Psychology/Cognitive Neuroscience. 2003- 2006

University of Auckland, New Zealand: Collaborations with University of Zürich, Switzerland, Yale University, New Haven and Otago Univ in Dunedin, New Zealand
Thesis: *Non-invasive Induction of Long Term Potentiation (LTP) in Human Sensory Cortex.*

B.A. Neuroscience major, Religion and Chemistry minors. 1996- 2000

Oberlin College, Oberlin, Ohio

Graduated with Highest Honors in Neuroscience. Thesis: *The role of vdcLTP in the consolidation of spatial memory.*

GPA of 3.79: transcript available

Study abroad

Edinburgh University- Edinburgh, Scotland. 1999

Physics

Harvard University- Cambridge, MA.

Intensive 6 week course, equivalent to a full year of Physics. 1998

Honors and Awards

Recipient of the University of Auckland International Collaboration Grant: Used to pursue research at the University of Zurich, Switzerland.

Recipient of the Henry J. Haskell fellowship: \$US 6,000 to pursue one of my PhD topics abroad.

Recipient of a Bright Futures Top Achiever Doctoral Scholarship: New Zealand's most competitive doctoral scholarship- \$NZ 25,000 per year (plus fees) to pursue my PhD.

Member of Phi Beta Kappa: US based National Awards Society in which a selected group of people are nominated each year. Membership nominations are based on academic achievement and the drive to learn.

Member of Sigma Xi: US based national scientific research society (nominations based on research and academic achievement).

Graduated Summa Cum Laude from Oberlin College.

The Neuroscience Program Prize: Awarded for academic excellence in neuroscience/biopsychology.

The R. H. Stetson Award in Psychology and Psychobiology: For promise in research on fundamental influences on behavior.

Atkinson Scholarship recipient: Received \$5,000 each year at Oberlin College for both personal and academic achievement.

Skills

Computer skills: EMSE, E-prime, Presentation, LORETA, SPM/SPM2, MATLAB, Microsoft Office, Adobe PhotoShop, SPSS, ClarisWorks, Dreamweaver, and research databases i.e. Lexus Nexus, Medline, CSA etc.

Lab skills: Chemistry: NMR spectroscopy, Liquid chromatography, Sterile technique, Immunofluorescence assay, Gel electrophoresis, Spectrophotometric techniques, Recombinant DNA Generation, Chromatography (gas, HPLC, TLC, column), Enzyme Kinetics

Cell and Molecular Techniques: Isolation of a DNA fragment from a low-melting-point agarose gel, ligation of the fragment into a linearized vector, transformation of competent E. coli cells, isolation of recombinant plasmid DNA from several individual clones ("miniprepping"), and restriction enzyme analysis of these DNAs to ascertain the orientation of the insert in the plasmid vector.

Neuroscience: Stereotaxic, Acute neurosurgery (rat), intra-cranial EEG (rat), injections (Intra-peritoneal), perfusions, 8-arm radial maze, EEG set-up and analysis, fMRI set-up and analysis, LORETA, SPM 99/2.

Work Experience

Postdoctoral Fellow- Postdoc at UCSF. Focus of research is on memory and attention systems in both the healthy aging brain and also with a focus on Mild Cognitive Impairment and Alzheimer's Disease. July 2006- present

Research Consultant: Was paid as a consultant for my work on a number of ongoing projects in New Zealand, Yale University, USA and University of Zurich, Switzerland. Dec 2005 – July 2006

Co-founder and Director of BeatRoute Ltd: A privately held company within the Consumer Electronics Industry. June 2005 – present

Research Assistant: University of Auckland. Psychology Department: Neuroscience. 2002-2006

Used rapid visual or auditory stimulation to induce a persistent increase in evoked potentials from human cortex. Used both non-invasive EEG and fMRI techniques to record this form of human LTP. Also performed psychophysical studies to look for behavioral concomitants of this effect.

Performed acute neurosurgery to place electrodes within the rat visual system and found that this sensory LTP is dependent on NMDA receptors (through use of an NMDA receptor antagonist, CPP) and is generated in the cortex (through targeting of the thalamo-cortical pathway).

Research Technician/EEG lab manager at University of Auckland: managed and ran the entire EEG lab. As well, supervised honors students and lectured. 2001- 2003

Research Assistant: Oberlin College, Oberlin Ohio Department: Neuroscience. 1999-2000

Through the use of different pharmacological interventions and radial spatial maze, found that consolidation of rat spatial memory is dependent on Voltage Dependent Calcium Channels (Vdccc) and not NMDA receptors.

NMFS Observer: Researched and observed commercial scallop fishing for the National Marine Fisheries. Work involved tough physical labor and marine research. September-December 2000

COSEN research student at Duke Marine Labs: Assisted in field and lab research at Duke Marine Labs. Looked at both feeding habits and behavioral patterns of bottle-nosed dolphins (*tursiops truncatus*) in the Neuse River, NC. June-August 1999

Tutor, Oberlin College: Tutored at Oberlin College for classes such as Biology 118 and 120 (year of intro), Chemistry 101 and 102 (year of intro) and Organic Chemistry, Research Methods 1 and 2 (Psychology statistics) and Neuroscience 201 (intro). 1997-2000

Fun Factor Employee: Planned entertainment for business parties and the like. Work involved dressing up, organizing, and playing games with children and adults. 1997-1998

Child care: Supervised two boys, ages 7 and 14 every school day from 6:30-8 am while single parent went to work. 1995-1996

Nursery Co-ordinator at St. Elizabeth's Episcopal Church in Sudbury, MA.: Organized activities and monitored/played with 1 to 6 year olds every Sunday morning. 1993-1996

Other Information- Volunteering and Other Life Changing Events

Radio Lollipop Volunteer: Volunteered at Starship Children's Hospital in Auckland, NZ. DJ'd local children's radio station and played with children on the wards in the hospital. 2002-2005

Member of the Varsity Tennis team at Oberlin College: 1996-1998

Science and English Volunteer Teacher: Voluntarily spent 3-5 hours a week tutoring second graders at the Eastwood School, a local elementary school in Oberlin. 1998

Research Volunteer at Woods Hole (MBL): Spent a month in the lab with top researchers. Studied carbon fixation of Arctic plants as well as oxygen release. Learned to effectively use Gas Chromatography, Combustion, and liquid chromatography machinery. 1998

Research Volunteer at North Carolina Medical Centers: Duke, UNC, and other public facilities. Experiences included Operating Room observation, clinical interaction and observation (in pediatrics and cardiac related care), worked with family physician, did bio-feedback and oncology rounds, etc. 1997

Sign Language: Took a semester of American Sign Language at Oberlin College. 1997

Outward Bound: 23-day Glacier travel with Outward Bound in Alaska. 1996

Witness for Peace Volunteer: 24 day trip in July to Nicaragua with homestays and agricultural work with Witness for Peace. Summer 1995

Choral and Jazz exchanges in Russia, Prague and Budapest. 1993, 1995

Outward Bound: 22 day Outward Bound alpine mountaineering trip in British Columbia. 1994

References

References available upon request

Teaching Experience

University of Auckland - Co-Supervisor of Masters and Internship Students: Taught Cognitive Neuroscience and Neuroscience, as well as EEG techniques, analysis and experimental paradigms.

Tutored Psychology 303- Cognitive Science: Wrote Laboratory programs that have been used for 3 years running, and ran lab sessions.

Oberlin College - Tutored Introductory Biology and Chemistry as well as Organic Chemistry, Research Methods 1 and 2 (Psychology statistics) and Neuroscience. 1997-2000

Published Articles

Gazzaley A, Rissman J, Cooney J, Rutman A, Siebert T, **Clapp WC**, D'Esposito M. (2007) Functional interactions between prefrontal and visual association cortex contribute to top-down modulation of visual processing. *Cerebral Cortex*. In press

Zaehle T*, **Clapp WC***, Hamm JP, Meyer M, Kirk IJ (2007). Induction of LTP-like changes in human auditory cortex by rapid auditory stimulation: An fMRI study. *Restor Neurol Neurosci*. 25(3-4):251-9. (Shared First Author)

Johnson BW, Hautus MJ, Duff DJ, **Clapp WC** (2007) Sequential processing of interaural timing differences for sound source segregation and spatial localization: Evidence from event-related cortical potentials. *Psychophysiology*. 44(4): 541-51

Clapp WC, Johnson BW, Hautus MJ. (2007) Graded cue information in dichotic pitch: effects on event related potentials. *NeuroReport* Mar 5;18(4):365-8

Clapp WC, Kirk IJ, Hausmann M. (2007) Verbal strategies affect hemispheric asymmetries of colour memory. *Laterality*. 12: 139-153

Clapp WC, Eckert MJ, Teyler TJ, Abraham WC. (2006) Induction of NMDA receptor-dependent sensory long-term potentiation in rat cortex by rapid visual stimulation. *NeuroReport*. 17(5):511-5.

McNair NA, **Clapp WC**, Hamm JP, Teyler TJ, Corballis MC, Kirk IJ. (2006) Spatial frequency specific potentiation of human visual evoked potentials. *Neuroreport*. 17(7):739-741.

Clapp WC, Muthukumaraswamy SD, Hamm JP, Teyler TJ, Kirk IJ. (2006) Long-term enhanced desynchronization of the alpha rhythm following tetanic stimulation of human visual cortex. *Neuroscience Letters*. 398(3):220-3.

Clapp WC, Zaehle T, Lutz K, Marcar VL, Kirk IJ, Hamm JP, Teyler TJ, Corballis MC, Jancke L. (2005) Effects of long term potentiation in the human visual cortex: an fMRI study. *Neuroreport*. 16 (18), 1977-1980.

Clapp WC, Kirk IJ, Hamm JP, Shepherd D, Teyler TJ. (2005) Induction of Human Auditory Cortex Long-Term Potentiation by Sensory Stimulation. *European Journal of Neuroscience*. 22, 1135-1140.

Teyler TJ, Hamm JP, **Clapp WC**, Johnson BW, Corballis MC, Kirk IJ. (2005) Long-Term Potentiation of Human Visual Evoked Responses. *European Journal of Neuroscience*. 21 (7), 2045-50

Johnson BW, Hautus M, **Clapp WC**. (2003) Neural activity associated with binaural processes for the perceptual segregation of pitch. *Clinical Neurophysiology* 114, 2245-2250.

Milivojevic B, **Clapp WC**, Johnson BW, Corballis MC. (2003) Turn that frown upside down: ERP effects of thatcherisation of misorientated faces. *Psychophysiology* 40, 967-78.

Articles in Preparation

Rutman AM, **Clapp WC**, Gazzaley A. Early object-based top-down modulation of complex stimuli. In prep

Reddish P, **Clapp WC**, Muthukumaraswamy S, Fairhall, SL, Kirk IJ. Neural Substrates of the McCollough Effect: Evidence from Event-Related Potentials. *Neuroscience Lett*. In prep

Wiswede D, **Clapp WC**, Rüsseler J, Hamm JP, Tanaka J, Corballis MC. Electrophysiological correlates of own and familiar face recognition. *Neuropsychologia*. In prep

Clapp WC, Hamm JP, Kirk IJ, Teyler TJ. To See or Not to See: Immediate improvement of acuity via rapid visual stimulation. In prep

Clapp WC, Kirk IJ – Theta-rhythmic neuronal activity in anterior thalamic nuclei of the rat. *Neuroreport*

Kirk IJ, **Clapp WC**, Fairhall SL, Hamm JP, Hornsey E, Jackson G.D. Neural substrates of recognition memory: A 3T fMRI study.

Hamm JP, **Clapp WC**, Reddish P, Teyler TJ, Kirk IJ. Rates of visual stimulation that produce an increase in the human VEP.

Published Abstracts

Clapp WC, Gazzaley A (2007). The impact of attended and unattended distractors on working memory maintenance. Society for Neuroscience 2007 Abstracts.

Rutman AM, **Clapp WC**, Chaddick JZ, Gazzaley A (2007). Early object-based top-down modulation in an attention and working memory task using overlapped faces and scenes. Society for Neuroscience 2007 Abstracts

Clapp WC, Kelley J, McEvoy K, D'Esposito M, Gazzaley A (2007). Age-related inability to suppress irrelevant information: A spectral study of gamma bursting during a working memory task. Cognitive Neuroscience Society Abstracts.

Clapp, WC, , Zaehle T, Lutz K, Marcar VL, Kirk IJ, Hamm JP, Teyler TJ, Corballis MC, Jancke L. (2006) Effects of long term potentiation in the human visual cortex: an fMRI study. NeuroImage – Human Brain Mapping

Clapp WC, Eckert MJ, Teyler TJ, Abraham WC (2005). Induction of Long-Term Potentiation in rat visual cortex by rapid sensory stimulation. SFN (Society for Neuroscience) 2005 Abstracts.

McNair NM, **Clapp WC**, Kirk IJ, Hamm JP, Teyler TJ, Corballis MC. (2005) Is Sensory-Induced Long-Term Potentiation Spatial Frequency Specific? Proceedings of the International Australasian Winter Conference on Brain Research

Hamm JP, Reddish P, Ross R, **Clapp WC**, Teyler TJ, Kirk IJ. (2005) Parameters of Human LTP. Proceedings of the International Australasian Winter Conference on Brain Research

Clapp WC, Kirk IJ, Shepherd D, Corballis MC, Hamm JP, Teyler TJ (2004) Timecoursing LTP in Human Auditory Cortex. Experimental Psychology Conference Australian Journal of Psychology

Clapp WC, Lutz K, Corballis MC, Marcar VL, Jäncke L (2004) Long Term Potentiation in the Human Visual Cortex: an fMRI study. Proceedings of the International Australasian Winter Conference on Brain Research.

Clapp WC, Kirk IJ, Shepherd D, Corballis MC, Hamm JP, Teyler TJ. (2004) Induction of Human Auditory Cortex Long-Term Potentiation by Sensory Stimulation. SFN (Society for Neuroscience) abstracts 2004

Clapp WC, Kirk IJ, Shepherd D, Corballis MC, Hamm JP, Teyler TJ (2003) Long-Term Potentiation (LTP) of Human Auditory Evoked Potentials. Proceedings of the International Australasian Winter Conference on Brain Research.

Milivojevic B, **Clapp WC**, Johnson BW, Corballis MC (2003) Turn That Frown Upside Down: Effects of Thatcherisation on ERP Responses to Rotated Faces. Proceedings of the International Australasian Winter Conference on Brain Research.

Reddish P, **Clapp WC**, Muthukumaraswamy SM, Kirk IJ, Corballis MC (2003) Neural Mechanisms of the McCollough Effect. Proceedings of the International Australasian Winter Conference on Brain Research.

Kirk IJ; Hamm JP; Fairhall SL; Bunzeck N; **Clapp WC**; Hornsey E; Bishop, D.F., Jackson, G.D. (2003) Perirhinal cortex and recognition memory: A 3T fMRI study. Proceedings of the International Australasian Winter Conference on Brain Research.

Wiswede D, **Clapp WC** (2002) Electrophysiological correlates of own and familiar face recognition. Proceedings of the International Australasian Winter Conference on Brain Research.

Clapp WC, Teyler TJ, Hamm JP, Johnson BW, Corballis MC, Kirk IJ (2002) Long-Term Potentiation of Human Visual Evoked Responses. Proceedings of the International Australasian Winter Conference on Brain Research.

Clapp WC, Borroni AM, Woodside BR, & Teyler TJ (2001). The Effect of Calcium Channel Antagonists on Reference Memory. Proceedings of the International Australasian Winter Conference on Brain Research.

Hamm JP, **Clapp WC**, Kirk IJ, & Johnson BW (2001). Visual Evoked Potentials to Equiluminant Stimuli. Proceedings of the International Australasian Winter Conference on Brain Research.

Teyler TJ, Hamm JP, **Clapp WC**, Johnson BW, Corballis MC, Kirk IJ (2001) Long-Term Potentiation of Human Visual Evoked Responses. Society for Neuroscience

Clapp WC, Borroni AM, Woodside BR, & Teyler TJ (2000). The role of vLTP in the consolidation of spatial memory. SFN (Society for Neuroscience) abstracts

Presentations at Professional Meetings

Clapp WC, Gazzaley A (2007). The impact of attended and unattended distractors on working memory maintenance. Society for Neuroscience 2007 Abstracts.

Clapp WC, Kelley J, McEvoy K, D'Esposito M, Gazzaley A (2007). Age-related inability to suppress irrelevant information: A spectral study of gamma bursting during a working memory task. Cognitive Neuroscience Society Abstracts.

Clapp, WC, , Zaehle T, Lutz K, Marcar VL, Kirk IJ, Hamm JP, Teyler TJ, Corballis MC, Jancke L. (2006) Effects of long term potentiation in the human visual cortex: an fMRI study. NeuroImage – Human Brain Mapping

Clapp WC, Eckert MJ, Teyler TJ, Abraham WC (2005). Induction of Long-Term Potentiation in rat visual cortex by rapid sensory stimulation. SFN (Society for Neuroscience) 2005.

Clapp WC, Kirk IJ, Shepherd D, Corballis MC, Hamm JP, Teyler TJ (2004) Timecoursing LTP in Human Auditory Cortex. Experimental Psychology Conference (EPC).

Clapp WC, Lutz K, Corballis MC, Marcar VL, Jäncke L (2004) Long Term Potentiation in the Human Visual Cortex: an fMRI study. Australasian Winter Conference on Brain Research.

Clapp WC, Kirk IJ, Shepherd D, Corballis MC, Hamm JP, Teyler TJ (2004) Induction of Human Auditory Cortex Long-Term Potentiation by Sensory Stimulation. SFN (Society for Neuroscience) 2004

Clapp WC, Kirk IJ, Shepherd D, Corballis MC, Hamm JP, Teyler TJ (2003) Long-Term Potentiation (LTP) of Human Auditory Evoked Potentials. Australasian Winter Conference on Brain Research.

Clapp WC, Kirk IJ, Shepherd D, Corballis MC, Hamm JP, Teyler TJ (2003) Long-Term Potentiation (LTP) of Human Auditory Cortex. University of Auckland Departmental Mini Forum.

Clapp WC, Teyler TJ, Hamm JP, Johnson BW, Corballis MC, Kirk IJ (2002) Long-Term Potentiation of Human Visual Evoked Responses. Australasian Winter Conference on Brain Research.

Clapp WC, Borroni AM, Woodside BR, & Teyler TJ (2001). The Effect of Calcium Channel Antagonists on Reference Memory. Australasian Winter Conference on Brain Research.

Clapp WC, Borroni AM, Woodside BR, & Teyler TJ (2000). The role of vdccLTP in the consolidation of spatial memory. SFN (Society for Neuroscience)

Clapp WC, Borroni AM, Woodside BR, & Teyler TJ (2000). The role of vdccLTP in the consolidation of spatial memory. FUN (Faculty for Undergraduate Neuroscience meeting).

Patents

Co-inventor and holder of UK Patent #1664GB00- A training aid