

STEVEN P. RINGEL, M.D.
Biography

Steven P. Ringel, M.D. is Professor of Neurology and Vice President for Clinical Effectiveness and Patient Safety at the University of Colorado Hospital (UCH). He has authored numerous articles and four books covering a broad range of issues in research, patient care, health policy, and patterns of practice. He is the founding editor of "Current Treatment in Neurology" and founding Associate Editor-in-chief of Neurology Today. He is past president of the American Academy of Neurology (AAN) and of the medical staff of UCH.

Dr. Ringel's current investigative activities emphasize quality and safety initiatives, cost effectiveness analysis and community database development. He has co-directed the Neuromuscular Section of the University of Colorado School of Medicine since 1976. He continues to have a busy neuromuscular practice and is actively involved in multi-university studies to evaluate drug efficacy in amyotrophic lateral sclerosis.

An honors graduate of the University of Michigan Medical School, Dr. Ringel completed his neurology residency at Rush-Presbyterian-St. Luke's Medical Center in Chicago and a post-doctoral research fellowship at the National Institutes of Health. He completed a Robert Wood Johnson Health Policy Fellowship and served as an Institute of Medicine Scholar-in-Residence working as Senator Jay Rockefeller's health policy aide during the 1992 Congressional session.

STEVEN P. RINGEL, M.D.
CURRICULUM VITAE

PERSONAL DATA

Address

University of Colorado Health Sciences Center
4200 East Ninth Avenue, B185
Denver, Colorado 80262
Work - (303) 315-7221
Fax - (303) 315-6796

EXPERIENCE

- 2007- Vice President for Clinical Effectiveness and Patient Safety, University of Colorado Hospital
- 1994 -2006 Co-Director, Department of Quality and Outcomes, University of Colorado Hospital
- 1986 - Professor, Department of Neurology, University of Colorado School of Medicine; Co-Director, Section of Neuromuscular Diseases
- 1991 - 1992 Robert Wood Johnson Health Policy Fellow; Office of Senator John D. Rockefeller IV (West Virginia) Institute of Medicine Scholar-in-Residence
- 1983 - 1985 Acting Chairman, Department of Neurology, University of Colorado School of Medicine
- 1983 Visiting Professor, University Padova (Italy) (6 months)
- 1979 - 1986 Associate Professor, Department of Neurology, University of Colorado School of Medicine; Director, Section of Neuromuscular Diseases
- 1976 - 1979 Assistant Professor, Department of Neurology, University of Colorado School of Medicine; Director, Section of Neuromuscular Diseases
- 1974 - 1976 Muscular Dystrophy Associations of America Postdoctoral Fellow, Medical Neurology Branch, NINCDS, National Institutes of Health, Bethesda, Maryland; Consultant, Crownsville State Hospital, Annapolis, Maryland
- 1972 - 1974 Major, Medical Corps, U.S. Army Chief; Department of Neurology, Silas B. Hayes Hospital, Fort Ord, California; Associate Chief of Neurology, Letterman Army Medical Center, San Francisco, California
- 1969 - 1972 Neurology Resident, Presbyterian-St. Luke's Hospital, Chicago, Illinois
- 1968 - 1969 Medical Intern, Presbyterian-St. Luke's Hospital, Chicago, Illinois

EDUCATION

- 1964 - 1968 M.D., University of Michigan Medical School, Ann Arbor, Michigan
- 1961 - 1964 Undergraduate, University of Michigan, Ann Arbor, Michigan

CERTIFICATION AND LICENSURE

1974 Diplomat, American Board of Neurology and Psychiatry (#13617)
 1976 State of Colorado Practice of Medicine (#19884)

HONOR AND AWARDS

Honors College, The University of Michigan, 1961
 Cum Laude, The University of Michigan Medical School, 1968
 AOA, The University of Michigan Medical School, 1968
 Muscular Dystrophy Associations of America Post Doctoral Fellowship, 1974
 NATO Senior Fellowship, Visiting Professorship, Consiglio Nazionale Delle Ricerche (CNR), Italy, 1983
 Excellence in Teaching Award - University of Colorado School of Medicine, 1985
 - Department of Neurology, 1997-1998
 Robert Wood Johnson Health Policy Fellowship; Office of John D. Rockefeller IV (West Virginia)
 Denver's Top 250 docs – 5280 Magazine, 2005; 2006, 2008

VISITING PROFESSOR/LECTURESHIP

Albany Medical College	University of Indiana
Duke University	California Pacific Medical Center -
Medical College of Georgia -	Richard J. Palmer Memorial Lecturer
Dean's Distinguished Lecturer	
Louisiana State University	University of Washington
University of Chicago	Columbia University (NY) - College of
University of Cincinnati	Physicians and Surgeons - Chase Lecturer
University of Alabama	University of Pennsylvania
University of Texas (Houston)	Hadassah University
Huffington Professorship	UCLA
University of New Mexico	Wayne State University
University of West Virginia - AOA Lecturer	Cleveland Clinic - Guy Williams Lecturer
University of Massachusetts	Mayo Clinic
Dartmouth Medical School	Yale University
University of Maryland	Bass Lecturer-Society of Neurosurgeons
	Emory University

CONSULTANT

National

Institute of Medicine (IOM) – Task Force on Persistent Vegetative State, 2005
 Working Group on Presidential Disability and the 25th Amendment - 1996
 National Academy of Social Insurance - Restructuring Medicare 1996-
 Governor's Panel of Health Advisors (Colorado), 1993-1995
 Physician Payment Review Commission - Restructuring the Workforce 1995
 Department of Education: RSA and NIDRR, - 1988
 FDA - Neurological Device Section, 1983-1989
 U.S. Attorney's Office, 1980-1981
 Medical Advisory Board, Colorado Department of Motor Vehicle, 1988-1994
 National Science Foundation - International Programs, 1983
 National Easter Seal Society, Professional Advisory Council, 1981-1986

Local

Denver Health Medical Center, 1976-
 Rose Medical Center, 1976-1998
 Denver Veteran's Administration Hospital, 1976-

Pueblo State Hospital, 1976-1990
 Fort Lyons Veteran's Administration Hospital, 1976-1984
 Colorado Foundation for Medical Care, 1978-
 ALS Association – Colorado Chapter 1996-
 Myasthenia Gravis Foundation - Colorado State Chapter - Medical Advisory Board, 1985-
 Dystonia Medical Research Foundation - Colorado Chapter, Scientific Advisory Board, 1986-1988

PROFESSIONAL SOCIETY MEMBERSHIPS

American Academy of Neurology – Fellow; Honorary member
 President 1997-1999
 Board of Directors – 1987-91; 1995-01; 2003-
 AAN Enterprises-Board of Directors, 1999- ; Chair 2001-
 President-Elect, 1995-1997
 Assistant Secretary-Treasurer, 1987-1988
 Treasurer, 1989-1991
 Continuing Medical Education Committee, 1981-1986
 Section on Neurorehabilitation, 1984-
 Legislative Affairs Committee, 1989 - Chairman, 1993-1995
 Finance and Audit Committee - Chairman, 1987-1991; 1995-2001
 Executive Committee, 1987-1991; 1995-
 Essay Award Subcommittee, 1978-1981
 Human Resources Subcommittee - Chairman, 1989-1993
 AAN Education and Research Foundation Board of Directors, 1992-1994; 1995-2001
 Annual Meeting Management Committee - Chairman, 1991-1993; 1995-
 Practice Committee, 1993-1998
 Decade of Brain Subcommittee, 1992-1994
 Continuum - Board 1993-1999
 Workforce Task Force, 1994
 Denver Medical Society
 Public Health Committee, 1985-1986
 Central Society for Neurological Research
 Colorado Neurological Society
 Federation of Western Societies of Neurological Science
 American Neurological Association – 1982
 Legislative Committee
 Long Range Planning Committee
 Outcomes Symposium Planning Committee
 Association of University Professors of Neurology, 1983-1985; Liaison, 1993-1999
 American Medical Association – Specialty Advisory Committee 1998 -1999
 Leadership Council of Neurologic Societies (LCNS) 1996- (Chairman, 1998-)
 American Society for Experimental Neurotherapeutics, 1998-2007
 Membership Committee-Chairman
 Board of Directors, 1999-2003

UNIVERSITY OF COLORADO HEALTH SCIENCES CENTER COMMITTEES

UNIVERSITY-WIDE

UCDenver-UCHSC merger advisory committee 2005
 University Presidential Search Committee – 2007-8

UPI (University Physicians, Inc.)

Search Committee, Executive Director, 1990-1991
 Management Committee, 1984-85; 1987-1991
 First Vice President, 1987-1990; 1999-2003
 Chairman, Clinical Practice Committee, 1987-1990; Member 1987-
 Ambulatory Care Planning - Chairman, Finance Committee, 1989

UNIVERSITY OF COLORADO HOSPITAL

Medical Board, 1987-1990; 1995- President, 2003-2006
 University of Colorado Hospital Board of Directors 2003-2006
 Clinical Effectiveness and Patient Safety Committee 1997- Chair 2001-
 Resource Management and Patient Safety Committee- 1987-
 Clinical Informatics Committee 2006-
 Quality, Safety and effectiveness Grant Program – Chair 2007-
 Clinical Improvement Plan (Chairman), 1996- 2000
 Utilization Management Steering Committee-Chairman, 1999-
 Capitation Implementation Task Force, 1994-1996
 University Consortium, Clinical Evaluation Sciences Council, 1994-
 TSI Executive Steering Committee, 1994-1995
 Education and Research Committee, UCH Board 1994-2003
 Budget and Finance Committee, UCH Board 2003-
 Clinical Resource Management Committee, 1994-1997
 Pharmacy & Therapeutics Committee, 1994-1999
 Hospital Program Planning Committee, 1992-1996
 Ambulatory Care Governance Committee, 1989-1991
 Clinical Enrichment Advisory Council, 1989-1991
 New Programs Committee, 1989
 Prospective Payment Committee, 1983-1989
 Chairman, Clinical Enrichment Committee, 1986-1987
 Ambulatory Care Reorganization Task Force, 1985-1986
 Magnetic Resonance Advisory Committee, 1985-1986

SCHOOL OF MEDICINE

Commencement Committee, 1989-1994; Marshall, Commencement 1993
 Long Range Planning - Multispecialty Group Practice, Chairman 1989 -1993
 Planning and Fiscal Policy Committee, 1986-1988
 Interdepartmental Neuroscience Advisory Committee 1985
 Faculty Advisor to medical students, 1978-
 Dean's Committee, VAMC 1983-1985
 Executive Committee, 1983-1985
 Search Committee - PM&R 1983-1985; 1997 (Chairman)
 Search Committee – Colorado Health Outcomes Program, 1998
 Curriculum Committee, 1978-1984
 PM&R Strategic Planning Committee, 1982
 AAMC Accreditation Committee, 1979
 Chairman, Dean's Committee to Evaluate Curriculum and Promotions, 1978

DEPARTMENT OF NEUROLOGY

Clinical Faculty Promotions Committee-Chairman, 1990-
 Quality and Outcomes Committee-Chairman, 1988-
 Tenure Review Committee-Chairman, 1994-

EDITORIAL BOARD

Current Treatment in Neurology – Founding Editor, 1998-2003
 Neurology Today – Founding Associate Editor-in-chief 2001-
 Cardiomyology, 1983-
 Neurorehabilitation, 1986-1998
 Neurology Forum, 1988-96
 Neuromuscular Disorders - Associate Editor, 1990-1994

COURSE DIRECTOR

American Academy of Neurology - Neurorehabilitation, 1984-1989; Health Issues, 1990-1994

Neuroanatomy-Neurology (IDPT 513) Co-Director, 1983-1988
Research Methods in Neurology (IDPT 561) Director, 1979-1981
Town Hall Forum, 1995-2002

CURRENT RESEARCH INTERESTS

Health Policy for Neurologists
Practice Patterns; Cost Effectiveness; Outcomes Research
Neuromuscular Disorders - Multiuniversity ALS Therapeutic Trials

PUBLICATIONS

1. Klawans HL, Jr, Ringel SP: Observations on the efficacy of L-Dopa in progressive supranuclear palsy. *Eur Neurol* 5:115-129, 1971.
2. Klawans JL Jr, Ilahi MM, Ringel SP: Toward an understanding of the pathophysiology of Huntington's Chorea. *Confin Neuro* 33:297-303, 1971.
3. Klawans HL Jr, Ringel SP, Shenker DM: Failure of vitamin B₆ to reverse the L-Dopa effect in patients on a Dopa decarboxylase inhibitor. *J Neurol Neurosurg Psychiatr* 34:682-686, 1971.
4. Ringel SP, Klawans HL, Jr: Differentiation of tardive dyskinesias and drug-induced Parkinsonism. *NEJM* 284:1382-1383, 1971.
5. Klawans HL, Ringe SP, Shenker DM: L-Dopa, alphamethyldopahydrazine and B₆. Failure of interaction. *Neurology* 22:417-418, 1972. (Abstract)
6. Ringel SP, Klawans HL, Jr: Carbon monoxide-induced Parkinsonism. *J Neuro Sci* 16:245-251, 1972.
7. Ringel SP, Bailey OT: Rathke's cleft cyst. *Neuro, Neurosurg, Psychiatr* 25:693-697, 1972.
8. Klawans HL Jr, Rubovits R, Ringe, SP, Weiner WJ: Observations on the use of methysergide in Huntington's chorea. *Neurology* 22:929-933, 1972.
9. Klawans HL Jr, Paulson GW, Ringel SP, Barbeau A: Use of L-Dopa in the detection of presymptomatic Huntington's chorea. *NEJM* 286:1332-1334, 1972.
10. Weiner WJ, Goetz C, Ringel SP, Klawans HL Jr: Hyperthyroid induced dopamine hypersensitivity and the pathophysiology of the hyperthyroid chorea. *Neurology* 34:477, 1973. (Abstract)
11. Ringel SP, Guthrie M, Klawans HL Jr: Current treatment of Huntington's chorea. In Advances in Neurology 1, (A. Barbeau, Ed.), Raven Press, New York, 1973.
12. Ringel SP, Weiner WJ, Rubovits R, Klawans HL Jr: Methysergide in Huntington's chorea. In Advances in Neurology 1, (A. Barbeau, Ed.), Raven Press, New York, 1973.

13. Klawans HL Jr, Paulson GW, Ringel SP, Barbeau A: The use of L-Dopa in the presymptomatic detection of Huntington's chorea. In Advances in Neurology 1, (A. Barbeau, Ed.) Raven Press, New York, 1973.
14. Klawans HL Jr, and Ringel SP: L-Dopa, B₆, and methyldopa. Conf Neurol 35:186-192, 1973.
15. Klawans HL Jr, Ringel SP: A clinical study of methysergide in Parkinsonism: evidence against a sertonergic mechanism. J Neurol Sci 19:399-405, 1973.
16. Ringel SP, Bender AN, Engel WK: A sequential study of denervation: ultrastructural immunoperoxidase localization of alphabungarotoxin binding. Arch Neurol 32:350, 1975. (Abstract)
17. Bender AN, Ringel SP, Engel WK, Vogel Z, Daniels MP: Denervated skeletal muscle fibers identifiable by a new technique. Localization of alpha-bungarotoxin binding. Neurology 25:373, 1975.(Abstract)

18. Ringel SP, Bender AN, Festoff B, Engel WK, Vogel Z, Daniels MP: Ultrastructural demonstration and analytical application of extrajunctional receptors of denervated human and rat skeletal muscle. *Nature* 255:730-731, 1975.
19. Bender AN, Ringel SP, Engel WK, Daniels MP, Vogel Z: Myasthenia gravis: A serum factor binding acetylcholine receptors of the human neuromuscular junction. *Lancet* 1:607-609, 1975.
20. Ringel SP, Bender AN, Engel WK, Smith HJ: Myasthenia gravis: Relationship of a serum factor blocking acetylcholine receptors and anti-striated muscle antibody. *Lancet* 1:1388, 1975.
21. Ringel SP, Bender AN, Engel WK, Daniels MP, Vogel Z: A sequential study of denervation-ultrastructural immunoperoxidase localization of alpha-bungarotoxin. *Trans Am Neurol Assoc* 100:52-56, 1975.
22. Ringel SP, Engel WK, Bender AN, Peters ND, Yee RD: Comparison of acetylcholine receptor distribution and muscle histochemistry in normal and denervated monkey extraocular muscles. *Neurology* 26:382-383, 1976.(Abstract)
23. Trotter JL, Ringel SP, Cook JD, Engel WK, Eldefrawi ME, McFarlin DE: Experimental autoimmune myasthenia: morphologic and immunologic studies. *Neurology* 26:383, 1976.(Abstract)
24. Askanas V, Engel WK, Ringel SP, Bender AN: Acetylcholine receptors in aneurally cultured human and animal skeletal muscle fibers. *Neurology* 26:348, 1976.(Abstract)
25. Bender AN, Ringel SP, Engel WK, Vogel Z, Daniels MP: Immunoperoxidase localization of alpha-bungarotoxin binding--a new approach to the study of myasthenia gravis. *Ann NY Acad Sci* 275:20-30, 1976.
26. Bender AN, Ringel SP, Engel WK: The acetylcholine receptors in normal and pathological states: immunoperoxidase visualization of alpha-bungarotoxin binding at a light and electronmicroscopic level. *Neurology* 26:477-483, 1976.
27. Gershwin ME, Glinski W, Bender AN, Ringel SP, Steinberg AD, Engel WK: Antibodies to nucleic acids in myasthenia gravis. *Int Arch of Allergy and Applied Immuno* 51:245-252, 1976.
28. Ringel SP, Bender AN, Engel WK: Extrajunctional acetylcholine receptors on myogenously de-innervated muscle fibers. *J Histochem and Cytochem* 24:1033-1034, 1976.
29. Ringel SP, Bender AN, Engel WK: Extrajunctional acetylcholine receptors. Alterations in human and experimental neuromuscular diseases. *Arch Neurol* 33:751-758, 1976.
30. Ringel SP, Neville HE, Duster MC, Carroll JE: A new congenital neuromuscular disease with trilaminar fibers. *Neurology* 27:347, 1977.(Abstract)
31. Solomons CC, Ringel SP, Suga H: Purine metabolism in red blood cells of Duchenne dystrophy. *Neurology* 27:349, 1977.(Abstract)
32. Neville HE, Ringel SP, Duster MC, Carroll JC: Trilaminar fibers -- muscle biopsy findings in a new neuromuscular disorder. 11th World Congress of Neurology. September 16, 1977.(Abstract)
33. Askanas V, Engel WK, Ringel SP, Bender AN: Acetylcholine receptors of aneurally cultured human and animal muscle. *Neurology* 27:1019-1022, 1977.
34. Ringel SP, Harrison SH, Norenberg MD, Austin JH: Fibromuscular dysplasia: multiple "spontaneous" dissection aneurysms of the major cervical arteries. Case Report. *Ann Neuro* 1:301-304, 1977.
35. Trotter JL, Ringel SP, Cook JD, Engel WK, Eldefrawi MD, McFarlin DE: Morphological and immunological studies in experimental autoimmune myasthenia gravis (EAMG) and myasthenia

- gravis (MG). *Neurology* 27:1120-1124, 1977.
36. Ringel SP, Carroll JE, Schold C: The spectrum of mild X-linked recessive (Becker) dystrophy. *Arch Neurol* 34:408-416, 1977.
 37. Solomons CC, Ringel SP, Nwuke EI, Suga H: Abnormal adenine metabolism of erythrocyte in Duchenne and myotonic dystrophy. *Nature* 268:55-56, 1977.
 38. Ringel SP, Thorne EG, Kohler PF, Phanuphak P, Lava NS: Polymyositis and Waldenstrom's hypergammaglobulinemic purpura. Evidence for an immune complex vasculitis. *Neurology* 28:368, 1978.(Abstract)
 39. Solomons CC, Ringel SP, Nwuke EI, Suga H: Abnormal adenine metabolism of erythrocytes in Duchenne and myotonic dystrophy. *Transaction of Orthopedic Research Society* 3:44, 1978.(Abstract)
 40. Ringel SP, Wilson WB, Barden MT: Extraocular muscle biopsy: techniques in the study of progressive external ophthalmoplegia. IVth International Congress of Neuromuscular Diseases. Presented September 20, 1978, Montreal.(Abstract)
 41. Wilson WB, Ringel SP: Human extraocular muscle biopsy in progressive external ophthalmoplegia. *Proceedings of ARVO Meeting*, May 1978, Sarasota, Florida. (Abstract)
 42. Ringel SP, Bender AN, Engel WK, Peters ND, Yee RD: Histochemistry and acetylcholine receptor distribution in normal and denervated monkey extraocular muscles. *Neurology* 28:55-63, 1978.
 43. Ringel SP, Wilson WB, Barden MT, Kaiser KK: Histochemistry of human extraocular muscle. *Arch Ophth* 96:1067-1072, 1978.
 44. Ringel SP, Neville HE, Duster MC, Carroll JE: A new congenital neuromuscular disease with trilaminar fibers. *Neurology* 28:282-289, 1978.
 45. Ringel SP, Lava NS, Treihaft MC, Lubs ML, Lubs HA: Late onset X-linked recessive spinal and bulbar muscular atrophy. *Muscle and Nerve* 1:297-307, 1978.
 46. Lopez LR, Schocket AL, Ringel SP, Claman HN, Kohler PF: Effect of plasmapheresis in hypergammaglobulinemic purpura of Waldenstrom associated with polymyositis. *J Allergy and Clin Immun* 63:183, 1979.(Abstract)
 47. Lava NS, McVicker J, Ringel SP, Mittag TW: D-penicillamine induced neuromuscular disease in guinea pigs. *Neurology* 29:564, 1979.(Abstract)
 48. Carry MR, Ringel SP, Barden MT, Wilson WB: Electronmicroscopy features of human extraocular muscle. *Neurology* 29:571, 1979.(Abstract)
 49. Carroll JE, Brooke MH, Shumate J, DeVivo DC, Ringel SP: Failure of carnitine administration in carnitine deficiency. *Neurology* 29:593-594, 1979.(Abstract)
 50. Austin JH, Burks J, Earnest MP, Hoehn MM, Lewin ED, Lewis, JA, Quintero, PS, Ringel, SP, Schneck, SA,Wilson, WB, Yarnell, PP: Neurology, chapter 7, pp 270-309, In Clinical Internal Medicine, Reller LB, Sahn SA, Schrier RW (eds), Little Brown, and Company, 1979, Boston.
 51. Brooke MH, Carroll JE, Ringel SP: Congenital hypotonia revisited. *Muscle and Nerve* 2:84-100, 1979.

52. Ringel SP: Clinical presentations of neuromuscular disease. In Handbook of Clinical Neurology, Volume 40: Diseases of Muscle - Part I. Vinken, P, Bruyn, G, Ringel, SP (eds). North Holland Publishing Co. (Amsterdam), chapter 8, pp 295-348, 1979.
53. Ringel SP, Thorne EG, Phanuphak P, Lava NS, Kohler PS: Immune complex vasculitis, polymyositis, and hyperglobulinemic purpura. *Neurology* 29:682-689, 1979.
54. Ringel SP, Wilson WB, Barden MT: Extraocular muscle biopsy in chronic progressive external ophthalmoplegia. *Ann Neurol* 6:326-339, 1979.
55. Ringel SP, Forstot JZ, Butcher D, Wehling C, Griggs RC, Tan EM: Sjogren's syndrome and polymyositis. *Neurology* 30:424, 1980.(Abstract)
56. Craven C, Reddy PK, Ringel SP, Rutherford RB: Effect of prednisone with thymus in myasthenia gravis. *Neurology* 30:411, 1980.(Abstract)
57. Neville HE, Ringel SP, Guggenheim MA, Wehling C: Histochemical and ultrastructural abnormalities of muscle in a patient with chronic vitamin E deficiency. *Neurology* 30:404, 1980.(Abstract)
58. Ringel SP: Randomized double-blind, placebo-controlled trials of orgotein (superoxide dismutase) in Duchenne muscular dystrophy. International Symposium on Muscular Dystrophy Research, Venice, Italy. April 12, 1980.(Abstract)
59. McCabe ERB, Bullen WW, Bergen BJ, Ringel SP, Eilert R: Profiling of phosphorylated metabolic intermediates in human muscle biopsies. *Pediatric Research* 14:634, 1980.(Abstract)
60. Ringel SP, Carroll JE: Respiratory dysfunction of neuromuscular disease. In Respiratory Dysfunctions of Neurological Diseases, Futura Press, 1980, pp 113-156.
61. Bergen BJ, Carry MR, Wilson WB, Barden MT, Ringel SP: Centronuclear myopathy: Extraocular and limb muscle findings in an adult. *Muscle and Nerve* 3:165-171, 1980.
62. Guggenheim MA, McCabe ERB, Roig M, Goodman SI, Lum GM, Bullen WW, Ringel SP: Glycerol kinase deficiency with neuromuscular, skeletal, and adrenal abnormalities. *Annals of Neurology* 7:441-449, 1980.
63. Carroll JE, Brooke MH, DeVivo DC, Shumate JB, Kratz R, Ringel SP, and Hagberg JM: Carnitine deficiency: lack of response to carnitine therapy. *Neurology* 30:618-626, 1980.
64. Ringel SP, Stern LZ, Menander KB, Ziter FA, Lava NS, Ionesescu V, Pellegrino RJ, Snyder RD, Allsop KG: Randomized, double-blind, placebo-controlled trial of Ontosein (superoxide dismutase) in Duchenne muscular dystrophy. In Proceedings of International Symposium on Muscular Dystrophy Research. Advances and New Trends, Venice, Italy, April 10-12, 1980. Excerpta Medica.
65. Guggenheim MA, Silverman A, Ringel SP, Grabert BE, Neville HE: Progressive neuromuscular disease in children with chronic vitamin E deficiency: diagnosis and treatment with parenteral alpha-tocopherol. Presented at the New York Acad of Sciences, 1981.(Abstract)
66. Sufit RL, Barden MT, Ringel SP, Tan EN: Antibodies in inflammatory myopathies. *Ann Neurology* 10:83, 1981.(Abstract)
67. Ringel SP: A holistic approach to neuromuscular disease. *Arch Found Thanatology* 9/4:2, 1981. (Abstract)

68. Sufit RL, Barden MT, Ringel SP, Tan EN: Antibodies in inflammatory myopathies. *Trans Am Neurol Assoc* 106:136-138, 1981.
69. Woodward JB, Ringel SP: Diseases of the lower motor neuron. *Neurology for the Nonneurologist*. Weiner, WJ, Goetz, CG (eds). Harper and Row (Philadelphia), chapter 19, pp 284-317, 1981.
70. Craven C, Reddy PK, Ringel SP, Rutherford, RB: Myasthenia gravis: effect of prednisone on thymus structure. *Muscle and Nerve* 4:425-528, 1981.
71. Jackson CGR, Dickinson AW, Ringel SP, Barden MT: Muscular cellular alterations following two modes of training in the same individual. Presented at the American College of Sports Medicine, 1982. *Medicine and Science in Sports and Exercise* 14 #2:141, 1982.(Abstract)
72. Ringel SP, Simon DB, Sufit RL: Fasciitis: clinical spectrum and relationship to myositis. Vth International Congress on Neuromuscular Disease, 1982.(Abstract)
73. Ringel SP, Woodward JB, Heaton RK: Higher cortical deficits in myotonic dystrophy. Vth International Congress on Neuromuscular Diseases, 1982.(Abstract)
74. Ringel SP, Sufit RL, Barden MT: Immunopathology of the inflammatory myopathies. Vth International Congress on Neuromuscular Diseases, 1982.(Abstract)
75. Neville HE, Lacy JR, Simon DB, Ringel SP: Electrodiagnostic and nerve biopsy findings in inclusion body myositis. Vth International Congress on Neuromuscular Diseases, 1982.(Abstract)
76. Stern LZ, Ringel SP, Ziter FA, Menander-Huber KB, Ionesescu V, Pellegrino RJ, Snyder RD: Drug trial of superoxidase dismutase in Duchenne's muscular dystrophy. *Archives of Neurology* 39:342-346, 1982.
77. Ringel SP, Forstot JZ, Tan EM, Wehling C, Griggs RC, Butcher D: Sjogren's syndrome and polymyositis or dermatomyositis. *Archives of Neurology* 39:157-163, 1982.
78. Guggenheim MA, Ringel SP, Silverman AS, Grabert BA: Progressive neuromuscular disease in children with chronic cholestasis and vitamin E deficiency: diagnosis and treatment with alphatocopherol. *J Peds* 100:1,51-58, 1982.
79. Ringel SP, Claman HN: Amyloid associated muscle pseudohypertrophy. *Archives of Neurology* 39:413-417, 1982.
80. Woodward WB, Heaton RK, Simon DB, and Ringel SP: Neuropsychological defects in myotonic dystrophy. *J of Clin Neuropsych* 4,#4:335-342, 1982.
81. McVicker JH, Lava NS, Mittag TW, Ringel SP: D-pencillamine induced neuromuscular disease in guinea pigs. *Experimental Neurology* 76:46-57, 1982.
82. Guggenheim MA, Ringel SP, Silverman A, Grabert BE, Neville HE: Progressive neuromusculaur disease in children with chronic cholestasis and vitamin E deficiency: clinical and muscle biopsy findings and treatment with alphatocopherol. *Ann NY Acad Sci* 393:84-95, 1982.
83. Carry MR, O'Keefe K, Ringel SP: Histochemistry of mouse extraocular muscle. *Anat Embryol* 164:403-412, 1982.
84. Ringel SP: A holistic approach to neuromuscular disease. *Arch Found Thanatology*, 1982.
85. Heiser JC, Rutherford RB, Ringel SP: Thymectomy for myasthenia gravis: A changing perspective. *Archives of Surgery* 117/5:533-537, 1982.
86. Simon DB, Ringel SP, Sufit RL: Clinical spectrum of fascial inflammation. *Muscle and Nerve* 5:525-537, 1982.

87. Jackson CGR, Dickinson AW, Ringel SP: Cellular muscle area alterations following two modes of resistance exercise training in the same individual. Medicine and Science in Sports and Exercise 15,#2:136, 1983.(Abstract)
88. Dickinson AL, Jackson CGR, Layne DL, Ringel SP: The effect of different sequences of high and low intensity resistance exercise on muscular performance and cellular change. Med and Science in Sports and Exercise 15,#2:154, 1983.(Abstract)
89. Ringel SP: Immunopathology of the inflammatory myopathies. Acta Neurological 298-299, 1983.(Abstract)
90. Angelini C, Ringel SP, Armani M, Vergani L, Salviati G, Pierobon S, Betto R, Damiani E, Margreth A: Dominantly inherited myopathy with tubular aggregates. Acta Neurologica (Italia) 19th Annual Meeting, May 27, 1983.(Abstract)
91. Armagast SJ, Ringel SP, Martin RJ: The effects of dichlorphenamide on sleep apnea in patients with myotonic dystrophy. Clin Res 31:70A, 1983.(Abstract)
92. Wolfel EE, Hiatt WR, Carry MR, Travis V, Brammell HL, Ringel SP, Horwitz LD: Beta-receptor blockade attenuates peripheral mechanisms in exercise conditioning. Circulation 68(III):377, 1983.(Abstract)
93. Simon DB, Ringel SP, and Lacy JR: Acute management of neuromuscular diseases. In Neurological Emergencies. Earnest, MP (ed), Churchill Livingstone, Chapter 10, pp 219-258, 1983.
94. Ringel SP, Simon DB: Practical management of neuromuscular diseases in the elderly. Geriatrics 38, #6:86-92, 1983.
95. Angelini C, Ringel SP: Trial terapeutico multicentrico Italiano nella distrofia muscolare di Duchenne. In Muscular Dystrophy: Facts and Perspectives. Modena, 1983.
96. Ringel SP: Inflammatory myopathies: immunologic heterogeneity and treatment. Cardiomyology 1:48-65, 1983.
97. Martin RJ, Sufit RL, Ringel SP, Hudgel DW, Hill PL: Respiratory improvement by muscle training in adult-onset acid maltase deficiency. Muscle & Nerve 6:201-203, 1983.
98. Neville HE, Ringel SP, Guggenheim MA, Wehling CA, Starcevich JM: Ultrastructural and histochemical abnormalities of skeletal muscle in patients with chronic vitamin E deficiency. Neurology 33:483-488, 1983.
99. Thompson DS, Woodward JB, Ringel SP, Nelson LM: Evoked potential abnormalities in myotonic dystrophy. EEG and Clinical Neurophys 56:453-456, 1983.
100. Trevisan CP, Micaglio G, Baron C, Ringel SP, Angelini C: Muscle strength evaluation by a dynamometer in Duchenne muscular dystrophy: preliminary results in 28 patients. Cardiomyology 1:119-125, 1983.
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