

## VITAE

### **Michael M. Patterson, Ph.D., DO(HON)**

Professor of Osteopathic Medicine, Retired

Born: March 17, 1942; Muscatine, Iowa

Married: Janice P. Ficke, 1966

Children: Michael Shane, born 1969; Shad Milton, born 1972

Drmikep@earthlink.net

#### **Education**

Grinnell College Grinnell, Iowa	B.A. in Chemistry-Zoology	1960-1964
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Indiana University Department of Psychology Bloomington, Indiana	Graduate School. Research with Roger W. Russell Major: Physiological Psychology Minor: Learning and Memory	1964-1966
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University of Iowa Department of Psychology Iowa City, Iowa	Ph.D. in Psychology with I. Gormezano	1966-1969
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University of California Irvine, California Dept. of Psychobiology	Neurophysiology of Learning with Richard F. Thompson	1969-1971
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Kirksville College of Osteopathic Medicine Kirksville, Missouri	Paul Kimberly, D.O. All courses in Osteopathic Clinical Practice Edna Lay, D.O. Course in Cranial Manipulation	1975-1976
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#### **Positions**

Indiana University Department of Psychology Bloomington, Indiana	Research Assistant to Roger W. Russell	1964-1966
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Indiana University Bloomington, Indiana Department of Psychology	Teaching Assistant	1966
University of Iowa Iowa City, Iowa Department of Psychology	NIMH Predoctoral Fellowship with I. Gormezano	1966-1969
University of California Irvine, California Dept. of Psychobiology	NIMH Postdoctoral Fellowship with Richard F. Thompson	1969-1971
Kirksville College of Osteopathic Medicine Kirksville, Missouri Department of Physiology	Assistant Professor	1971-1975
Kirksville College of Osteopathic Medicine Kirksville, Missouri Department of Physiology	Associate Professor	1975-1977
University of California Irvine, California Dept. of Psychobiology	Visiting Associate Professor	1977
Ohio University Athens, Ohio College of Osteopathic Medicine	Director of Research Affairs	1977-1990
	Associate Professor of Osteopathic Medicine	1977-1981
	Professor of Osteopathic Medicine	1981-1993
Ohio University Athens, Ohio Department of Psychology	Associate Professor and Graduate Faculty	1977-1981
	Professor and Graduate Faculty	1981-1993

College of Osteopathic Medicine University of Health Sciences Kansas City, MO 64106-1453	Professor of Osteopathic Principles and Practice	1993-2000
	Director of Basic Science Research	1993-2000
	Assistant Chair, Department of Osteopathic Principles and Practice	1997-2000
College of Osteopathic Medicine Nova Southeastern University Ft. Lauderdale, FL 33328-2018	Professor of Osteopathic Principles and Practice	2000-2008
	Assistant Chair, Department of Osteopathic Principles and Practice	2000-2008
Vice-President Restorative Care Foundation		1999-
Vice-President Restorative Care Partners		2008-

## Research Experience

University of California Berkeley, California Department of Psychology	Training in observation and measurement of rat sexual behavior with Frank Beach	1963
Grinnell College Iowa Department of Psychology	Operant Conditioning Research with Neil D. Kent	1963-1964 Grinnell,
Indiana University Bloomington, Indiana Department of Psychology	Human gastrointestinal and somatic variables research with Roger W. Russell	1964-1966
University of Iowa Iowa City, Iowa Department of Psychology	Classical conditioning research with I. Gormezano	1966-1969
University of Iowa Iowa City, Iowa School of Medicine	Experience with intracellular neural recording from <u>Aplysia</u> ganglia and measurements of <u>Aplysia</u> behavior with Rafiq Waziri	1968-1969
University of California Irvine, California Dept. of Psychobiology	Research in the neural substrates of behavioral plasticity involving intra- and extracellular, and gross potential recording at all levels of the nervous system with Richard F. Thompson	1969-1971
University of California Irvine, California Dept. of Psychobiology	Research in brainstem mapping, multiple unit recording, use of histological techniques	1977

Kirksville College of Osteopathic Medicine Kirksville, Missouri Department of Physiology	Continuing research in classical conditioning with rabbit nictitating membrane, cat nictitating membrane and leg, cat spinal flexion reflex systems and neurophysiological analyses of these systems.	1971-1977
Ohio University Athens, Ohio College of Osteopathic Medicine	Research involving somatic dysfunction and applying data from spinal cord research to the understanding of somatic dysfunction	1977-1993
College of Osteopathic Medicine University of Health Sciences Kansas City, MO	Research on the neural basis of long term spinal reflex excitability alterations and its application to osteopathic theory and practice.	1993-2000
College of Osteopathic Medicine Nova Southeastern University Ft. Lauderdale, FL	Research on the efficacy and mechanisms of osteopathic manipulative treatment	2000-2008

**Teaching Experience**

Indiana University Bloomington, Indiana Department of Psychology	Laboratory and Laboratory Lecture Section of Introductory Psychology	Spring, 1966
California State College Dominquez Hills, California Department of Social Sciences	Graduate Course in Biological Bases of Behavior Course in History and Systems of Psychology	Spring, 1970  Spring, 1971
University of California Irvine, California Department of Psychobiology	Research Courses in the Neurophysiology of Learning	1969-1971

Kirksville College of Osteopathic Medicine Kirksville, Missouri Section of Medical Physiology course Department of Physiology	Neurophysiology and Neuro- psychology	1971-1977
Northeast Missouri State University Department of Psychology Kirksville, Missouri	Graduate-Undergraduate Seminar in Problems in Physiological Psychology	1973-1977
Ohio University Athens, Ohio College of Osteopathic Medicine	Lectures and Laboratory Teaching in Osteopathic Research and Techniques, Neurophysiology, and Clinical Research Design.	1977-1993
Ohio University Athens, Ohio Department of Psychology	Graduate student training, courses in Physiological Psychology, Research Techniques, the Physiological Bases of Learning and Memory and General Psychology.	1977-1993
	Undergraduate courses in Physiological and Sensory Psychology, and Introductory Psychology.	1977-1993
College of Osteopathic Medicine University of Health Sciences Kansas City, MO	Lecture and Laboratory teaching in Osteopathic Principles and Practice and other areas	1993-2000
College of Osteopathic Medicine Nova Southeastern University Ft. Lauderdale, FL 33328	Lecture and Laboratory teaching in Osteopathic Principles and Practice and other areas	2000-2008

College of Osteopathy, Montreal

Research methodology and  
Neurophysiology courses

2001- 2010

**Societies (past and present memberships)**

American Osteopathic Association 1971- active

American Academy of Osteopathy 1972- active

American Institute of Biological Sciences 1973-1999

American Psychological Association (Fellow), Divisions 3, 6 and 28 1971 - now retired status

American Psychological Society (Charter Fellow) from formation - now retired status

Inter-american Society of Psychology 1975-1990

Midwestern Psychological Association 1972-2000

Psychonomic Society 1971 - now retired status

Sigma Xi 1972-2003

Society for Neuroscience 1971 - now retired status

Society for the Use of On-Line Computers in Psychology 1980-1990

Sigma Sigma Phi, Board of Directors, 1984-2011, President, 1987-89, 1995-00, 2006-08

Society of Research Administrators, 1980-2000

International Federation of Manual and Musculoskeletal Medicine 2004-2008

World Osteopathic Health Organization, 2004-2011, Board of Directors 2004-2007



## **Professional Activities**

Contributing Editor, *Journal of the American Osteopathic Association*. 1987-1995

Associate Editor, *Journal of the American Osteopathic Association*, 1995-

Scientific Editor, *Kopf Carrier*, 1983-

Consulting Editor, Behavioral Neuroscience (Formerly Journal of Comparative and Physiological Psychology), 1981-1989

Consulting Editor, Behavior Research Methods, Instruments and Computers, 1981-1988

Consultant to the Osteopathic Research Committee of the American College of General Practitioners in Osteopathic Medicine and Surgery, 1983-2008

Occasional Grant Reviewer, National Science Foundation, 1969-2009

Occasional Grant Reviewer, National Institutes of Health, 1975-

Occasional Editorial Consultant, Behavioral Research Methods and Instrumentation, 1972-1981

Occasional Editorial Consultant, Physiology and Behavior, 1972-

Occasional Editorial Consultant, Psychopharmacology, 1984 -

Occasional Editorial Consultant, Journal of the American Osteopathic Association, 1978 -1987

Organized and taught in a short course on Osteopathic Principles and Techniques for Faculty and Staff, Ohio University College of Osteopathic Medicine, University of Health Sciences College of Osteopathic Medicine 1980-1993

Organized and produced a research brochure for the Ohio University College of Osteopathic Medicine, 1984

Occasional Editorial Consultant, Animal Behavior, 1973-2000

Occasional Editorial Consultant, Physiological Psychology, 1973 -1986

Occasional Editorial Consultant, Journal of Comparative and Physiological Psychology, 1979-1981.

Advisory Board for Osteopathic Principles Education Project, 1978-85

Lecturer for various societies, schools and organizations, national and international

Member - Biomedical Research Development Grant Site Visit team in Kirksville College of Osteopathic Medicine, 1978

Behavioral and Brain Sciences Associate Review Board Member, 1979-2000

Occasional Editorial Consultant, Science, 1979 -

Research Advisor - Kirksville College of Osteopathic Medicine, 1979  
- College of Osteopathic Medicine of the Pacific, 1979 -1982

Tenure Advisor - University of Utah, 1980

Organizer of Southeastern Ohio Chapter of Society for Neuroscience, 1984.

Acting President, 1984-85.

President, 1985-89

Scientific Chair of the American Osteopathic Association Research Conference, 1975, 1984, 1989

Organized and Chaired the American Academy of Osteopathy First International Symposium, "The Central Connection: Somatovisceral and Viscerosomatic Interactions." Cincinnati, June, 1989.

Member of and Associate Editor for the Osteopathic Principles Textbook Project, sponsored by the American Osteopathic Association Bureau of Research, September, 1989-.

Visiting Scholar, American Osteopathic Association Visiting Scholar Program. 1990-2006

Organized and Co-chaired the American Academy of Osteopathy Second International Symposium, "Nociception and the Neuroendocrine-Immune Connection." Cincinnati, June 1992.

Invited Member, Unconventional Medical Practices Workshop, NIH, Chantilly, VA, September, 1992.

Co-author, Panel on Structural and Energetic Medicine Report, to NIH, New York, November, 1992

Appointed member, Bureau of Research, American Osteopathic Association, 1992-1993

Vice-chair, Committee on Conferences, American Osteopathic Association, 1989-1996

Grant Reviewer, Foundation for Chiropractic Education and Research, 1993-2005

Organized and conducted a two week seminar on Osteopathic Manipulative Treatment for Russian Medical Doctors in St. Petersburg, Russia, June 1995

Appointed Member, American Academy of Osteopathy Louisa Burns Research Committee, 1995-

Grant Reviewer for the National Board of Osteopathic Medical Examiners, 1996

Editorial Review Board, "Osteopathic Medicine Review" Australia and New Zealand, 1997

OMTNet Editorial Board, American Osteopathic Association, 1997-2008

Organized with others, the symposium "Spinal Cord Plasticity" as a satellite symposium of the Society for Neuroscience, Los Angeles, CA November, 1998

Co-organized an international symposium on "Cranial Rhythmic Impulse" New York Institute of Technology, September, 1998

Co-edited a book on spinal reflex plasticity (appeared in 2001). The book includes chapters from international authors

Serve as President of International Juries for Osteopathic Thesis for Canadian and German Osteopathic Schools, 2000-

Served as research consultant for the West Virginia School of Osteopathic Medicine, 2002-3

Appointed to the Scientific Advisory Committee of the School of Osteopathy, St. Petersburg, Russia, 2003-

Editorial Board of *Osteopathische Medizin*, 2004-

Appointed to the Board of the Symposium on Advances in Osteopathic Research, The German Association Of Osteopaths (VOD), February, 2004

Appointed to the Scientific Council of the International Federation of Manual Medicine (FIMM), 2004-2009k

Appointed to the AOA Task Force to develop long-range research goals for the AOA, November, 2004

Organized and participated in the first German School of Osteopathy (DGOM) Symposium at Nova Southeastern University, June 2004

Appointed to the Council on Research, American Osteopathic Association, 2005-2011

Appointed to the Editorial Board, *International Journal of Osteopathic Medicine*, 2005-2011

Site visitor (Preclinical Sciences) for Osteopathic College Accrediting Board, 2004-

Grant Reviewer, AOA Council on Research, 2006-2011

Member of AOA Focused Review Panel, Cervical HVLA, Texas, 1/13-14/2006, 1/19-20/2007

Appointed to the American Osteopathic Association Bureau of Scientific Affairs and Public Health, 2007-2008

Occasional reviewer for:

Journal of General Internal Medicine

International Journal of Osteopathic Medicine

Behavioral Brain Research

Co-Chaired the International Symposium on Somato-visceral Interactions, Ft. Worth, March 2008, involving Chiropractic, Osteopathic, Massage Therapy, and Physical Therapy professions.

On the Editorial Advisory Board for the following journals:

*Alternative Therapies in Health and Medicine*, 2000-

*Osteopathische Medizin*, 2003-

*European Journal Osteopathy & Clinical Related Research*, 2010-

Lecture at various national and international venues on numerous topics in osteopathic medicine, research design and neurophysiology (e.g., lectured at 7 events internationally in 2009 and 6 in 2011)

## **Graduate Training**

Onik, Jan F., Master of Arts, 1977, Thesis: The effect of increasing stimulus intensity on classical conditioning of the cat nictitating membrane. Northeast Missouri State University.

Steinmetz, Joseph E., Doctor of Philosophy, 1983, Dissertation: A model system approach for the study of memory processes: Fixation of spinal reflex alterations in spinalized rats. Ohio University.

Romano, Anthony G., Doctor of Philosophy, 1985, Dissertation: Variations in CS associability and hippocampal multiple unit activity in the rabbit. Ohio University.

Port, Richard L., Master of Science, 1982, Thesis: The role of hippocampus in associative learning. Ohio University. Doctor of Philosophy, 1985 Dissertation: Neural-endocrine interactions in associative learning. Ohio University.

Beggs, Alvin L., Doctor of Philosophy, 1985, Dissertation: An analysis of ventral horn cell activity during a classical conditioning paradigm in spinalized cats. Ohio University.

Polenchar, Brett E., Doctor of Philosophy, 1987, Dissertation: Bilateral neural plasticity in the cerebellum during nictitating membrane conditioning in the rabbit. Ohio University.

Bartelt, Michael, Doctor of Philosophy, 1995, Dissertation: Effects of heating and cooling on spinal fixation in the rat hind limb reflex.

Greiner, J.C. Masters

Fowler, C., Doctor of Philosophy, 1998, Dissertation: The effect of transcutaneous electrical nerve stimulation on classical conditioning of the rabbit nictitating membrane response.

Have served on numerous masters and doctoral committees.

Serve as Advisor to Canadian and German Osteopathic students for thesis work, 2000-

Jane Stark, DO, Thesis advisor, Still's Fascia, 2006

Have served as thesis advisor for approximately 10 international DOs

## **Honors**

Bibliographic material listed in Outstanding Young Men in America. 1972.

Bibliographic material listed in Outstanding Educators of America. 1974.

Bibliographic material listed in Marquis Who's Who in the Midwest. 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985.

Bibliographic material listed in Men of Achievement. 1976.

Bibliographic material listed in Dictionary of International Biography, Vol. XIV, 1977, 1978.

Bibliographic material listed in Marquis Who's Who in the United States. 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 2003, 2004, 2006

Bibliographic material listed by American Biographical Institute, 1979.

American Osteopathic Association Louisa Burns Memorial Lecturer, 1980.

Bibliographic material listed in Marquis Who's Who in Frontier Science, 1984.

Bibliographic Material listed in American Men and Women of Science, 1987,1988.

Elected to Fellow status in the American Psychological Association, 1986.

Elected President of the Sigma Sigma Phi National Osteopathic Honorary Service Fraternity, 1987-89, 1996-00, 2006-08

Byron B. Layock Memorial Lecturer, Iowa Osteopathic Medical Association, 1988.

Elected to Honorary Life Membership, American Academy of Osteopathy, 1988

Appointed as Visiting Scholar, American Academy of Osteopathy, 1990-2000

Gutensohn-Denslow Outstanding Research/Education Award Recipient, American Osteopathic Association, 1992

Commencement Speaker, One-hundredth graduation exercises, Mediapolis High School, Mediapolis, Iowa, May, 1993

Keynote Speaker, American College of Osteopathic Internists, San Francisco, October, 1996

Keynote Speaker, 16th Montreal International Symposium on Traditional Osteopathy, Collège d'Études Ostéopathiques, Montreal, Canada, June 18, 1999

Keynote Speaker, 17<sup>th</sup> Montreal International Traditional Osteopathic Symposium of Montreal, Montreal, Quebec, Canada, June, 2000

Keynote Speaker, Third Annual Research Day and Thesis Presentation. German Osteopathic College, Abbey Frauenthiesmsee, Germany, February, 2001

Keynote Speaker, Fifth European Symposium of Traditional Osteopathy. German Osteopathic College, Abbey Frauenthiesmsee, Germany, February, 2001

Awarded DO(HON) degree, College d'Etudes Osteopathiques de Montreal, June, 2001

Awarded the Irvin Korr Award for Exemplary Commitment to Basic Science Research in an Osteopathic Institution, American Osteopathic Association, 2002

External Examiner for Theses, Canadian College of Osteopathy, Toronto, 2000-2005

External Examiner for Theses, College d'Etudes Osteopathiques de Montreal, 2000-

External Examiner for Theses, German College of Osteopathy, 2000-

Awarded Life Membership in the German School of Osteopathic Medicine (DGOM), 2005

O.J. Watson Memorial Lecturer, Osteopathic Heritage Foundation, Columbus, OH, May, 2008

Distinguished Service Award, Kansas City University of Medicine and Biosciences, August, 2010

Appointed "Fellow of the College", College d'Etudes Osteopathiques de Montreal, June, 2011

Awarded the American Academy of Osteopathy "Academy Award" for outstanding lifetime contributions to the Osteopathic Profession. Louisville, KY, March, 2012

## **Research Interests**

The primary thrust of my research interest has been in delineating the neurophysiological bases of certain simple behavioral alterations in both intact organisms and in simplified model neural systems of the spinal cord. In both cases, both behavioral and neurophysiological techniques are being utilized to relate neural substrates to changes in behavior. More recently, my research interests have shifted to understanding the efficacy and mechanisms of osteopathic manipulative treatment.

In work with the acute spinalized cat, we have shown that a classical conditioning paradigm applied to a flexion reflex can produce alterations in the reflex that has many similarities to classical conditioning of the intact organism. Both behavioral and neurophysiological multiple unit studies have been conducted to determine the nature of this spinal response phenomenon. We have also studied a memory-like change in the spinal reflex, commonly known as the Gerard fixation phenomenon.

Work with the intact organism involves classical conditioning in both cats and rabbits. We have utilized classical conditioning of the rabbit nictitating membrane response for several years in studies of the behavior itself. With R.F. Thompson, we began the use of this preparation in studies of the brain areas and activity involved in learning classical conditioning. In addition, we have developed the techniques necessary to restrain the awake, normal cat without habituation periods for classical conditioning of the cat nictitating membrane and leg flexion responses. We performed studies comparing the cat and rabbit membrane conditioning, as well as studies delineating further the effects of classical conditioning on the cat membrane and leg flexion responses and of the brain substrates of classical conditioning in the cat.

We have used the rat as a model system looking at the Gerard spinal fixation phenomenon. We have conducted an extensive series of studies on the formation of spinal fixation and its properties. We have begun to tie this spinal reflex alteration to chronic pain syndromes and functional alterations in overall function.

We are also interested in various aspects of the clinical syndrome known as the "somatic dysfunction." This concept is basic to understanding the central thrust of Osteopathic theory. We have begun applying data from our spinal cord studies to developing theoretical models of the somatic dysfunction, and have begun clinical research on the signs and symptoms of somatic dysfunction.

We are now involved in designing and implementing clinical trials of the efficacy of osteopathic manipulative treatment and on treatment outcomes. In addition, we have begun measuring force and pressures used by osteopathic physicians and osteopaths in various palpatory and treatment modalities and have begun to determine how best to teach students to utilize correct pressures in palpatory examinations. It is anticipated that these studies will provide means to teach osteopathic students to utilize palpatory skills more effectively early in their training.

In retirement, we continue to lecture and write on osteopathic and neurophysiological topics and continue contributions as an editor, national committee member and thesis advisor. We intend to pursue additional research in osteopathic medicine as the opportunities present.



## **Grant Support**

"Neural Mechanisms of Behavioral Plasticity" NIH General Research Support

Grant funds to Kirksville College of Osteopathic Medicine. \$3,500.

1971-1972

"Neurophysiological basis of Behavioral Plasticity." American Osteopathic

Association Bureau of Research.

T-7274 \$18,840

1972-1973

T-7374 13,485

1973-1974

T-7474 7,690

1974-1975

T-7574 9,230

1975-1976

T-7674 5,500

1976-1977

"Memory and Association in Spinal Responses" American Osteopathic Association Bureau of Research

81-08-023 \$17,971 1981-1982

82-08-023 15,028 1982-1983

"Objective Evaluation of Osteopathic Palpation and Manipulation" (project grant) American Osteopathic Association Bureau of Research

81-08-024 \$12,942 1981-1982

82-08-024 8,128 1982-1983

"Studies of Spinal Response Plasticity." National Institutes of Neurological and Communicative Disorders and Stroke.

I-RO1-NS10647 \$ 31,219

1974-1977

I-RO1-NS14545-01-03 52,396

1978-1982

I-RO1-NS14545-04-06 108,000

1982-1986

"Effects of manipulation on mild hypertension." American Osteopathic Association Bureau of Research, 1987-88.

"Spinal Reflex Excitability and Somatic Dysfunction" American Osteopathic Association Bureau of Research, 1990-91 \$15,109; 1991-1992 \$10,820; 1992-93 (extended to 1995) \$12,120, 1995-00, \$15,600.

"Effect of Cranial Osteopathic Treatment on Visual Function" American Osteopathic Association, Heritage Foundation (Ohio), Investigator (Mark Sandhouse, D.O., PI). \$152,009 (2 years)

"Support of the Restorative Care Foundation" Wallace Research Foundation, Three grants totaling \$230,000, 2000-2008. With William J. Brooks, DO

"Determination of Forces used in Palpatory Diagnosis and Manipulative Treatment by Osteopathic Physicians and Physical Therapists" Nova Southeastern University Presidents Faculty Scholarship Award, 2004, with Eric Shamus, PT, Ph.D. \$25,000.

## **Publications**

1. Coleman, S.R., Patterson, M.M. and Gormezano, I. (1966) Conditioned jaw movement in the rabbit: Deprivation procedure and saccharin concentration. Psychonomic Science, 6, 39-40.
2. Patterson, M. M. (June 1967) Changes in the electro-gastrogram and in breathing amplitude as indicators of nausea. Technical Report N. L8, Office of Naval Research, Contract NONR908-15.
3. Guth, S. L., Alexander, J. V., Chumbly, J. I., Gillman, C. B. and Patterson, M. M. (1968) Factors affecting luminence additivity at threshold among normal and color blind subjects and elaborations of a trichromatic-opponent colors theory. Vision Research, 8, 913-928.
4. Groves, P. M., Glanzman, D. L., Patterson, M. M. and Thompson, F. G. (1970) Excitability of cutaneous afferent terminals during habituation and sensitization in acute spinal cat. Brain Research, 18, 388-392.
5. Patterson, M. M. (1970) The effects of fluctuating ISI and intracranial CS on albino rabbit nictitating membrane conditioning. Journal of Comparative and Physiological Psychology, 72(2), 193-202.
6. Thompson, R. F. and Patterson, M. M. (1975) The fixation of experience: Plasticity in the spinal cord. In R. J. Grenal (ed.), Festschrift in honor of Ralph W. Gerard. Gordon & Breech.
7. Patterson, M. M. (1971) Inferior collicular CS intensity effects on rabbit nictitating membrane conditioning. Physiology and Behavior, 6, 273-278.
8. Patterson, M. M. (1971) Review of Bio-Medical Telemetry, R. S. Mackay, Wiley, 1970. Contemporary Psychology, 26(8), 512-513.
9. Thompson, R. F., Patterson, M. M. and Teyler, T. J. (1972) Neurophysiology of learning. Annual Review of Psychology, 23:73-104.
10. Patterson, M. M., Cegavske, C. and Thompson, R. F. (1973) Effects of a classical conditioning paradigm on hindlimb flexor nerve response in immobilized spinal cat. Journal of Comparative and Physiological Psychology, 84, 88-97.
11. Patterson, M. M., Cegavske, C. and Thompson, R. F. (1973) Spinal conditioning. Bulletin of the Psychonomic Society, January, 1, 139-140.

12. Thompson, R. F. and Patterson, M. M. (Ed) (1973), Bioelectric Recording Techniques: Cellular Processes and Brain Potentials. Vol. 1, Part A, Methods in Physiological Psychology. Academic.
13. Thompson, R. F. and Patterson, M. M. (Ed) (1974), Bioelectric Recording Techniques: Electroencephalography and Human Brain Potentials. Vol. 1, Part B. Methods in Physiological Psychology. Academic.
14. Thompson, R. F. and Patterson, M. M. (Ed) (1974), Bioelectric Recording Techniques: Receptor and Effector Processes. Vol. 1, Part C. Methods in Physiological Psychology. Academic.
15. Davis, B. W., Robertson, D. P. and Patterson, M. M. (1974) Effects of corpus callosum section on classical conditioning of the rabbit nictitating membrane response. Journal of the American Osteopathic Association, 73, 573-575.
16. Thompson, R. F., Cegavske, C. F., Farel, P. B., Glanzman, D. L., Groves, P. M., Patterson, M. M., Roemer, R. A., Teyler, T. J. and Wheeler, W. (1975) Neurobiology of learning: The search for the engram. To appear in a AAAS Symposium volume.
17. Patterson, M. M. (1975) The effects of backward CS-UCS pairings on hindlimb flexor nerve response in immobilized spinal cat. Physiological Psychology, 3(1), 86-91.
18. Patterson, M. M. (1975) Instrumentation and techniques in physiological psychology. American Psychologist, 30(3), 249-256.
19. Pipes, G. A., Domke, H. and Patterson, M. M. (1975) Spinal fixation: Background and progress. Journal of the American Osteopathic Association, 74(7), 670-671.
20. Roemer, R. A., Cegavske, C. F., Thompson, R. F., and Patterson, M. M. (1975) An acquisition and analysis system for on-line experiments on neurophysiological of learning. Behavior Research Methods and Instrumentation, 7(2), 157-161.
21. Teyler, T. J., Baum, W. M. and Patterson, M. M. (1975) Behavioral and biological issues in the learning paradigm. Physiological Psychology, 3(1), 65-73.
22. Patterson, M. M. (1975) Review of Biology and Neurophysiology of the Conditioned Reflex and its Role in Adaptive Behavior. Peter K. Anokhin, Pergamon, New York. Contemporary Psychology, 20(7), 570-571.
23. Patterson, M. M. (1975) Basic association patterns in the nervous system. Journal of the American Osteopathic Association, 76, 67-69.

24. Patterson, M. M. and Thompson, R. F. (1975) "Learning and Memory." Chapter in Introduction to Physiological Psychology, Thompson, R. F. Harper and Row.
25. Patterson, M. M. (1976) Mechanisms of classical conditioning and fixation in spinal mammals. In Reisen (Ed), Advances in Psychobiology, Vol. III, 381-436.
26. Cegavske, C., Thompson, R. F., Patterson, M. M. and Gormezano, I. (1976) Mechanisms of efferent neuronal control of the reflex nictitating membrane response in the rabbit. Journal of Comparative and Physiological Psychology, 90(5), 411-423.
27. Cassady, M., Patterson, M. M. and Roemer, R. A. (1976) The use of on-line computers in psychobiology. Behavior Research Methods and Instrumentation, 8(2), 153-156.
28. Thompson, R. F., collaborating with Berger, T. W., Cegavske, C. F., Patterson, M. M., Roemer, R. A., Teyler, T. J. and Young, R. A. (1976) The search for the engram. American Psychologist, 31(3), 209-227.
29. Patterson, M. M. (Sept. 1976) The reflex connection: History of a middleman. Osteopathic Annals, 357-367.
30. Patterson, M. M. (1976) A model mechanism for spinal segmental facilitation. Journal of the American Osteopathic Association, 76, 62-72.
31. Patterson, M. M., Olah, J., Clement J. (1977) Classical conditioning of the cat nictitating membrane response. Science, 196, 1124-1126.
32. Patterson, M. M. (1977) Rabbit stereotaxic techniques. D.K.I. Carrier, David Kopf Instruments, 4(1).
33. Myers, D. and Patterson, M. M. (1978) A versatile two-part system for on-line measurement of multiple response parameters. Behavior Research Methods and Instrumentation, 10(1), 33-37.
34. Thompson, R. F., Patterson, M. M. and Berger, T. W. (1978) Associative learning in the mammalian nervous system. In Brain and Learning, Teyler, T. J., (Ed), Greylock, Stamford, Conn. 51-90.
35. Patterson, M. M. and Gormezano, I. (1978) A mask for rabbit stereotaxic gas anesthesia. Behavior Research Methods and Instrumentation, 10(1), 41-42.
36. Patterson, M. M. (1978) A theoretical neurophysiologic mechanism for the facilitated segment. Journal of the American Osteopathic Association, 77, 399.

37. Patterson, M. M. (1979) The neurophysiology of learning: Model system approaches. A Review. Interamerican Journal of Psychology, 13, 93-127.
38. Patterson, M. M., Berger, R. W. and Thompson, R. F. (1979) Neuronal plasticity recorded from cat hippocampus during classical conditioning. Brain Research, 163, 339-343.
39. Cegavske, C., Patterson, M. M. and Thompson, R. F. (1979) Neuronal unit activity in the abduceus nucleus during classical conditioning of the nictitating membrane response in the rabbit, Oryctologus cuniculus. Journal of Comparative and Physiological Psychology, 93(4), 595-609.
40. Patterson, M. M. and Romano, A. G. (1979) Classical conditioning of the hindlimb flexion reflex in the cat. Journal of the American Osteopathic Association. 78, 898-899.
41. Patterson, M. M. (1980) Mechanisms of classical conditioning of spinal reflexes. In Neurophysiological Mechanisms of Goal Directed Behavior and Learning, R. F. Thompson, L. Hicks and Y. Schyrovkov, (Eds) Academic.
42. Steinmetz, J. E., Romano, A. G. and Patterson, M. M. (1980) Cat restraint techniques, D.K.I. Carrier, David Kopf Instruments, Fall.
43. Patterson, M. M. (1980) The family practitioner as researcher. Osteopathic Annals, 8(3), 15-19.
44. Romano, A. G., Steinmetz, J. E. and Patterson, M. M. (1980) A versatile cat restraint system. Behavior Research Methods and Instrumentation, 12(4), 455-458.
45. Patterson, M. M. (1980) Spinal Cord: Active processor, not passive transmitter. Journal of the American Osteopathic Association, November, 80(3), 210-216.
46. Farel, P., Patterson, M. M. and Teyler, T. J. (1981) Plasticity in simple systems. In Handbook of Behavioral Neurobiology section on Learning and Memory, King, F. (General Editor), McGaugh, J. L., and Thompson, R. F., (Volume Editors). Plenum, New York.
47. Patterson, M. M. and Kesner, R. (Eds.) (1981) Bioelectrical Stimulation Techniques, Vol. 3, Methods in Physiological Psychology. Academic Press.
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## **Papers Read**

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Thompson, R. F., Cegavske, C. and Patterson, M. M. Efferent control of the classically conditioned nictitating membrane response in the rabbit. Paper presented at the Psychonomic Society Convention, St. Louis, November 1973.

Patterson, M. M. Effects of backward stimulus pairing in classical conditioning of spinal responses. Paper presented at the Psychonomic Society Convention, St. Louis, November 1973.

Pipes, G. A., Domke, H. and Patterson, M. M. Spinal fixation: Background and progress. Paper presented at the American Osteopathic Association Research Conference, Chicago, March 1974.

- Roemer, R. A., Cegavske, C. F., Thompson, R. F. and Patterson, M. M. An acquisition and analysis system for on-line experiments on the neurophysiology of learning. Paper presented at the Fourth Annual Meeting of the National Conference on the Use of On-Line Computers in Psychology. Boston, November 1974.
- Patterson, M. M. Basic association patterns in the nervous system. Paper presented at the American Osteopathic Association Research Conference, Chicago, 1975.
- Patterson, M. M. Interstimulus interval effects on a classical conditioning paradigm in the acute spinalized cat. Paper presented at the Society for Neuroscience, New York, November 1975.
- Patterson, M. M. and Gellman, M. D. Effects of superior cervical ganglionectomy on classical conditioning of the rabbit nictitating membrane response. Paper presented at the American Osteopathic Association Research Conference, Chicago, March 1976.
- Patterson, M. M. A theoretical mechanism for spinal segmental facilitation. Paper presented at the American Osteopathic Association Research Conference, Chicago, March 1977.
- Patterson, M. M. and Onik, J. Conditioned stimulus intensity effects on classical conditioning of the cat nictitating membrane response. Paper presented at the Psychonomic Society Convention, Washington, D. C., November, 1977.
- Patterson, M. M. Effects of CS intensity on classical eyelid response conditioning in the cat. Paper presented at the American Osteopathic Association Research Conference, Chicago, March 1978.
- Patterson, M. M. and Romano, A. G. Classical conditioning of the cat hindlimb flexion reflex. Paper presented at the American Osteopathic Association Research Conference, Chicago, March 1979.
- Patterson, M. M. and Romano, A. G. Effects of US intensity and duration on classical conditioning of cat hindlimb flexion reflexes. Paper presented at the Psychonomic Society Convention, Phoenix, November 1979.
- Patterson, M. M., Steinmetz, J. E., Robinson, C. and Cervenka, J. Fixation of spinal reflex alterations. Paper presented at the American Osteopathic Association Research Conference, Chicago, March 1980.
- Steinmetz, J. E., Patterson, M. M. and Cervenka, J. Fixation of centrally and peripherally induced reflex alterations. Paper presented at the Society for Neuroscience, Cincinnati, November 1980.

- Romano, A. G., Steinmetz, J. E. and Patterson, M. M. Effects of unconditioned stimulus parameters on classical conditioning of cat hindlimb flexion. Paper presented at the Society for Neuroscience, Cincinnati, November 1980.
- Patterson, M. M., Steinmetz, J. E. and Romano, A. G. Retention of spinal conditioning effects. Paper presented at Psychonomic Society Convention, St. Louis, November 1980.
- Patterson, M. M., Steinmetz, J. E., Romano, A. G., Dobson, J. and Cervenka, J. Centrally and peripherally induced spinal fixation. Paper presented at the American Osteopathic Association Research Conference, Chicago, March 1981.
- Patterson, M. M. and Romano, A. G., FIRST in classical and instrumental conditioning and neural recording. Paper presented at the Society for Neuroscience, Minneapolis, November 1982.
- Patterson, M. M., Current evidence for spinal reflex involvement in long-term myocardial dysfunction. Paper presented at the American Osteopathic Association Research Conference, Chicago, November 1982.
- Patterson, M. M., Steinmetz, J.E., and Cervenka, J. Long-term spinal reflex alterations induced by hindlimb stimulation. Paper presented at the American Osteopathic Association Research Conference, Chicago, November 1982.
- Steinmetz, J. E. and Patterson, M. M. Fixation of spinal reflex alterations with direct stimulation of the rat tibial nerve. Paper presented at the Society for Neuroscience, Minneapolis, November 1982.
- Beggs, A.L., Steinmetz, J.E. and Patterson, M. M. Classical conditioning of a flexor nerve response to tibial nerve stimulation in spinal cats. Paper presented at the American Osteopathic Association Research Conference, Chicago, November, 1983.
- Patterson, M. M. and Steinmetz, J. E. Long-lasting alterations of spinal reflexes: A basis for somatic dysfunction. Papers presented at the Seventh International Congress of Manipulative Medicine, Zurich, September 1983.
- Romano, A. G. and Patterson, M. M. Conditioned stimulus duration influences long latency hippocampal activity during short-delay classical conditioning of the rabbits' nictitating membrane response. Paper presented at the Society for Neuroscience, Boston, November 1983.
- Steinmetz, J. E., Molea, D., and Patterson, M. M. Disruption of peripherally induced spinal fixation in rats by a strong electrical stimulus. Paper presented at the Society for Neuroscience, Boston, November 1983.

- Patterson, M. and Steinmetz, J.E. Spinal Fixation: Alteration of Spinal Reflex Excitability After Sensory Nerve Stimulation. Paper presented at the American Osteopathic Association Research Conference, Colorado Springs, March 1984.
- Beggs, A.L., Steinmetz, J.E. and Patterson, M. M. Peripheral stimulation produces persistence of postural asymmetry in spinalized rats. Paper presented at the Society for Neuroscience, Anaheim, November 1984.
- Polenchar, B.E. and Patterson, M.M. Cerebellar deep nuclei lesions abolish or impair an instrumental avoidance response in rabbit. Paper presented at the Society for Neuroscience, Anaheim, November, 1984.
- Port, R.L., Romano, A.G., Mikhail, A.A. and Patterson, M.M. Neural and endocrine effects on learning: A contrast of hippocampal and ACTH influences. Paper presented at the Society for Neuroscience, Anaheim, November 1984.
- Patterson, M.M. and Port, R.L. Hippocampal modulation of conditioned response topography. Paper presented at the American Osteopathic Association Research Conference, Colorado Springs, March, 1985.
- Beggs, A.L., Port, R.L., Romano, A.G., and Patterson, M.M. Hippocampectomy alters conditioned response onset in long delay conditioning. Paper presented at the Society for Neuroscience, Dallas, Tx. October, 1985.
- Port, R.L., Romano, A.G., Berger, D.O., and Patterson, M.M. Hippocampal substrate of sensory-sensory associations: Electrophysiological and lesion analyses of sensory preconditioning. Paper presented at the Society for Neuroscience, Dallas, TX, October, 1985.
- Johnson, D.A., Polenchar, B.E., Beggs, A.L., Sandberg, P.R., and Patterson, M.M. Avoidance behavior following electrolytic, AF64A and kianic acid lesions of the septum. Paper presented at the Society for Neuroscience, Dallas, TX., October, 1985.
- Romano, A.G., Port, R.L., and Patterson, M.M. Reflex modification of the rabbit's nictitating membrane response following hippocampectomy. Paper presented at the Society for Neuroscience, Dallas, TX., October, 1985.
- Polenchar, B.E., and Patterson, M.M. Cerebellar control of the conditioned nictitating membrane response in rabbit: Neural plasticity. Paper presented at the Society for Neuroscience, Dallas, TX., October, 1985. (Society for Neuroscience Abstracts V 11, pg. 1041)

- Polenchar, B.E., Aluko, U., Donahue, S., and Patterson, M.M. Bilateral neural plasticity in the cerebellum during classical conditioning of the nictitating membrane response in rabbit. Paper presented at the Society for Neuroscience, Washington D.C., November, 1986 (Society for Neuroscience Abstracts V12, pg. 104)
- Johnson, D.A., Polenchar, B.E., Chang, C-H., and Patterson, M.M. Open-field gregariousness and changes in emotionality following electrolytic, AF64A and kianic acid lesions of the septum. Paper presented at the Society for Neuroscience, Washington D.C., November 1986.
- Patterson, M.M., and Beggs, A.L. Stimulus contiguity effects on spinal motoneurons. Paper presented at the American Osteopathic Association Research Conference, Clearwater Beach, FL, March 1987.
- Beggs, A.L. and Patterson, M.M. Spinal conditioning effects on spinal motoneurons. Paper presented at the Society for Neuroscience, New Orleans, November, 1987.
- Patterson, M.M., Greiner, J.G., Hutchins, A.L. and Wilson, L.A. Bilateral transfer of classical conditioning of the rabbit nictitating membrane response: Implications for neural substrates. Paper presented at the Society for Neuroscience, Toronto, November, 1988.
- Patterson, M.M., Greiner, J.G., Hutchins, A.L. and Wilson, L.A. Bilateral transfer of classical conditioning of the rabbit nictitating membrane response: Repeated switching of the UCS. Paper presented at the American Osteopathic Association Research Conference, Las Vegas, November 1988
- Greiner, J.C., Ferguson, A.S., Wilson, L.A. and Patterson, M.M. Bilateral transfer of the rabbit nictitating membrane response under nonasymptotic UCS shifts. Paper presented at the Society for Neuroscience, Phoenix, November, 1989.
- Bartelt, M.J., Hutchins, A.G., McAbee, P.D., Muth, M.A. and Patterson, M.M. Effect of d-Amphetamine on spinal fixation in rats. Paper presented at the Society for Neuroscience, Phoenix, November, 1989.
- Patterson, M.M. Clinical research designs for manipulative treatment. Paper presented at the American Osteopathic Association Research Conference, Anaheim, November 1989.
- Patterson, M.M., Bartelt, M.J., Hutchins, A.G., McAbee, P.D. and Muth, M.A. Effect of d-amphetamine on spinal fixation in rats. Paper presented at the American Osteopathic Association Research Conference, Anaheim, November 1989.
- McAbee, P.D. and Patterson, M.M. Discrimination of bilateral inter-session UCS shifts during nictitating membrane classical trace conditioning. Paper presented at the Society for Neuroscience, St. Louis, November, 1990.

Bartelt, M.J., Hutchins, A.G., Kerns, J.M., Guidette, J.M. and Patterson, M.M. D-amphetamine increases strength but does not decrease latency of spinal fixation in rats. Paper presented at the Society for Neuroscience, St. Louis, November, 1990.

Bartelt, M.J., Hutchins, A.G., Kerns, J.M., Guidette, J.M. and Patterson, M.M. D-amphetamine increases strength but does not decrease latency of spinal fixation in rats. Paper presented at the American Osteopathic Association Research Conference, November 1990.

Patterson, M.M., Bartelt, M.J. and Johnson, E.S. Contralateral hindlimb stimulation inhibits persisting flexion (spinal fixation) in rats. Paper presented at the American Osteopathic Association Research Conference, November 1991.

Patterson, M.M., Bartelt, M.J., Johnson, E.J., and Howe, A. (1991) Restraint stress increases induced persisting hindlimb flexion (spinal fixation) in rats. Paper presented at the American Osteopathic Association Research Conference, November 1991.

Bartelt, M.J., Johnson, E.S., and Patterson, M.M. Effects of repeated measures and stimulus interruptions on inducing persisting hindlimb flexion (spinal fixation) in rats. Paper presented at the Society for Neuroscience, New Orleans, November, 1991.

Patterson, M.M., Bartelt, M.J. and Johnson, E.D. (1991) Inhibition of persisting rat hindlimb flexion (spinal fixation) by contralateral hindlimb stimulation. Paper presented at the Society for Neuroscience, New Orleans, November, 1991.

Johnson, E.S., Bartelt, M.J., Johnson, D.A. and Patterson, M.M. Dose-response effects of d-Amphetamine on persisting hindlimb flexion (spinal fixation) in rats. Paper presented at the Society for Neuroscience, New Orleans, November, 1991

Patterson, M.M. and Bartelt, M.J. A neural model for the effectiveness of counterstrain and release by positioning. Paper presented at the American Osteopathic Association Research Conference, San Diego, November, 1992

Patterson, M.M., Bartelt, M.J., Jackson, T., and Johnson, E.S. Mustard oil application increases persisting hindlimb flexion (spinal fixation) in rats. Paper presented at the American Osteopathic Association Research Conference, San Diego, November, 1992

Patterson, M.M., Bartelt, M.J., Johnson, R.S., and Jackson, T. Environmental stressors increase persisting hind leg flexion (spinal fixation) in rats. Paper presented at the American Osteopathic Association Research Conference, San Diego, November, 1992



- Patterson, M.M., Bartelt, M.J., Jackson, T., and Johnson, E.S. Mustard oil application increases persisting hindlimb flexion (spinal fixation) in rats. Paper presented at the Society for Neuroscience, Anaheim, November, 1992
- Patterson, M.M., Bartelt, M.J., Johnson, R.S., and Jackson, T. Environmental stressors increase persisting hind leg flexion (spinal fixation) in rats. Paper presented at the Society for Neuroscience, Anaheim, November, 1992
- Patterson, M.M., Perkins, K., Feizelli, M. and Bartelt, M.J. Inhibition of persisting rat hindlimb flexion (spinal fixation) by previous hind leg stimulation. Paper presented at the Society for Neuroscience, Washington, D.C., November, 1993
- Patterson, M.M., Perkins, K., Feizelli, M. and Bartelt, M.J. Inhibition of persisting rat hindlimb flexion (spinal fixation) by previous hind leg stimulation. Paper presented at the American Osteopathic Association Research Conference, Boston, October, 1993
- Patterson, M.M., and Bartelt, M.J. Effects of hindlimb heating and cooling on spinal fixation in rats. Paper presented at the Society for Neuroscience, Miami, November, 1994.
- Patterson, M. M., Woody, S. & Patterson, M.S. Effects of prior stimulation on later spinal fixation in rats. Paper presented at the American Osteopathic Association Research Conference, Orlando, October, 1995.
- Patterson, M. M., Woody, S. & Patterson, M.S. Effects of prior stimulation on later spinal fixation in rats. Paper presented at the Society for Neuroscience, San Diego, November, 1995
- Patterson, M.M., & Knewton, T. Temporal effects of prior stimulation on later blocking of spinal fixation in rats. Paper presented at the American Osteopathic Association Research Conference, LosVegas, October, 1996
- Patterson, M.M., & Knewton, T. Temporal effects of prior stimulation on later blocking of spinal fixation in rats. Paper presented at the Society for Neuroscience, Washington, DC, November, 1996
- Patterson, M.M., Mullauer, T., Suddarth, J., Sipe, B. and House, M. Limits to temporal effects of prior stimulation on later blocking of spinal fixation in rats. Paper presented at the Society for Neuroscience, New Orleans, October, 1997
- Patterson, M.M., Mullauer, T., Suddarth, J., Sipe, B. and House, M. Limits to temporal effects of prior stimulation on later blocking of spinal fixation in rats. Paper presented at the American Osteopathic Association Research Conference, San Antonio, October, 1997

- Patterson, M.M., Anderson, K., Jenkins, H., Jensen, D. and Rodman, D. Effects of long stimulation times and opposite limb stimulation on spinal fixation in rats. Paper presented at the Society for Neuroscience, Los Angeles, October, 1998
- Patterson, M.M., Anderson, K., Jenkins, H., Jensen, D. and Rodman, D. Effects of long stimulation times and opposite limb stimulation on spinal fixation in rats. Paper presented at the American Osteopathic Association Research Conference, October, 1998.
- Patterson, M.M., Hallahan, T. and Anderson, K. A weak effect of crossed-extensor reflex on reversing spinal fixation in rats. Poster presented at the Society for Neuroscience Meetings, Miami, October 1999
- Patterson, M.M., Hallahan, T. and Anderson, K. A basis for the facilitated segment: Spinal fixation and its reversal. Poster presented at the American Osteopathic Association Research Conference, October, 1999
- Patterson, M.M., Dally, L., Thompson, S. and Ullman, A. Effects of Crossed Extensor Activation on Spinal Fixation in Rats. Poster presented at the Society for Neuroscience Meetings, New Orleans, November, 2000
- Dally, L. and Patterson, M.M.. Effects of Crossed Extensor Activation on Spinal Fixation in Rats. Poster presented at the American Osteopathic Association Research Conference, Orlando, October, 2000
- Thompson, S., Patterson, M.M. and Ullman, A. Effects of Opposite Forelimb Stimulation on Hindlimb Spinal Fixation in Rats. Poster presented at the American Osteopathic Association Research Conference, Orlando, October, 2000
- Greenblatt, J., Shandhouse, M., Schectman, D., Sorkin, R. The Effects of Cranial Manipulation on Visual Function Poster presented at the American Osteopathic Association Research Conference, Las Vegas, 2002
- Patterson, M.M. The Development of Stereotaxic Instruments in America: The Kopf Instrument Company. Poster presented at the International Society for the History of Neuroscience Eighth Annual Meeting, Windsor, England, July 2003
- Brooks, W.J., Patterson, M.M., Wagner, E., Shamus, E., Carter, K. The Effect of Cervical Spine Position on Lumbar and Trunk Forward Bending. Poster presented at the American Osteopathic Association Research Conference, New Orleans, October, 2003

Patterson, M.M., Shamus, E., Carter, K. Determination of Pressures used in Osteopathic Palpatory Diagnosis Poster presented at the American Osteopathic Association Research Conference, New Orleans, October, 2003

Patterson, M.M., Shamus, E., Carter, K. Determination of Pressures used in Osteopathic Manipulative Treatments. Poster presented at the American Osteopathic Association Research Conference, New Orleans, October, 2003

Patterson, M.M. Modern Animal Stereotaxis in the Neurosciences: The Kopf Instrument Company. Poster presented at Society for Neuroscience Convention, November, 2003

### **Invited Colloquia and Symposia**

- "The stimulus trace hypothesis in classical conditioning." University of Michigan, Physiological Psychology Colloquium, January 1969.
- "Intracranial stimulation and classical conditioning." University of California, Irvine, Psychobiology Colloquium, December 1970.
- "Spinal Reflexes: Model learning system?" Workshop on classical conditioning versus neural mechanisms; Fifth Annual Winter Conference on Brain Research, Vail, Colorado, January 1972.
- "Spinal Response: Static or dynamic?" American Osteopathic Association Research Conference, Kirksville, Missouri, March 1972.
- "Neural correlates of nictitating membrane conditioning." University of South Florida, Psychology Colloquium, November 1973.
- "Neural correlates of learned responses." University of Miami, Psychology Colloquium, December 1973.
- Workshop on behavioral and physiological definitions of learning. Sponsored by the Social Sciences Research Council, New York City, December 1973. Discussion participant.
- "Models in the spinal cord." Workshop on Model Systems and the Neural Mechanisms of Learning. Seventh Annual Winter Conference on Brain Research, Steamboat Springs, Colorado, January 1974.
- "The neurophysiology of learning: Model systems approaches." V Inter-American Congress of Psychology, Bogota, Columbia, S.A. December 1974. Invited review.
- "The learned lesion." The Iowa Society of Osteopathic Physicians and Surgeons. Des Moines, Iowa, April 10-12, 1975.
- "Learning in the Spinal Cord." Chicago College of Osteopathic Medicine Colloquium, May 1975.
- "Pavlovian conditioning in acute spinal cats." Symposium on Plasticity in Simple Neuronal Systems. Laguna Beach, California. Sponsored by the University of California, Irvine, and the National Science Foundation. May 1975.
- "The use of on-line computers in psychobiology" with Michael Cassady and Richard Roemer. Invited Symposium at the Fifth Annual Conference on the use of On-Line Computers in Psychology, University of Colorado, Boulder, November 1975.

"Sensitization, habituation and conditioning in the spinal cord." Missouri Council for Exceptional Children, May 1976.

"Classical conditioning in spinal cord and other 'simple' preparations." Workshop on classical conditioning in simple preparations organized by David Eggers. Tenth Annual Winter Conference on Brain Research. Keystone, Colorado, January 1976.

Participant and Discussant, NINCDS Research Workshop on Neurobiologic Mechanisms in Manipulative Therapy. Michigan State University, East Lansing, Michigan, October, 1977.

"Classical conditioning of the cat nictitating membrane response." University of Utah Psychology Colloquium, Salt Lake City, Utah, 1977.

Participant and Discussant, Joint US - USSR Symposium on the Neurobiology of Learning and Goal Directed Behavior. University of California, Irvine, April 1978.

Participant, conference on the neurobiology of learning and memory. Park City, Utah, January 1978.

"Classical conditioning in the cat, neurophysiological concomitants." Northwestern University, Department of Psychology, March 1978.

Session chairperson, conference on the neurobiology of learning and memory. Park City, Utah, January 1979.

Invited lecturer American Academy of Osteopathy, Colorado Springs, March 1979.

"The Neurophysiology of Manipulative Therapy" Symposium on Musculoskeletal Diagnosis and Treatment. Palm Springs, February 1980.

"Spinal cord: Active processor, not passive transmitter." Louisa Burns Memorial Lecture American Osteopathic Association Research Conference, Chicago, March 1980.

Participant and discussant, International Conference on Manual Medicine, Michigan State University, East Lansing, September 1980.

"Spinal Fixation: Current Evidence" Stanford University, Department of Psychology, December 1980.

"Spinal Fixation: Neural Determinants: Winter Conference on Learning and Memory. Park City, Utah, February 1981.

- "Reflex Alterations in the Spinal System: Central and Peripherally Induced Spinal Fixation in Rats." Symposium on Primary Neural Substrates of Learning and Behavioral Change. Department of Psychology, Princeton University, Princeton, October 1981.
- "Associative Processes in Spinal Reflexes" Symposium on Conditioning: Representation of Involved Neural Function. Asilomar, California, October 1981.
- "Current Research in Osteopathy" Ohio Osteopathic Convention; Columbus, OH, June, 1982.
- "The 'FIRST' system in classical and instrumental conditioning and neural recording" Microcomputer Symposium, Society for Neuroscience Convention, Minneapolis, November, 1982.
- "Current Concepts in Osteopathy" Florida Academy of Osteopathy Convocation, Crystal River, Florida, May, 1983.
- "The Hippocampus as a timing mechanism" Stanford University, Department of Psychology, July, 1984.
- "The Hippocampus as a response timer" Keynote address at the annual Psychology Science Day, Muskingum College, November, 1984.
- "The Ohio University College of Osteopathic Medicine Somatic Dysfunction Research Institute" The American Academy of Osteopathy, March 1985.
- "Clinical implications of reflex alterations in spinal circuits" Chicago College of Osteopathic Medicine, May 1985.
- "Hippocampus: A role in classical conditioned response timing" Invited address, Midwestern Psychological Association Convention, Chicago, May 1985.
- "The Hippocampus as a timing mechanism" Invited address, Department of Psychology, Wayne State University, Detroit, December, 1986
- "Conservative treatments: Why should they work?" Keynote address at the Conservative Health Science Conference, Palmer College of Chiropractic, Davenport, Ia., October, 1986.
- Organizer of the Research Perspectives session at the 50th American Academy of Osteopathy Anniversary Convocation, Cincinnati, Ohio, March, 1987.

"Looking Forward-Backward" Address to the 50th American Academy of Osteopathy Anniversary Convocation, Cincinnati, Ohio, March, 1987.

Invited participant in symposium "Neural models of plasticity: Theoretical and empirical approaches" Woods Hole, Ma., April, 1987.

"Research Origins of the Concept of Segmental Facilitation" Invited Address, Iowa Academy of Osteopathy, Des Moines, October, 1987.

"Why Should Manipulative Treatment Work?" Symposium, Massillon, Ohio, October, 1987.

"Spinal Fixation and Manipulative Medicine." Invited Address, Palmer College of Chiropractic, Davenport, Iowa, October, 1988.

"Change: The Key to Stability" Invited Address, American Academy of Osteopathy Convocation, Phoenix, March, 1989.

"Awakening Sleeping Afferents: Implications for Somatic Dysfunction" Invited address, American Academy of Osteopathy, American Osteopathic Association, Anaheim, 1989.

"Principles of Osteopathic Medicine-How to conceptualize them" Invited speaker and participant at a Faculty Development Workshop, West Virginia College of Osteopathic Medicine, July, 1990.

"Spinal Fixation: A part of the facilitated segment" Invited address, Chicago College of Osteopathic Medicine, November, 1990.

"Spinal Fixation: Data applied to osteopathic and chiropractic principles." Invited speaker, Issues in Spinal Cord Plasticity for the Manipulative Sciences. Canadian Memorial Chiropractic College Research Seminar, June, 1991.

"Neurophysiology of Pain" Invited speaker, Practical Approaches to Low Back Pain. University of Wisconsin Medical School conference, Madison, WI, October, 1992.

"Facilitation and Neural Plasticity: Implications for Patient Management" Los Angeles College of Chiropractic 6th Annual Interdisciplinary Symposium, Whittier CA, March 1993.

"Facilitation and Neural Plasticity: Implications for Adjustment Therapies" International Conference on Spinal Manipulation, Foundation for Chiropractic Education and Research and The Order of Chiropractors of Quebec, Montreal, Quebec, Canada, May, 1993.

- “The Neurophysiology of Manipulative Therapy” Meeting with Russian physicians, sponsored by the Osteopathic Center for Children, LaJolla, CA, May 1993.
- “Adjustment Therapies: A Neurophysiological Basis” European Chiropractor’s Union Convention, Brussels, Belgium, May 1994.
- “Cranial Motion: Research Strategies” Discussion leader for visiting clinicians from Russia, LaJolla, CA, September 1994.
- “Neurophysiology of Pain” Invited speaker, Practical Approaches to Low Back Pain. University of Wisconsin Medical School Conference, Madison, WI, September 1994.
- “Osteopathy and Immune Function” Invited speaker, Demonstrating and Documenting the Difference: A Manipulative Update, Founder’s Day, Kirksville College of Osteopathic Medicine, Kirksville, MO October, 1994.
- “The Neurophysiological Basis for Osteopathic Medicine” Discussion leader for visiting clinicians from Russia. LaJolla, CA January, 1995.
- “Beginning Course in Osteopathic Principles and Practice” Two week course presented in St. Petersburg, Russia for 17 Russian physicians, June 1995.
- “Functional Changes in Spinal Circuits” Invited address to the Association of Chiropractors of Quebec, Three Rivers, Quebec, Canada, 100th Anniversary Celebration, September, 1994.
- “A Tribute to I.M. Korr and the Golden Age of Osteopathic Research” Invited Keynote Address for the Founder’s Day Program, Kirksville College of Osteopathic Medicine, October, 1995.
- “Osteopathic Manipulative Treatment” Workshop for Russian MD physicians, St. Petersburg, Russia, June, 1995
- “Dynamic Neurophysiology: Implications for Chiropractic’s Next Century” Invited Address for the 1995 Chiropractic Association of Australia, Canberra, Australia, October, 1995.
- “Workshop on Neurophysiology and Manipulation” 1995 Chiropractic Association of Australia, Canberra, Australia, October, 1995.
- “Neurophysiological Underpinnings in Chronic Pain” The American Association of Orthopaedic Medicine Convention, Orlando, February 1996.



“Basic Sciences in Osteopathic Medicine” and “The Neurophysiology of Osteopathic Medicine” Founder’s Day Program, Kirksville College of Osteopathic Medicine, September 1996

“Why Osteopathic Medicine?” Keynote Address, American College of Osteopathic Internists, San Francisco, October, 1996.

“The Underpinnings of Chronic Pain” and “Determinants of Pain Control” Prolotherapy Teaching Seminar, Indianapolis, October 1996.

“Spinal Plasticity: Underpinnings of Chronic Pain and Somatic Dysfunction” Invited seminar, and Faculty Development Workshops. Oklahoma State University College of Osteopathic Medicine, April, 1997

Faculty Development workshops in osteopathic philosophy and research. Lake Erie College of Osteopathic Medicine, Erie, PA. May 1997

“Osteopathic Medicine: History and Philosophy” Kansas State University Medical School, Family Practice Association, Kansas City, KS. September, 1997

“The Neurophysiology of Chronic Pain” Prolotherapy Teaching Seminar, Madison, WI, October, 1997, 1998

“Spinal Fixation: Long-term alterations in spinal cord excitability with altered or sustained inputs” Symposium on Spinal Cord Plasticity, Los Angeles, November 1998

“Osteopathy for the Masses” Nova/Southeastern College of Osteopathic Medicine, Ft. Lauderdale, FL., January 1999

“Spinal Fixation: Current Data” Nova/Southeastern College of Osteopathic Medicine, Ft. Lauderdale, FL., January 1999

“Life Mechanisms Altered: Long-Term Alterations in Spinal Cord Excitability – A Basis for Somatic Dysfunction and the Facilitated Segment” 16th Montreal International Symposium on Traditional Osteopathy, College d’Etudes Osteopathiques, Montreal, Canada, June 18, 1999

“Somato-Visceral and Viscero-Somatic Interactions” Kirksville College of Osteopathic Medicine, Kirksville, MO, Founders Day, September 30, 1999

“Beyond Facilitation: Nociception and Peripheral-Central Interactions” Kirksville College of Osteopathic Medicine, Kirksville, MO, Founders Day, October 1, 1999

“Pain's Upward Progression” Prolotherapy Teaching Seminar, Madison, WI, October, 1999

“Lectures on Viscero-Somatic and Somato-Visceral Reflexes, Chronic Pain and Somatic Dysfunction”  
College of Osteopathic Medicine of St. Petersburg, St. Petersburg, Russia, March 2000.

“Foundations; Techniques” and “What is Still Relevant” Osteopathy 2000, General Osteopathic Council  
Millennium Celebration. London, United Kingdom, May, 2000

“The Neurophysiology of Viscero-Somatic and Somato-Visceral Reflexes and Somatic Dysfunction” The  
British School of Osteopathy, Maidstone, United Kingdom, May, 2000

“Osteopathic Concepts of the Biodynamics of Life” the 17<sup>th</sup> Montreal International Traditional Osteopathic  
Symposium of Montreal, Montreal, Quebec, Canada, June, 2000

“Relationships Between Visceral and Somatic Structures and the Role of Upper Brain Structures in  
Facilitation and Somatic Dysfunction” College D'Etudes Osteopamiques, Montreal, Quebec, Canada,  
June, 2000

“Counterstrain Review” Residents Review, Nova Southeastern University, College of Osteopathic  
Medicine, Ft. Lauderdale, FL, August, 2000

“Integration and Disintegration of Body Function” Third International Symposium of Traditional  
Osteopathy, The Canadian College of Osteopathy, Toronto, Canada, September, 2000

“Understanding Chronic Pain” SOMA National Convention, Orlando, Florida, October 2000

“Whyfore Art Thou, Pain” American College of Osteopathic Pain Management and Sclerotherapy  
Convention, Orlando, October, 2000

“Wherefore Art Thou, Pain; The Neurophysiology of Chronic Pain” Prolotherapy Teaching Seminar,  
Madison, WI, October, 2000

“Returning to the Cranial System: Evidence for the CRI” Georgia Osteopathic Medical Association  
Convention, Atlanta, Georgia, November, 2000

“The Great Influenza Epidemic of 1917-1918: Or Its Just the Flu” Georgia Osteopathic Medical  
Association, Atlanta, Georgia, November, 2000

“Research in Osteopathic Medicine: The Nature of Proof” Keynote Address at the Third Annual Research Day and Thesis Presentation. German Osteopathic College, Abbey Frauenthiemsee, Germany, February, 2001

“A Higher Order: Psychological and Spiritual Aspects of Pain” Keynote Address at the Fifth European Symposium of Traditional Osteopathy. German Osteopathic College, Abbey Frauenthiemsee, Germany, February, 2001

“Tensegrity and Motion: Link Between Structure and Function” Workshop Presentation at the Fifth European Symposium of Traditional Osteopathy. German Osteopathic College, Abbey Frauenthiemsee, Germany, February, 2001

Lectures on Chronic Pain and Neural Plasticity. Postgraduate Symposium, Osteopathic Faculty, Lisbon, Portugal, March 2001

Tensegrity and Motion: “Structure’s Link to Function” 18<sup>th</sup> International Symposium of Traditional Osteopathy. College d’Etudes Osteopathiques de Montreal. Montreal, Quebec, Canada, June, 2001

“The Neurophysiology of Chronic Pain: Higher Function” Prolotherapy Teaching Seminar, Madison, WI, October, 2001

“A Higher Order: Physiological, Psychological and Spiritual Aspects of Pain” Special Seminar Address at Viroqua Community Hospital, Viroqua, WI and Gunderson-Lutheran Medical Center, LaCrosse, WI, October, 2001

“The Design and Analysis of Clinical Research” Two day seminar on clinical research design for senior osteopathic students, Toronto College of Osteopathy, Toronto, Canada, October 2001

“The Osteopathic Medical School Curriculum” American Association of Colleges of Osteopathic Medical College Forum, American Osteopathic Association Convention, October, 2001

Lectures (seven) on the neurophysiology of chronic pain and the osteopathic somatic dysfunction, Master’s Course, German College of Osteopathic Medicine, Klinik Bad Rippoldsau, Germany, November, 2001

“The Design and Analysis of Clinical Research” Two day seminar on clinical research design for senior osteopathic students. College d’Etudes Osteopathiques de Montreal. Montreal, Quebec, Canada, November, 2001

- "The Philosophy of Osteopathic Research" Keynote Presentation at the Sixth European Symposium of Traditional Osteopathy. German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2002
- "The Research Basis of Tradition" Presented at the 19<sup>st</sup> International Symposium on Traditional Osteopathy, College d'Etudes Osteopathiques de Montreal. Montreal, Quebec, Canada, June, 2002
- "Toward a Philosophy of Research in Osteopathy" Keynote at the celebration of practice of Viola Frymann, D.O., San Diego, October, 2002
- "The Meaning of Meaning in Osteopathy" Presentation at the Seventh European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2003
- "Thoughts on the Design of Research in Osteopathy" Presentation at the Seventh European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2003
- "Osteopathic Systems" Presented at the Congress of the Austrian School of Osteopathy Symposium "Principles of Osteopathy", Vienna, Austria, March, 2003
- "Central Neural Changes and Their Meaning for Osteopathic Manipulation" Presented at the First International Congress of Osteopathy, Escuela de Osteopatia de Madrid, Alaclà de Henares, Spain, April 11-13, 2003
- "The Meaning of Meaning in Osteopathy" Presented at the 20<sup>st</sup> International Symposium on Traditional Osteopathy, College d'Etudes Osteopathiques de Montreal. Montreal, Quebec, Canada, June, 2003
- "The Neurophysiology of Chronic Pain, I and II" Prolotherapy Teaching Seminar, Madison, WI, October, 2003
- "Disease Formation: Interaction Between Spinal Cord and Brain" Presented at the Symposium marking the Tenth Anniversary of the Russian School of Osteopathy, St. Petersburg, Russia, January, 2004
- "Successful Research: What to do and what not to do." Presentation at the Eighth European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2004
- "The Facilitated Segment: Where is it today?" Presentation at the Eighth European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2004

- “The Facilitate Segment Revisited: What was Shown and What was Not” Presented at the Institute of Classical Osteopathy Spring Conference, “The Neurological Basis of Disease” Maidstone, England, May, 2004
- “Reflex Alterations and interactions in the Spinal Cord; A basis for Functional Disturbance” Presented at the Institute of Classical Osteopathy Spring Conference, “The Neurological Basis of Disease” Maidstone, England, May, 2004
- “Higher Brain Function and Interactions with Spinal Function: Influences on Health and Disease” Presented at the Institute of Classical Osteopathy Spring Conference, “The Neurological Basis of Disease” Maidstone, England, May, 2004
- “The Facilitated Segment: What is it today?” Presented at the 21<sup>st</sup> International Symposium on Traditional Osteopathy, College d’Etudes Osteopathiques de Montreal. Montreal, Quebec, Canada, June, 2004
- “The Facilitated Segment: Where is it Now” Presented at the 7<sup>th</sup> International Congress of the German Osteopathic Association (VOD), Schlangenbad, Germany, October, 2004
- “The Neurophysiology of Chronic Pain” Prolotherapy Teaching Seminar, University of Wisconsin, Madison, WI, October, 2004
- “Critical Appraisal Skills: Validity and Reliability” Presented at the Foundation for Chiropractic Education and Research Workshop on Translating Evidence into Practice, Whittier, California, December, 2004
- “Toward a Philosophy of Osteopathic Research” Presented at the First Annual Meeting of the World Osteopathic Health Organization, Paris, France, January, 2005
- “Credibility in Osteopathic Diagnosis and Treatment: A Critical Challenge” Presentation at the Ninth European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2005
- “Toward a Philosophy of Osteopathic Research” Presented at the Ninth European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2005
- “Toward a Philosophy of Osteopathic Research” Presented at the 22<sup>nd</sup> International Symposium on Traditional Osteopathy, College d’Etudes Osteopathiques de Montreal. Montreal, Quebec, Canada, June, 2005

- “The Development of the Somatic Dysfunction Concept” Meeting of the Scientific Committee, International Federation of Manual Medicine, Prague, Czechoslovakia, June, 2005
- “Toward a Philosophy of Osteopathic Research” Presented at the 5<sup>th</sup> International Symposium of the Russian School of Osteopathy, St. Petersburg, Russia, June, 2005
- “Beyond Tensegrity: A Glimpse of the System” Presented at the First DGOM International Osteopathic Symposium, Freiburg, Germany, October, 2005
- “The Interface Between Physiology and Spirituality: Presented at the 8<sup>th</sup> International Congress of the German Osteopathic Association (VOD), Schlangenbad, Germany, October, 2005
- “Methodology in Testing Osteopathic Principles” Presented at the Second International Symposium on Advances in Osteopathic Research, Schlangenbad, Germany, October, 2005
- “The Neurophysiology of Chronic Pain” Prolotherapy Teaching Seminar, University of Wisconsin, Madison, WI, October, 2005
- “Fascia; Active or Passive” Presentation at the Tenth European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2006
- “Control Groups in Manipulative Treatment Studies: To Sham or Not Sham” Presented at the Tenth European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2006
- “The Coming Influenza Pandemic: Lessons from the Past for the Future” Presented at the American Osteopathic Board of Trustees Meeting, St. Petersburg, FL, February, 2006
- “Lectures in Osteopathy” Two days of lectures in osteopathic history, philosophy and practice at the Libera Università di Osteopatia, Pescara, Italy, September, 2006
- “The Neurophysiology of Chronic Pain” Prolotherapy Teaching Seminar, University of Wisconsin, Madison, WI, October, 2006
- “What is the Goal of Osteopathic Research?” Presented at the Eleventh European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2007

“Body, Mind, Spirit; Osteopathy’s Tradition of Health.” Presented at the Eleventh European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2007

“Tensegrity and the Fascias: System Modulators” Presented at the International Conference, Osteopathy and the White Nights, St. Petersburg, Russia, June 1-4, 2007

“Does the Mind Influence the Body” Presented at the 24<sup>th</sup> International Symposium on Traditional Osteopathy, Montreal, Canada, June 16, 2007

Introduction to Conference and to the Keynote Speaker, International Society for the History of Neuroscience, Annual Convention, June 20, 2007

“Truth or Consequences in Prolotherapy” Prolotherapy Research Seminar, University of Wisconsin, Madison, WI, October, 2007

“The Neurophysiology of Chronic Pain” Prolotherapy Teaching Seminar, University of Wisconsin, Madison, WI, October, 2007

“Truth and Consequences in Manual Medicine.” Presented at the Twelfth European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2008

“Research in Osteopathic Medicine: The Fifth Generation” James Watson Memorial Lecture, Osteopathic Heritage Foundation, May, 2008

“Somato-Visceral Interactions: Implications for Function, Palpation and Treatment” Presented at the Second International Congress of Osteopathic Medicine, DGOM, Karlsruhe, Germany, May, 2008

Three days of lectures in osteopathic medicine, Russian School of Osteopathic Medicine, June 2008

“The Neurophysiology of Chronic Pain” Prolotherapy Teaching Seminar, University of Wisconsin, Madison, WI, October, 2008

Symposium on Methodology for Osteopathic Functional Examination, with William J. Brooks, DO, Presented to the DGOM and the DGSMM, Boppard, Germany, February, 2009

“Research in Osteopathic Medicine: The Fifth Generation” Presented at the Thirteenth European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchiemsee, Germany, February, 2009

“When Symmetry and Within Normal Limits Are Not Enough” Presented at the Thirteenth European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchimsee, Germany, February, 2009

“Osteopathic Philosophy and History” Presented at the 1<sup>st</sup> Pescara International Conference of Osteopathic Medicine, Osteopathy and Neonatology, Pescara, Italy, May, 2009

“The Somatic Dysfunction, Parts I and II” Presented at the Symposium Osteopathische Medizin in der Schmerztherapie, DVOM, Nagold, Germany, June 2009

Lectures in Osteopathic Medicine (2 days), Presented at Pescara, Italy, May, 2009

Lectures in Osteopathic Medicine (2 days), Presented in Rome, Italy, June, 2009

“Professor Irvin M. Korr: Legacy of a Convert. Scientist, Philosopher, Humanist” Presented at the 26<sup>th</sup> International Symposium on Traditional Osteopathy, Montreal, Canada, June, 2009

Lectures in Osteopathic Research Theory and Design, Seminar at Milan School of Osteopathy, Milan, Italy September, 2009

“Pain: A Non-Linear Function” Prolotherapy Teaching Seminar, University of Wisconsin, Madison, WI, October, 2009

“Two Streams Make a River: The Rabbit in Richard F. Thompson’s Laboratory” Invited paper at the symposium honoring Richard F. Thompson’s career and retirement, University of Southern California, Los Angeles, May, 2010

“Touch, Perception and Reality” Presented at the 27<sup>th</sup> International Symposium on Traditional Osteopathy, Montreal, Canada, June, 2010

“The State of Osteopathy in America: The Good, The Bad and The Ugly” 2<sup>nd</sup> National Congress of Osteopathic Medicine, Rome, Italy, June, 2010

“Osteopathic Research: Lessons from the Past Informing the Future” Institute for the Advanced Study of Osteopathy, Barcelona, Spain, July, 2010

“Pain: The Destructive Spiral” Prolotherapy Teaching Seminar, University of Wisconsin, Madison, WI, October, 2010



"Publishing from the Associate Editor's Viewpoint: What is a Great Review?" JAOA Editor's Seminar, OMed 2010, San Francisco, CA October, 2010

"The Evolution of Osteopathy as a Scientific Discipline" and "Evidence Base for the Effectiveness of Osteopathic Manipulative Medicine". First International Congress of Osteopathy (CIOI), Seville, Spain, March 25-27, 2011

"Scientific Basis of Osteopathy" International Congress of Osteopathic Medicine, Florence, Italy, April 6-9, 2011

"Osteopathic Philosophy in Research: Reality", "Osteopathic Philosophy in Practice: The Evidence Base", "Osteopathic Philosophy in Diagnosis: When Symmetry and Within Normal Limits are Not Enough" Three Lectures at the John Wernham Memorial Lectures, London, England, May 14-15, 2011

"The Healing Power of the Mind in Osteopathy: The Placebo Myth" Presented at the 28th International Symposium of Traditional Osteopathy, Montreal, June, 2011

"Touch and Perception in Osteopathy: Effects on Function" Presented at the 1<sup>st</sup> International Congress of Osteopathy, San Paolo, Brazil, September, 2011

"The Scientific Basis of Osteopathy" Presented at the 1<sup>st</sup> International Congress of Osteopathy, San Paolo, Brazil, September 2011

"Pain: The Destructive Spiral" Presented at the Prolotherapy Teaching Seminar, University of Wisconsin, Madison, WI, October, 2011

"Publishing from the Associate Editor's Viewpoint: How a Decision is Made?" JAOA Editor's Seminar, OMed 2011, Orlando, FL, October, 2011

"Touch and Perception in Osteopathy: The Sham Dilemma" Presented at the Research Conference of the American Osteopathic Association OMed, Orlando, FL October, 2011

"Touch and Perception in Osteopathy: The Sham Sham". Presented at the 16th European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchimsee, Germany, February, 2012

"Toward An Osteopathic Understanding of Chronic Pain" Presented at the 29th International Symposium of Traditional Osteopathy, Montreal, June, 2012

"Pain: The Destructive Spiral" Presented at the 2nd CIOSI (International Congress of Osteopathy) Porto, Portugal, October, 2012

"Toward an Osteopathic Understanding of Chronic Pain" Presented at the 2nd CIOSI (International Congress of Osteopathy) Porto, Portugal, October, 2012

"Pain: The Destructive Spiral" Presented at the Prolotherapy Teaching Seminar, University of Wisconsin, Madison, WI, October, 2012

"Building the Biological Basis of Osteopathy: 100 Years of Progress and the Future" *The John Wernham Memorial Lectures International Congress, Madrid, Spain, February 16. 17, 2013*

"Expectations and Perceptions in Manual Therapy: Effects on Pain and Healing" *The John Wernham Memorial Lectures International Congress, Madrid, Spain, February 16. 17, 2013*

"Expectations and Perceptions in Osteopathy: Effects on Pain and Healing" Keynote address, Lisbon, Portugal, April, 2013

"Why Osteopathy" Lisbon, Portugal, April, 2013

"Neuroplasticity: From Synapse to Personality" Presented at the 30th International Symposium of Traditional Osteopathy, Montreal, June, 2013

"Musculoskeletal Dysfunction: When Symmetry and Within Normal Limits Are Not Enough" Presented at the International College of Applied Kinesiology, USA, Los Angeles, June 8, 2013

"Pain: The Destructive Spiral" Presented at the Prolotherapy Teaching Seminar, University of Wisconsin, Madison, WI, October, 2013

"The Facilitated Segment: How it was Discovered and What it Means" Presented at the 5th International Congress of Osteopathy (CIOSI) Iguacu Falls, Brazil, November, 2013

"Korr and Denslow's Osteopathy: Past Contributions, Future Meaning" Presented at the 5th International Congress of Osteopathy (CIOSI) Iguacu Falls, Brazil, November, 2013

"If Still was Discovering Osteopathy Today, What Would It Be Like?" Presented at the 17th European Symposium of Traditional Osteopathy, German Osteopathic College, Abbey Frauenchimsee, Germany, February, 2014

"Pain: Destroyer of Personality" Presented at the 17th European Symposium of Traditional Osteopathy,  
German Osteopathic College, Abbey Frauenchimsee, Germany, February, 2014

"The Facilitated Segment Concept: Where Did It Come From?" Presented at the John Wernham Memorial  
Lecture Series, February, Madrid, 2014

"The Facilitated Segment Concept: Where is It Today?" Presented at the John Wernham Memorial Lecture  
Series, February, Madrid, 2014

## Committees

### Kirksville College of Osteopathic Medicine

Curriculum Committee (standing)  
Long Range Planning Committee (standing)  
Faculty Selection Committee (ad hoc)  
Animal Care Committee (standing)  
Committee on Grading Systems (ad hoc)  
Dean's Selection Committee (ad hoc)  
Panel of Research Counselors (standing)  
Committee on Research Aspects of Multitrack Curriculum (ad hoc)

### College of Osteopathic Medicine, Ohio University

Student Progress Committee (standing) 1978-1980  
Director - Animal Care Facility 1977-1989  
Fixed Equipment Committee, Chairman (standing) 1978-1980  
Committee for Basic Science and Clinical Interchange on Osteopathic Principles-Chairman (standing) 1978-1980  
Promotion and Tenure Committee, Department of Osteopathic Medicine, Chairman (ad hoc) 1978-1988  
Promotion and Tenure Committee, Department of Family Medicine (ad hoc) 1979  
Facilities Development and Utilization Committee (standing) 1978-1980  
Irvine Hall ad hoc Committee 1978-1982  
Research and Scholarly Activities Committee, Chairman (standing) 1980-1982, ex officio 1982-1988  
Admissions Advisory Committee (ad hoc) 1980-1983  
Deans Evaluation Committee (ad hoc) 1980-1981  
Pharmacology Search Committee (ad hoc) 1979-1980  
Physiology Search Committee, 1981, 1983  
Information Systems Advisory Committee (ad hoc) 1984-1993  
Marketing Advisory Committee, 1984-86  
College Grievance Committee, Chairman (standing) 1986-1988  
Clinical Research Implementation Committee (standing) 1985-1988  
NOF Loan Advisory Committee, Chairman (standing) 1986-1993  
Student Selection Advisory Committee (standing) 1983-6, 1987-1993  
Admission Policy Advisory Committee (standing) 1987-1989

### Ohio University

University Environmental Health and Safety Committee (standing) 1978 -1993  
Institutional Biosafety Committee (standing) Chairman 1979 -1993  
Biohazards Committee (standing) Chairman 1985-1993  
Ohio University Research Committee (standing) 1980 -1983  
Selection Committee for Associate Provost for Research and Graduate Studies (ad hoc) 1979 & 1987  
Animal Care Committee (standing) 1978-1993  
Animal Facilities and Resources Advisory Committee (standing) 1990-1993  
Faculty Senate 1991-1993  
Faculty Associate, Department of Residence Life, 1992-1993

### Department of Psychology, Ohio University

Experimental Section Graduate Admissions Committee, (standing) 1979 - 81, 1986-87, Chairman 1980  
Faculty Search Committee, 1981,1986

### Other

Institutional Review Board, Grandview Hospital and Medical Center, Dayton, OH 1990-1993  
Research Consultant, Montgomery County Court (Dayton) Addiction Rehabilitation Program 1990-1993

### University of Health Sciences, College of Osteopathic Medicine

Institutional Review Board (standing), 1993-2000  
Research Committee (standing) 1993- Chair, 1994-1999  
Educational Resource Committee (standing) 1994-1998  
Animal Care Committee (standing), 1995-2000  
Committee on Faculty-Board Relations (ad hoc) Chair 1995-6  
Promotion in Rank Committee, 1995-1998  
Promotion and Graduation Committee, 1995-2000  
President, Faculty Senate, 1997-1999

### Nova Southeastern University, College of Osteopathic Medicine

Student Progress Committee, 2000-2007; Vice-chair, 2005-2007  
Research Committee, 2000-2008, Chair, 2004-2005  
Credentials Committee, 2000-2008  
Peer Review Committee on Continuing Contracts, 2000-2008  
Competitive Environment Task Force Committee (University) 2000- 2004  
University Faculty Advisory Council (University) 2001-2008  
Faculty Council (COM), Chair (2001-2003)  
Dean's Committee, NSU-COM and West Palm Beach Veterans Affairs Medical Center,  
2002-2008  
Institutional Review Board, Alternate Member, 2002-2008

Curriculum Committee, 2003-2007; Chair, 2003-2007

Search Committees, 2001-2008

Admissions Committee, 2003-2008, Vice-chair, 2006-2007

Retired, June 30, 2008

### **Community Activities and Service**

Boy Scouts of America

Assistant Scoutmaster, 1980-82, 1992-1993

Scoutmaster 1982-1992

Sustaining Membership Enrollment Drive Chairman, 1983, 1984, 1992  
District Chairman, 1984-88  
District Award of Merit, 1984  
Council Executive Committee, 1985 -1993  
Silver Beaver Award, 1992

First Christian Church (DOC), Athens

Moderator, 1988-89  
Board of Elders, 1986-89  
Board of Trustees, 1982-1986 Chairman, 1990-1993  
Board of Deacons, 1979-1982, Chairman, 1981-1982

First Christian Church (DOC), Park Hill, Kansas City 1993-2000

Board of Deacons, 1994-96, Chair, 1994-1996  
Evangelism Committee Chair, 1994-1997  
Elder, 1996-2000  
Moderator, 1997-1999

Tuesday Club of Athens, 1980-1993 President, 1984-1985

Rotary International, 1985-2000

Athens Club, 1985-1993  
Second Vice-president, Athens Club, 1992  
South Platte Club, 1994-2000  
Paul Harris. Fellow  
President, 1999-2000

Athens Cheese Barn Board of Directors, 1985 -1986

Athens County Property Owners Association, 1979 -1993

Northwood Hills Homeowners Association Board, 1995- 2000 (President, 1996-99)

Sunset Cove Homeowners Association Board, 2001-2008 (Vice-President, 2005-2008, President, 2008)

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