

CURRICULUM VITAE

FRANKLIN DENNIS McCOOL, M.D.

PERSONAL INFORMATION

Business Address: Memorial Hospital of RI
111 Brewster Street
Pawtucket, RI 02860

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EDUCATION

Boston College, Chestnut Hill, MA, 1968-72
B.S. in Chemistry
Magna Cum Laude
Phi Beta Kappa

Saint Louis University School of Medicine, Saint Louis, MO, 1972-76,
M.D.
Cum Laude
Alpha Omega Alpha

POSTGRADUATE TRAINING

Internship: Internal Medicine, Rhode Island Hospital, Providence, RI
July 1976 - June 1977

Residency: Internal Medicine, Rhode Island Hospital, Providence, RI
July 1977 - June 1979

Fellowship: Pulmonary Disease Unit, Strong Memorial Hospital, University of Rochester, Rochester, NY
July 1979 - June 1981

POSTGRADUATE HONORS, AND AWARDS

American Lung Association - Edward Livingston Trudeau Scholar Award: 1985

Editor-in-Chief, LUNG: 2003 – present

Brown University Medical School, Dean's Teaching Excellence Award: 2004

Leader, People to People Pulmonary Critical Care Delegation to China and Mongolia 2006

PROFESSIONAL LICENSES AND BOARD CERTIFICATION

Diplomate of the American Board of Internal Medicine, 1979

Diplomate Subspecialty Board of Pulmonary Medicine, 1982

Diplomate Subspecialty Board of Critical Care Medicine, 1989

State of Rhode Island Medical License No. 5869, 1981

State of New York Medical License No. 143413, 1979

ACADEMIC APPOINTMENTS

Instructor in Medicine, Brown University, 1981-1982

Assistant Professor of Medicine, Brown University, 1982-1988

Research Associate, Respiratory Biology, Harvard University, 1987-

Associate Professor of Medicine, Brown University, 1989-2001

Professor of Medicine, Brown University, 2001-

HOSPITAL APPOINTMENTS

Attending Physician, Memorial Hospital of RI, 1981-

Medical Director, Respiratory Care, Memorial Hospital of RI, 1981-

Director, Pulmonary Fellowship Program, Memorial Hospital of RI, 1982-1983

Director, Sleep Laboratory, Memorial Hospital of RI, 1998-

Chief, Pulmonary Critical Care Division, Memorial Hospital of RI, 2000-

OTHER APPOINTMENTS

Editor in Chief, LUNG, 2003-

Board of Directors, RI Lung Association, 1987-

Editorial reviewer, *Journal of Applied Physiology*, 1985-

Editorial reviewer, *Chest*, 1985-

Editorial reviewer, *American Review of Respiratory Disease*, 1985-1993

Editorial reviewer, *American Journal of Respiratory and Critical Care Medicine (formerly American Review of Respiratory Disease)* 1994 -

Reviewer, VA Merit Review

Reviewer, VA Associate Investigator Award

Reviewer, VA Proposals for the Competitive Selection of Candidates for Postdoctoral Fellowships in Spinal Cord Medicine, 1992

Reviewer, ATS position paper on Lung Volume Reduction Surgery, 3/96

Reviewer, ATS position paper on Imaging Respiratory Muscles, 9/98

RI Governor, Eastern Section American Thoracic Society, 1990

Member, NIH Inspiratory Muscle Training Working Group, 1987

Member, NIH Workshop on Respiratory Muscle Fatigue, 1988

Member, NIH Workshop on Lung Volume Reduction Surgery, 1995

Member, Consensus Panel on Managing Cough. American College of Chest Physicians, 1995-1996

Member, Consensus Panel on Managing Cough. American College of Chest Physicians, 2004-2005

Member, State of RI Dept. of Environmental Management SO₂ Task Force, 1989-1990

Member, Program Committee, Eastern Section American Thoracic Society, 1986-1990

Member, Program Committee, Respiratory Structure and Function, American Thoracic Society, 1992-

Co-Chairman, Symposium on Chest Wall Mechanics, American Thoracic Society Annual International Conference, San Francisco, CA, 5/93

Co-Chairman, Symposium on Respiratory Muscle Fatigue, American Thoracic Society Annual International Conference, Boston, MA, 5/94

Co-Chairman, Symposia on the Clinical Evaluation of Respiratory Muscle Function, American Thoracic Society Annual International Conference, Seattle, Washington, 5/95

Co-Chairman, Symposia on Respiratory Muscles: Training and Rehabilitation. ALA/ATS International Conference, San Francisco, CA, 5/97

Co-Chairman, Symposia on Respiratory Muscle Assessment. ALA/ATS International Conference, Chicago, IL 4/98

Co-Chairman, Symposia on Respiratory Muscles: Contractile Function and Fatigue. ALA/ATS International Conference, San Diego, CA 4/99

Co-Chairman, Symposium on Respiratory Muscle Performance. ALA/ATS Meeting, San Diego, CA, 4/99

Visiting Professor. Chicago Medical School, Chicago, IL, 3/93

Visiting Professor. University of New Mexico Medical School, Albuquerque, NM, 4/93

Visiting Professor. Washington University, St. Louis, MO, 9/94

Visiting Professor. Ohio State University, Columbus, OH, 1/95

Visiting Professor. Onassis Cardiac Center, Athens, Greece, 10/95

Visiting Professor. Temple University, Philadelphia, PA, 8/96

Visiting Professor. University of Arizona Speech and Hearing Center, Tucson, AZ, 5/2000

Delegate, People to People Pulmonary Critical Care Delegation to China, 10/2001

Delegate, People to People Pulmonary Critical Care Delegation to South Africa, 11/2004

Leader, People to People Pulmonary Critical Care Delegation to China and Mongolia, 4/2006

HOSPITAL COMMITTEES

Radioisotope Committee, 1981

ICU/CCU Advisory Committee, 1981-1991, Acting Chairman, 1985-1986

Pharmacy Committee, 1981-1993, Chairman, 1982-1989

Chief's Committee, 1981-

Patient Care Committee, 1982

Cardiology Search Committee, 1982-1983

Infectious Disease Search Committee, 1983-1984

Clinical Competency Committee, 1985-1991

Animal Care Committee, 1985-1993

Pulmonary Disease Search Committee, 1989-1990

Pulmonary Disease Search Committee, 1993-1994

Respiratory CQI Project Team Co-Leader, 1993-1995

Pharmacy Committee, 1994-

Medical Quality Assessment and Assurance Committee 1994-1995

Invasive Procedures Committee, 1994-1995

Medical Performance Improvement Committee 1995-1997

UNIVERSITY COMMITTEES

Brown University:

Ad Hoc Committee (Evaluation of the 3-track faculty system), 1982-1983

Ad Hoc Committee (Liberal Medical Education Curriculum), 1982-1983

Promotion Committee, 2003-

MEMBERSHIP IN SOCIETIES

American Thoracic Society, 1982-

Rhode Island Thoracic Society, 1982-

American College of Chest Physicians - Fellow, 1983-

American Federation for Clinical Research, 1983-1990

Eastern Section American Thoracic Society, 1983-1990

Rhode Island Medical Association, 1983-

American Physiological Society, 1988-

Pawtucket Medical Society, 1982-

PUBLICATIONS (PEER REVIEWED)

1. McCool, F.D., J.P. Zorn and M.D. Marin. Effect of ethanol on ion-transport and electrical properties of dog trachea, In Vitro. *J Appl Physiol* 54(5):1335-1339, 1983.
2. McCool, F.D., S.H. Loring and J. Mead. Rib cage distortion during voluntary and involuntary breathing acts. *J Appl Physiol* 58(5):1703-1712, 1985.
3. McCool, F.D., and D.E. Leith. Mean airway opening pressure as an index of inspiratory muscle task intensity during loaded ventilation. *J Appl Physiol* 60(1):304-306, 1986.
4. McCool, F.D., D. R. McCann, D.E. Leith, and F.G. Hoppin, Jr. Pressure-flow effects on endurance of inspiratory muscles. *J Appl Physiol* 60(1):299-303, 1986.
5. McCool, F.D., B.M. Pichurco, A.S. Slutsky, M. Sarkarati, A. Rossier, and R. Brown. Changes in lung volume and rib cage configuration with abdominal binding in quadriplegia. *J Appl Physiol* 60(4):1198-1202, 1986.
6. McCool, F.D., K.B. Kelly, S.H. Loring, I.A. Greaves and J. Mead. Estimates of ventilation from body surface measurements in unrestrained subjects. *J Appl Physiol* 61(3):1114-1119, 1986.
7. McCool, F.D., R.J. Mayewski, D.S. Shayne, C.J. Gibson, R.C. Griggs and R.W. Hyde. Intermittent positive pressure breathing in patients with respiratory muscle weakness: Alterations in total respiratory system compliance. *Chest* 90(4):546-552, 1986.
8. Tzelepis, G.E., F.D. McCool, D.E. Leith, and F.G. Hoppin, Jr. Influence of lung volume on inspiratory muscle endurance. *J Appl Phys* 64:1796-1802, 1988.
9. McCool, F.D., R. Brown, R.J. Mayewski, and R.W. Hyde. Effects of posture on stimulated ventilation in quadriplegia. *Am Rev Resp Dis* 138:101-106, 1988.

10. Tzelepis, G.E., F.D. McCool, J.H. Friedman, and F.G. Hoppin, Jr. Respiratory muscle dysfunction in Parkinson's disease. *Am Rev Resp Dis* 138:266-271, 1988.
11. McCool, F.D. and J. Mead. Dyspnea on immersion: Mechanisms in patients with bilateral diaphragm paralysis. *Am Rev Resp Dis* 39:275-276, 1989.
12. Hershenson, M.B., Y. Kikuchi, G.E. Tzelepis, and F.D. McCool. Preferential fatigue of the rib cage muscles during inspiratory resistive loaded ventilation. *J Appl Physiol* 66 (2):750-754, 1989.
13. Scanlon, P., S. Loring, B. Pichurko, F.D. McCool, A. Slutsky, M. Sarkarati, and R. Brown. Respiratory mechanics in acute quadriplegia: Lung and chest wall compliance and dimensional changes during respiratory maneuvers. *Am Rev Resp Dis* 139:615-620, 1989.
14. McCool, F.D., G.E. Tzelepis, D.E. Leith, and F.G. Hoppin, Jr. Oxygen cost of breathing during fatiguing inspiratory resistive loads. *J Appl Physiol* 66:2045-2055, 1989.
15. Tzelepis, G.E., F.D. McCool, and F.G. Hoppin, Jr. Chest wall distortion in patients with flail chest. *Am Rev Resp Dis* 140:31-37, 1989.
16. Paek, D., K.B. Kelly, and F.D. McCool. Postural effects on measurements of tidal volume from body surface displacements. *J Appl Physiol* 68:2482-2487, 1990.
17. McCool, F.D., G.E. Tzelepis, and J. Mead. Absence of a hemidiaphragm: Mechanical implications. *Lung* 169:87-96, 1991.
18. McCool, F.D., M.B. Hershenson, G.E. Tzelepis, Y. Kikuchi, and D.E. Leith. Effects of fatigue on maximal inspiratory pressure - flow capacity. *J Appl Physiol* 73:36-43, 1992.
19. Manning, H., F.D. McCool, S.M. Scharf, and R. Brown. Oxygen cost of resistive-loaded breathing in quadriplegia. *J Appl Physiol* 73(3):825-831, 1992.
20. Paek, D. and F.D. McCool. Breathing patterns during varied activities. *J Appl Physiol* 73(3):887-893, 1992.
21. McCool, F.D. and D. Paek. Measurements of ventilation in freely ranging subjects. *Health Effects Institute Research Report #59*: 1-17, 1993.
22. Tzelepis, G.E., D.L. Vega, M.E. Cohen, and F.D. McCool. Lung volume specificity of inspiratory muscle training. *J Appl Physiol* 77(2):789-794, 1994.
23. Tzelepis, G.E., D.L. Vega, M.E. Cohen, A. Fulambarker, K. Patel, and F.D. McCool. Pressure-flow specificity of inspiratory muscle training. *J Appl Physiol* 77(2):795-801, 1994.
24. McCool, F.D. and G.E. Tzelepis. Inspiratory muscle training in the patient with neuromuscular disease. *Phys. Ther.* 75:1006-1114, 1995.
25. Tzelepis, G.E., Nasiff, L., McCool, F.D., and J. Hammond. Transmission of pressure within the abdomen. *J Appl Physiol* 81(3): 1111-1114, 1996.
26. Hill, N.S., Mehta, S., Carlisle, C.C., and F.D. McCool. Evaluation of the Puritan-Bennet 355 portable pressure support ventilator: Comparison with the Respironics BiPAP S/T. *Respir Care* 41(10):885-894, 1996.

27. McCool, F.D., J.O. Benditt, P. Conomos, L. Anderson, C.B. Sherman, and F.G. Hoppin Jr.. Variability of diaphragm structure among healthy individuals. *Am J of Resp and Crit Care Med* 155(4):1323-1328, 1997.
28. McCool, F.D., P. Conomos, J.O. Benditt, D. Cohn, C.B. Sherman, and F.G. Hoppin Jr. Maximal inspiratory pressures and dimensions of the diaphragm. *Am J of Resp and Crit Care Med* 155(4): 1329-1334, 1997.
29. Benditt, J.O., Klima, L.D., McCool, F.D., Lewis, S.L., Wood, D.E., and R.K. Albert. Changes in breathing and ventilatory muscle recruitment patterns induced by lung volume reduction surgery. *Am J of Resp and Crit Care Med* 155(1):279-284, 1997.
30. Gottesman, E and F. D. McCool. Ultrasound evaluation of the paralyzed diaphragm. *Am J of Resp and Crit Care Med* 155(5):1570-1574, 1997.
31. Cohn, D.B., J.O. Benditt, S.E. Eveloff, and F.D. McCool. Diaphragm thickening during inspiration. *J Appl. Physiol* 83(1):291-296, 1997.
32. Myers, T.J., M.R. Pressman, J. Benditt, F.D. McCool, R.D. Millman, and N.S. Hill. Air leaking through the mouth during nocturnal nasal ventilation: Effect on sleep quality. *Sleep* 20(7):561-569, 1997.
33. Ayas, N.T., F.D. McCool, R.L. Gore, S.L. Lieberman, and R. Brown. Prevention of diaphragm atrophy with brief periods of electrical stimulation. *Am J of Resp and Crit Care Med* 159:2018-2020, 1999.
34. Tzelepis, G.E., Kadas, V., and F.D. McCool. Inspiratory muscle adaptation following pressure or flow training. *Europ J of Appl Physiol and Occup Physiol* 79(6):467-71, 1999.
35. Al-Bilbeisi, F. and F.D. McCool. Diaphragm recruitment during nonrespiratory activities. *Am J of Resp and Crit Care Med* 162:456-459, 2000.
36. Rehan, V.K., Nakashima, J.M., Gutman, A., Rubin, L.P., and F.D. McCool. Effects of the supine and prone position on diaphragm thickness in healthy term infants. *Arch Dis of Childhood* 83(3):234-238, 2000.
37. Mehta, S., McCool, F.D., and N.S. Hill. Leak compensation in positive pressure ventilators – A lung model study. *Eur Respir J* 17(2):259-67, 2001.
38. Rehan, V.K., Laiprasert, J., Wallach, M., Rubin, L.P., and F.D. McCool. Diaphragm dimensions of the healthy preterm infant. *Pediatrics* 108(5):91-95, 2001.
39. Rehan, V.K., Laiprasert, J., Nakashima, J.M., Wallach, M., and F.D. McCool. Effects of continuous positive pressure on diaphragm dimensions in preterm infants. *J Perinatol* 21(8):521-524, 2001.
40. Parker, A.L. and F.D. McCool. Respiratory mechanics in a patient with massive subcutaneous emphysema. *Med Health of RI* 84(11): 369-71, 2001.
41. Parker, A.L. and F.D. McCool. Pulmonary function characteristics in patients with different patterns of methacholine airway hyperresponsiveness. *Chest* 121(6):1818-23, 2002.
42. McCool F.D., J. Wang and K. Ebi. Tidal volume and respiratory timing derived from a portable ventilation monitor. *Chest* 122(2): 684-91, 2002.
43. Stone, A.C., S. Nolan, M. Abu-Hijleh, F.D. McCool, N.S. Hill. A novel form of manually-assisted ventilation. *Chest* 123(3): 949-952, 2003.

44. Parker, A.L., M. Abu-Hijleh, and F.D. McCool. Ratio between forced expiratory flow between 25% and 75% of vital capacity and FVC is a determinant of airway reactivity and sensitivity to methacholine. *Chest* 124(1): 63-69, 2003.
45. Rehan, V.K. and F.D. McCool. Diaphragm dimensions of the healthy term infant. *Acta Paediatric* 92(9):1062-7, 2003.
46. DePalo, V.D., A.L. Parker, F. Al-Bilbeisi and F.D. McCool. Respiratory muscle strength training with non-respiratory maneuvers. *JAP* 96(2): 731-734, 2004.
47. Tzelepis G.E., I. Pavleas, A. Altarifi, Q. Omran and F.D. McCool. Expiratory effort enhancement and peak expiratory flow in humans. *Europ J of Appl Physiol*. 94: 11-16, 2005.
48. McCool, F.D. Global physiology and pathophysiology of cough. ACCP evidence-based clinical practice guidelines. *Chest* 129:48S-53S, 2006.
49. McCool, F.D. and Rosen M.J. Nonpharmacologic airway clearance therapies. ACCP evidence-based clinical practice guidelines. *Chest* 129:250S-259S, 2006.
50. Brown R., Pichurko B.M., Scanlon P.D., Loring S.H., Slutsky, A.S., Sarkarati M., Rossier, A.B. and F.D. McCool The Role of Respiratory Muscles in the Recovery of Respiratory Function in Acute Tetraplegia. *The Journal of Spinal Cord Medicine*. (In Press).

OTHER PUBLICATIONS

Case Reports:

1. Tzelepis, G.E., D.B. Ettensohn, B. Shapiro, and F.D. McCool. Unilateral absence of the diaphragm in an adult. *Chest* 94:1301-1303, 1988.
2. Bradburne, M.B., F.D. McCool, S. Opal, and D.B. Ettensohn. Bilateral upper lobe - Pneumocystis carinii pneumonia. *Thorax* 44:591-593, 1989.

Chapters:

1. McCool, F.D. and D.E. Leith. Pathophysiology of cough. *Clinics in Chest Medicine* 8(2):189-195, 1987.
2. Bradburne, R.M. and F.D. McCool. The respiratory muscles: Structural and functional considerations. In: Problems in Respiratory Care. Edited by Martin J. Tobin, J.B. Lippincott Co., 1990.
3. Eveloff, S.E. and F.D. McCool. Disorders of the chest wall: Implications for respiratory failure. In: Ventilatory Failure. Edited by J.J. Marini, C. Roussos. Berlin, Springer-Verlag, 219-239, 1991.
4. McCool, F.D. and D.F. Rochester. The lung and chest wall diseases. In: Textbook of Respiratory Medicine. (2nd Edition) Edited by John F. Murray and Jay A. Nadel. Philadelphia, W.B. Saunders Co., 2524-2543, 1994.
5. McCool, F.D. Non-invasive measurements of ventilation. In: Thorax. Edited by C. Roussos. New York, Marcel Dekker, Inc. 85: 1049-1067, 1995.
6. McCool, F.D. and F.G. Hoppin, Jr. Ultrasonography of the diaphragm. In: Thorax. Edited by C. Roussos. New York, Marcel Dekker, Inc. 85: 1295-1309, 1995.

7. McCool, F.D., G.E. Tzelepis, and F.G. Hoppin Jr. Inspiratory pump performance: A pressure flow volume framework. In: Thorax. Edited by C. Roussos. New York, Marcel Dekker, Inc. 85: 1463-1478, 1995.
8. Tzelepis, G.E. and F.D. McCool. Respiratory muscle assessment. In: Proceedings of the Eighth European Congress of Intensive Care Medicine. Edited by C. Roussos. Bologna, Mondouzi Editore, 379-385, 1995.
9. McCool, F.D. and F.G. Hoppin Jr. Respiratory mechanics. In: Textbook of Pulmonary Diseases. 6th Edition. Edited by G.L. Baum, J.D. Crapo, B.R. Celli and J. B. Karlinsky. Lippincott-Raven Publishers, Philadelphia, 117-130, 1998.
10. McCool, F.D. and D.F. Rochester. Non-muscular diseases of the chest wall. In: Pulmonary Diseases and Disorders. Edited by Alfred P. Fishman. New York, McGraw-Hill, 1541-1560, 1998.
11. McCool, F.D. and D.F. Rochester. The lungs and chest wall disease. In: Textbook of Respiratory Medicine. Volume 2, (3rd Edition). Edited by John F. Murray and Jay A. Nadel. Philadelphia, W.B. Saunders Co, 2357-2376, 2000.
12. DePalo V.A. and F.D. McCool. Pulmonary anatomy and physiology. In: Current Diagnosis and Treatment in Pulmonary Medicine. Lang Series. Edited by M. Hanley and C. Welsh, McGraw-Hill, NY, 1-15, 2003.
13. Tzelepis G.E. and F.D. McCool. The lungs and chest wall disease. In: Textbook of Respiratory Medicine. Volume 2, (4th Edition). Edited by Robert Mason, John F. Murray, V. Courtney Broaddus, and Jay A. Nadel, Elsevier Saunders, Philadelphia, PA. Chapter 83, 2311- 2334, 2005.
14. Tzelepis, G.E. and F.D. McCool. Non-muscular diseases of the chest wall. In: Pulmonary Diseases and Disorders. Edited by Alfred P. Fishman. New York, McGraw-Hill. In Press.

Reviews:

1. McCool, F.D. Inspiratory muscle weakness and fatigue. *RT/The Journal For Respiratory Care Practitioner* 32-41, 1992.
2. Depalo, V.A. and F. D. McCool. Exercise-induced asthma. *Medical Health of RI* 83(2):52-5, 2000.
3. DePalo, V.A., and F.D. McCool. Respiratory evaluation of the patient with neuromuscular disease. *Seminars in Respir and Crit Care Med*. 23 (3): 201-209, 2002.

Consensus Statement:

1. Irwin, R, LP Boulet, M. Cloutier, R. Fuller, V. Hoffstein, P. Gold, A. Ing, F.D. McCool, et al. Managing Cough as a Defense Mechanism and as a Symptom. Chest 114(2): Supplement (133S-181S), 1998.
2. Irwin RS, Baumann MH, Bolser DC, Boulet LP, Braman SS, Brightling CE, Brown KK, Canning BJ, Chang AB, Dicipinigaitis PV, Eccles R, Glomb WB, Goldstein LB, Graham LM, Hargreave FE, Kvale PA, Lewis SZ, McCool FD, McCrory DC, Prakash UB, Pratter MR, Rosen MJ, Schulman E, Shannon JJ, Smith Hammond C, Tarlo SM; American College of Chest Physicians (ACCP). Diagnosis and management of cough executive summary: ACCP evidence-based clinical practice guidelines. *Chest*. 2006 Jan;129(1 Suppl):1S-23S

Communications:

1. McCool, F.D. Breathing problems in Parkinson's Disease. *Research Resources Reporter*.
2. Bradburne R.M., D.B. Eتنsohn, F.D. McCool, and S.M. Opal. Relapse of Pneumocystis pneumonia in the upper lobes during aerosol pentamidine prophylaxis. (Letter) *Thorax* 44(12):1060, 1989.

ABSTRACTS

1. McCool, F.D., R. Mayewski, R.W. Hyde, D. Shayne, C. Gibson, and R. Griggs. Chest wall proprioceptor and the control of ventilation. *Fed Proc* 40:623, 1981. Presented at the FASEB meeting in Atlanta, April 1981.
2. McCool, F.D., R. Mayewski, R.W. Hyde, D. Shayne, C. Gibson, and R. Griggs. Short term effects of IPPB on total thoracic compliance in restrictive disease secondary to neuromuscular weakness. *Am Rev Resp Dis* 123:4(2), 186, 1981.
3. McCool, F.D., R. Mayewski, R.W. Hyde, D. Shayne, and C. Gibson. Effect of body position on the mouth occlusion pressure response to CO₂ in quadriplegics. *Am Rev Resp Dis* 125:4(2) 220, 1982. Presented at the ATS meeting in Los Angeles, May 1982.
4. Pichurko, B., F.D. McCool, A. Slutsky, M. Sarkarati, A. Rossier, and R. Brown. Total lung capacity increases with abdominal binding in quadriplegia. *Am Rev Resp Dis* 129:4(2), A265, 1984. Presented at the ATS meeting, Miami Beach, May 1984.
5. McCool, F.D., D. McCann, D.E. Leith, and F.G. Hoppin, Jr. Effects of velocity of muscle shortening on respiratory muscle endurance. *The Physiologist* 27:4, 245, 1984. Presented at the annual American Physiological Society meeting, Lexington, KY, August 1984.
6. Pichurko, B., F.D. McCool, P. Scanlon, S. Loring, A. Slutsky, A. Rossier, M. Sarkarati, and R. Brown. Pattern of respiratory function recovery following acute cervical cord injury. *Am Rev Resp Dis* 131:4(2), A337, 1985. Presented at the ATS meeting, Anaheim, CA, May 1985.
7. McCool, F.D., K.B. Kelly, S.H. Loring, I.A. Greaves, and J. Mead. Estimates of ventilation from body surface measurements in unrestrained subjects. *Clin Research* 33(3):A768, 1985. Presented at the Eastern Section AFCR, Baltimore, MD, September 1985.
8. Tzelepis, G.E., F.D. McCool, D.E. Leith, and F.G. Hoppin, Jr. Inspiratory muscle endurance and efficiency are reduced at high lung volume. *Am Rev Resp Dis* 133:4(2), A43, 1986. Presented at the ATS meeting in Kansas City, MO, May 1986.
9. Scanlon P., S. Loring, B. Pichurko, F.D. McCool, A. Slutsky, M. Sarkarati, and R. Brown. Evolution of respiratory mechanics in acute quadriplegia. *Am Rev Resp Dis* 133:4(2):A43, 1986. Presented at the ATS meeting in Kansas City, MO, 1986.
10. Tzelepis, G.E., F.D. McCool, D.E. Leith, and F.G. Hoppin, Jr. Increasing lung volume impairs the ability to maintain high inspiratory pressure tasks more than high inspiratory flow tasks. Presented at the Eastern Section of the ATS meeting in Burlington, VT, September 1986.
11. McCool, F.D., G.E. Tzelepis, D.E. Leith and F.G. Hoppin, Jr. Effect of lung volume on inspiratory muscle efficiency during fatiguing breathing tasks. *Clin Research* 34:(3), 883A, 1986. Presented at Eastern Section of the AFCR meeting in New York, September 1986.

12. Kikuchi, Y., F.D. McCool, G. Tzelepis, M. Hershenson, S.H. Loring. Rib cage muscle fatigue in humans. *Fed Proc* 46(4), 2932:819, 1987. Presented at FASEB meeting in Washington, D.C., April 1987.
13. Tzelepis, G.E., F.D. McCool, J.H. Friedman and F.G. Hoppin, Jr. Respiratory muscle dysfunction in Parkinson's disease. *Am Rev Resp Dis* 135:(4), 494A, 1987. Presented at the National American Thoracic Society meeting, New Orleans, LA, May 1987.
14. Tzelepis, G.E., F.D. McCool, J. Smart and F.G. Hoppin, Jr. Rib cage distortion in patients with flail chest. *Am Rev Resp Dis* 135:(4), 53A, 1987. Presented at the National American Thoracic Society meeting, New Orleans, LA, May 1987.
15. McCool, F.D., G.E. Tzelepis, D.E. Leith and F.G. Hoppin, Jr. Oxygen cost of breathing during fatiguing inspiratory resistive loads. *Am Rev Resp Dis* 135:(4), 199A, 1987. Presented at the National American Thoracic Society meeting, New Orleans, LA, May 1987.
16. McCool, F.D., G.E. Tzelepis, M.B. Hershenson, D.E. Leith, K. Kikuchi, and F.G. Hoppin, Jr. Effects of fatigue on inspiratory muscle pressure-flow relationships. *Am Rev Resp Dis* 137:(4),70A 1988. Presented at the National American Thoracic Society meeting, Las Vegas, NV, May 1988.
17. Kelly, D.B., Paek, D., and F.D. McCool. Postural effects on body surface measurements of tidal volume. *Am Rev Resp Dis* 139:(4), 291A, 1989. Presented at the National American Thoracic Society Meeting, Cincinnati, OH, May 1989.
18. Paek, D., F.D. McCool, I. Greaves, S.H. Loring, Breathing patterns during varied physical activities. *Am Rev Resp Dis* 139:(4), 247A, 1989. Presented at the National American Thoracic Society Meeting, Cincinnati, OH, May 1989.
19. Bradburne, R.M. and F.D. McCool. Pressure-flow performance during submaximal inspiratory efforts. *Am Rev Resp Dis* 139:(4),348A, 1989. Presented at the National American Thoracic Society Meeting, Cincinnati, OH, May 1989.
20. Manning, H., F.D. McCool, S. Scharf, and R. Brown. Oxygen costs of breathing in quadriplegia. *Am Rev Resp Dis* 139:(4), 345A, 1989. Presented at the National American Thoracic Society Meeting, Cincinnati, OH, May 1989.
21. Bradburne, R.M. and F.D. McCool. Inspiratory muscle pressure-flow performance during early inspiration. Presented at the Eastern Section of the American Thoracic Society, Atlantic City, NJ, October 1989.
22. McCool, F.D. and D. Paek. The presence of a mouthpiece affects the ventilation- heart rate relationship. *Am Rev Resp Dis* 141:(4), A123, 1990. Presented at the American Thoracic Society Meeting, Boston, MA, May 1990.
23. Bradburne, R.M., F.D. McCool, and F.G. Hoppin, Jr. Dynamic aspects of occlusion pressure. *Am Rev Resp Dis* 141:(4), A722, 1990. Presented at the American Thoracic Society Meeting, Boston, MA, May 1990.
24. Eveloff, S.E. and F.D. McCool. Regional displacements of the diaphragm vary with posture. *Am Rev Resp Dis* 141:(4), A722, 1990. Presented at the American Thoracic Society Meeting, Boston, MA, May 1990.
25. Quartararo, P., Eveloff, S.E., Benditt, J., and F.D. McCool. Bilateral diaphragm paralysis: A spectrum of disability. Presented at the RI Chapter of the American College of Physicians Meeting, March 1991.

26. Eveloff, S.E. and F.D. McCool. Determination of diaphragm thickness using ultrasonography. *Am Rev Resp Dis* 143:A367, 1991. Presented at the American Thoracic Society Meeting, Anaheim, CA, May 1991.
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28. Tzelepis, G.E., D. Vega, A. Fulambasker, J. Rossman, C. Bruyngens, and F.D. McCool. Lung volume specificity of inspiratory muscle training. *Am Rev Resp Dis* 143:A368, 1991. Presented at the American Thoracic Society Meeting, Anaheim, CA, May 1991.
29. Quartararo, P.J., J.O. Benditt, F.G. Hoppin, Jr., D.E. Leith, and F.D. McCool. Influence of time on maximal inspiratory pressure-flow-volume relationships. *FASEB J* 5:2190, 1991. Presented at the FASEB Meeting, Atlanta, GA, April 1991.
30. Lieberman, S., F.D. McCool, E. Garshick, and R. Brown. Oxygen utilization in the human diaphragm. *Am Rev Resp Dis* 145:A153, 1992. Presented at the American Thoracic Society Meeting, Miami Beach, FL May 1992.
31. Lieberman, S., F.D. McCool, E. Garshick, and R. Brown. Oxygen cost of accessory muscle use in C1-C2 tetraplegia. *Am Rev Resp Dis* 145:A153, 1992. Presented at the American Thoracic Society Meeting, Miami Beach, FL, May 1992.
32. Tzelepis, G., D. Vega, P. Patel, A. Fulambarker, and F.D. McCool. Pressure-flow specificity of inspiratory muscle training. *Am Rev Resp Dis* 145:A151, 1992. Presented at the American Thoracic Society Meeting, Miami Beach, FL, May 1992.
33. Karczmar, P., J.O. Benditt, J.A. Friedman, and F.D. McCool. Exercise capacity in Parkinson's disease. *Am Rev Resp Dis* 145:A880, 1992. Presented at the American Thoracic Society Meeting, Miami Beach, FL, May 1992.
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38. Aaron, J., McCool, F.D., Benditt, J., and N.S. Hill. Evaluation of trigger sensitivity of patient-triggered negative pressure ventilators. *Am J of Resp and Crit Care Med* 151(4): A237, 1995. Presented at the American Thoracic Society International Conference, Seattle, Washington, May 1995.

39. Meyer, T.J., Pressman, M.R., Benditt, J., McCool, F.D., Millman, R.P., and N.S. Hill. Mouth leaking during nocturnal nasal ventilation: Effect on sleep quality. *Am J of Resp and Crit Care Med* 151(4): A423, 1995. Presented at the American Thoracic Society International Conference, Seattle, Washington, May 1995.
40. Conomos, P., Curtin, L., and F.D. McCool. Inspiratory strength and diaphragm thickness in weight lifters. *Am J of Resp and Crit Care Med* 151(4): A807, 1995. Presented at the American Thoracic Society International Conference, Seattle, Washington, May 1995.
41. Aaron, J., McCool, F.D. Benditt, J., and N.S. Hill. Comparison of trigger sensitivity of patient-triggered negative pressure versus bi-level positive airway pressure ventilators. Presented at the 5th International Conference on Pulmonary Rehabilitation and Mechanical Ventilation, Denver, Colorado, March 1995.
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44. Benditt, J.O., Klima, L.D., McCool, F.D., Lewis, S.L., Wood, D.E., and R.K. Albert. Respiratory and ventilatory muscle recruitment patterns before and after lung reduction surgery. *Am J of Resp and Crit Care Med* 153(4): A450, 1996. Presented at the American Thoracic Society International Conference, New Orleans, LA, May 1996.
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47. Gottesman, E., and F.D. McCool. Ultrasound evaluation of the paralyzed diaphragm. *Am J of Resp and Crit Care Med* 155(4): A515, 1997. Presented at the American Thoracic Society International Conference, San Francisco, CA, May 1997.
48. Tzelepis, G., Kadas, V., Anthi, A., Daganou, M., Dimopoulou, I., Geroulanos, S., and F.D. McCool. Inspiratory muscle contractile properties following pressure or flow training. *Am J of Resp and Crit Care Med* 155(4): A920, 1997. Presented at the American Thoracic Society International Conference, San Francisco, CA, May 1997.
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51. Ayas, NT., McCool, F.D., Gore, R.L., Lieberman, S.L., and R. Brown. Prevention of diaphragm atrophy with brief periods of electrical stimulation. *Am J of Resp and Crit Care Med* 157(3): A215, 1998. Presented at the American Thoracic Society International Conference, Chicago, IL, April 1998.
52. Kantra, T., Boisselle, P., McCool, F.D., Kuzma, A.M., Jurukawa, J.J., and S. Criner. Effect of lung volume reduction surgery (LVRS) on diaphragm thickness. *Am J of Resp and Crit Care Med* 157(3): A360, 1998. Presented at the American Thoracic Society International Conference, Chicago, IL, April 1998.
53. Al-Bilbesi, F., and F.D. McCool. Effects of weight lifting on diaphragm mechanics. *Am J of Resp and Crit Care Med* 157(3): A663, 1998. Presented at the American Thoracic Society International Conference, Chicago, IL, April 1998.
54. Muster, A., Meharg, J., McCool, F.D., Rounds, S., and C. Weiland. Increased end-expiratory lung volume (EELV) in subjects with exercise-induced bronchospasm (EIB) during isocapnic hyperventilation. *Am J of Resp and Crit Care Med* 157(3): A783, 1998. Presented at the American Thoracic Society International Conference, Chicago, IL, April 1998.
55. Rehan, V., Laiprasat, J., Wallach, M., and F.D. McCool. Effects of CPAP on diaphragm dimensions in the neonate. *Am J of Resp and Crit Care Med* 159(3): A590, 1999. Presented at the American Thoracic Society International Conference, San Diego, CA, April 1999.
56. Rehan, V.K., Nakashima, J.M., Gutman, A., Rubin, L.P., and F.D. McCool. Effects of the supine and prone position on diaphragm thickness in healthy term infants. *Am J of Resp and Crit Care Med* 159(3): A677, 1999. Presented at the American Thoracic Society International Conference, San Diego, CA, April 1999.
57. Rehan, V.K., and F.D. McCool. Diaphragm dimensions of the healthy neonate. *Am J of Resp and Crit Care Med* 159(3): A583, 1999. Presented at the American Thoracic Society International Conference, San Diego, CA, April 1999.
58. McGovern, T., and F.D. McCool. Recovery of diaphragm function as assessed by ultrasound. *Am J of Resp and Crit Care Med* 159(3): A262, 1999. Presented at the American Thoracic Society International Conference, San Diego, CA, April 1999.
59. Al-Bilbeisi, F., and F.D. McCool. Respiratory muscle strength training with non-respiratory maneuvers. *Am J of Resp and Crit Care Med* 159(3): A583, 1999. Presented at the American Thoracic Society International Conference, San Diego, CA, April 1999.
60. Spungen, A., Dumitrescu, O., Grimm, D., Lesser, M., McCool, F.D., and W. Bauman. Improvements in diaphragm width and pulmonary function following anabolic steroid therapy in subjects with tetraplegia. *Am J of Resp and Crit Care Med* 159(3):A586, 1999. Presented at the American Thoracic Society International Conference, San Diego, CA, April 1999.
61. Rehan, V.K., Laiprasat, J., Wallach, M., Rubin, L.P., and McCool, F.D. Diaphragm dimensions of the healthy preterm infant. Presented at the American Pediatric Society/The Society for Pediatric Research, San Francisco, CA, May 1999.
62. Rehan, V.K., Gutman, A., Rubin, L.P., and McCool, F.D. Diaphragm dimensions of the healthy term infant. Presented at the American Pediatric Society/The Society for Pediatric Research San Francisco, CA, May 1999.
63. Rehan, V.K., Laiprasat, J., Wallach, M., and McCool, F.D. Effects of CPAP on diaphragm dimensions in the neonate. Presented at the American Pediatric Society/The Society for Pediatric Research San Francisco, CA, May 1999.

64. Wang, J., McGovern, T., and McCool, F.D. Measurement of tidal volume and respiratory timing derived from a personal ventilation monitor. *Am J Respir Crit Care Med* 161(3):A691, 2000. Presented at the American Thoracic Society International Conference, Toronto, Canada, May 2000.
65. Parker, A.L., and McCool, F.D. Patients with different patterns of methacholine airway hyperreactivity have different baseline lung volume and spirometry characteristics. *Am J Respir Crit Care Med* 161(3):A102, 2000. Presented at the American Thoracic Society International Conference, Toronto, Canada, May 2000.
66. Martin, U.J., O'Kane, P., Travaline, J.M., Rao, R., McCool, F.D., and Criner, G.J. Evaluation of diaphragm zone of apposition length in severe COPD. *Am J Respir Crit Care Med* 161(3):A112, 2000. Presented at the American Thoracic Society International Conference, Toronto, Canada, May 2000.
67. Martin, U.J., Travaline, J.M., Crocetti, J., Rao, R., O'Kane, P., McCool, F.D., Criner, G.J., and Krachman, S.L. Correlation between nocturnal oxygen desaturation and diaphragm zone of apposition length (LZAP) in patients with severe COPD. *Am J Respir Crit Care Med* 161(3):A351, 2000. Presented at the American Thoracic Society International Conference, Toronto, Canada, May 2000.
68. R. L. Waters. Diaphragm thickness and lung function in tetraplegics: A short-term longitudinal study. Submitted for presentation at the American Spinal Injury Association International Conference, Long Beach, CA, May 2001.
69. Spungen A.M., F.D. McCool, W. A. Bauman. Evaluation of breathing pattern in subjects with tetraplegia. Submitted for presentation at the American Spinal Injury Association International Conference, Long Beach, CA, May 2001.
70. Spungen A.M., W.A. Bauman, F.D. McCool. Breathing pattern and ventilatory control in subjects with tetraplegia. *Am J Respir Crit Care Med* 163(5):A411, 2001. Presented at the American Thoracic Society International Conference, San Francisco, CA, May 2001.
71. Abu-Hijleh M. and F.D. McCool. Tidal volume and respiratory timing derived from a ventilation monitor in 3 different sleep positions. *Am J Respir Crit Care Med* 163(5):A412, 2001. Presented at the American Thoracic Society International Conference, San Francisco, CA., May 2001.
72. Parker, A.L., F.D. McCool and C.E. Garber. Isolated reductions in specific airway conductance following methacholine do not limit exercise performance. *Am J Respir Crit Care Med* 163(5):A830, 2001. Presented at the American Thoracic Society International Conference, San Francisco, CA, May 2001.
73. Rao, R.S., D. Ciccolella, S. Krachman, F.D. McCool, and G.J. Criner. Comparison of non-invasive assessments of breathing pattern by magnetometer versus impedance plethysmography. *Am J Respir Crit Care Med* 163(5):A410, 2001. Presented at the American Thoracic Society International Conference, San Francisco, CA., May 2001.
74. Ciccolella, D.E., R. Rao, N. Schreiber, F.D. McCool, and G.J. Criner. Administration of high-flow, vapor-phased, humidified nasal cannula air (HF-HNC) decreases work of breathing (WOB) in healthy subjects during exercise. *Am J Respir Crit Care Med* 163(5):A622, 2001. Presented at the American Thoracic Society International Conference, San Francisco, CA., May 2001.
75. Ciccolella, D.E., R. Rao, F.D. McCool, and G.J. Criner. Effect of high-flow, vapor-phased, humidified nasal cannula (HF-HNC) oxygen on ventilatory mechanics, blood gases and comfort in severe hypercapnic COPD patients (COPD) and normal subjects at rest. *Am J Respir Crit Care Med* 163(5):A501, 2001. Presented at the American Thoracic Society International Conference, San Francisco, CA., May 2001.

76. Parker, A.L., M. Abu-Hijleh, and F.D. McCool. FEF25-75/FVC ratio is a determinant of airway reactivity and sensitivity to methacholine in symptomatic subjects. *Am J Respir Crit Care Med* 163(5):A422, 2001. Presented at the American Thoracic Society International Conference, San Francisco, CA., May 2001.
77. Masoudi, O., Davis, K., Siram, A., McCool, F., and C. Garber. Ventilation during submaximal exercise in Parkinson's disease. *Am J Respir Crit Care Med* 165(8):A213, 2002. Presented at the American Thoracic Society International Conference, Atlanta, GA, May 2002.
78. Abu-Hijleh, M., Chatila, W., Chaudhry, B., Criner, G., and F. McCool. Efficacy of a portable ventilation monitor for detecting apneas and hypopneas. *Am J Respir Crit Care Med* 165(8):A408, 2002. Presented at the American Thoracic Society International Conference, Atlanta, GA, May 2002.
79. Davis, K.K., McCool, F.D., and Crausman, R.S. Advanced age and the AaPO₂ difference. *Am J Respir Crit Care Med* 167(7):A706, 2003. Presented at the American Thoracic Society International Conference, Seattle, WA, May 2003.
80. Lee C.J., Levy M.M., Nelson, D.L., and McCool, F.D. Determination of tidal volume in high frequency oscillatory ventilation (HFOV): A lung model study. *Am J Respir Crit Care Med* 169(7): A347, 2004. Presented at the American Thoracic Society International Conference, Orlando, FL, May 2004.
81. Summerhill, E.M., Garber, C., Angov, N., and McCool, F.D. Respiratory Muscle Strength in the Active Elderly *Am J Respir Crit Care Med* 173(8): A257 2006 Presented at the American Thoracic Society International Conference, San Diego, Ca, May 2006
82. Abu El-Sameed, Y., McCool, F.D., Diaphragm Thickening during Assist Control Ventilation 173(8) A139 2006 Presented at the American Thoracic Society International Conference, San Diego, Ca, May 2006

INVITED PRESENTATIONS

1. "Measurements of Ventilation from Body Surface Motion." Presented at the Department of Physiology and Environmental Science Work in Progress, Harvard School of Public Health, 9/85.
2. "The Work of Breathing on Mechanical Ventilation." Presented at the Rhode Island Society for Respiratory Care, Newport, RI, 3/86.
3. "Oxygen Cost of Breathing." Presented at the International Union of Physiological Scientists, Satellite Symposia on Smooth and Skeletal Muscle, Vancouver, BC, Canada, 7/86.
4. "Inspiratory Muscle Training." Presented at the National Meeting of the Society for Cardiovascular and Pulmonary Technology, Boston, MA, 6/87.
5. "Effects of Posture on Ventilatory Estimates." Presented at the Department of Physiology and Environmental Science Work in Progress, Harvard School of Public Health, Boston, MA, 9/88.
6. "Heart Rate-Ventilation Relationship during Varied Activities." Presented at the Annual Health Effects Institute Meeting, Phoenix, AZ, 4/90.
7. "Ambulatory Measurements of Ventilation." Presented at the Health Effects Institute, Boston, MA, 9/90.
8. "Diaphragm and Dyspnea." Presented at the New England Chapter of the American College of Chest Physicians Annual Meeting, Providence, RI, 9/90.
9. "Laboratory Assessment of Respiratory Muscle Function." Presented at the American College of Chest Physicians Annual Meeting, Toronto, Canada, 10/90.

10. "Disorders of the Chest Wall and Respiratory Failure." Presented at the 11th International Symposium On Intensive Care and Emergency Medicine, Brussels, Belgium, 3/91.
11. "Acute Respiratory Failure." Presented at the 11th International Symposium on Intensive Care and Emergency Medicine, Brussels, Belgium, 3/91.
12. "Assessment of Ventilation in the Field." Presented at the Annual Health Effects Institute Meeting, Colorado Springs, CO, 4/91.
13. "Respiratory Muscle Fatigue." Presented at the American Thoracic Society "Sunrise Seminar Series", Miami, FL, 5/92.
14. "Ultrasonographic Evaluation of the Diaphragm." Presented at the Department of Physiology and Environmental Science Seminar, Harvard School of Public Health, Boston, MA, 4/92.
15. "Measurements of Ventilation Derived From Heart Rate and Body Surface Displacement." Presented at the Health Effects Institute Annual Conference, Monterey, CA 12/92.
16. "Respiratory Muscle Training in the Neurologic Impaired Client." Presented at Joint Meeting of the American Physical Therapy Association and Canadian Physiotherapy Association, Toronto, Canada. 6/94.
17. "Respiratory Muscle Dysfunction." Presented at Washington University, Seattle, WA, 9/94.
18. "Clinical & Research Applications of Diaphragm Ultrasonography." Presented at Ohio St. University, 1/95.
19. "Diaphragm Ultrasonography: A New Means of Assessing Diaphragm Function." Presented at Kenney Day Annual Research Conference, Memorial Hospital of RI, Pawtucket, RI, 1995.
20. "Bronchogenic Carcinoma." Presented at Topics in Internal Medicine Seminar Series, Memorial Hospital of RI, Pawtucket, RI, 1995.
21. "Diaphragm Dysfunction Following Open Heart Surgery." Presented at Grand Rounds, Onassis Cardiac Center, Athens, Greece, 1995.
22. "Respiratory Muscle Assessment in the Intensive Care Unit." Presented at the 8th European Congress of Intensive Care Medicine, Athens, Greece 1995.
23. "Diaphragm Energetics in the Spinal Cord Injured Patient." Presented at the Pulmonary Research Conference, Brockton-West Roxbury Medical Center, Boston, MA 3/95.
24. "Diaphragm Function Following Lung Volume Reduction Surgery." Presented at the Annual Kenney Day Research Symposium, Pawtucket, RI 2/96.
25. "Diaphragm Dysfunction in the Perioperative Period." Presented at Brown University Surgical Grand Rounds, Providence, RI 2/96.
26. "Physiology of Cough." Presented at the American College of Chest Physicians Symposia on Cough, Chicago, IL 3/96.
27. "Principles of Diaphragm Ultrasonography." Presented at the Pulmonary Research Conference, Brockton West Roxbury Medical Center, Boston, MA 3/96.

28. "Pulmonary Complications in Kyphoscoliosis." Presented at Pulmonary Grand Rounds, Temple University Hospital, Philadelphia, PA 8/96.
29. "Diaphragm Ultrasonography in the Spinal Cord Injured Patient." Presented at the Pulmonary Research Conference, Brockton-West Roxbury Medical Center, Boston, MA 3/97.
30. "New Ways of Thinking About and Assessing Diaphragm Function." Presented at a Meet the Professor Seminar at the ALA/ATS International Conference, San Francisco, CA, 5/97.
31. "Respiratory Mechanics Following Lung Volume Reduction Surgery." Presented at the Spring 1997 Update in Internal Medicine, Saint Vincents Medical Center, New York Medical College, Staten Island, NY, 5/97.
32. "Technical Aspects of Diaphragm Ultrasonography." Presented at the Bronx VA Medical Center, Bronx, NY, 6/97.
33. "New Ways of Assessing Ventilation in Mobile Individuals." Presented at the Electric Power Research Institute, Palo Alto, CA, 12/97
34. "Effects of Supine and Prone Positioning on Diaphragm Function in Neonates." Presented at the Annual Kenney Day Research Symposium, Pawtucket, RI, 2/96.
35. "Diaphragm Atrophy in the Spinal Cord Injured Patient." Presented at the Annual Pulmonary Research Conference, Brockton-West Roxbury Medical Center, Boston, MA, 3/98.
36. "Diaphragm Dysfunction Following Abdominal Surgery." Presented at the Rhode Island Society of Critical Care Medicine, Providence, RI, 3/98.
37. "Prevention of Human Diaphragm Atrophy with Brief Periods of Electrical Stimulation." Presented at the International ALA/ATS International Convention, Chicago, IL, 4/98.
38. Diaphragm Ultrasonography: Applications and Pitfalls." Presented at Ranchos Los Amigos Medical Center, Los Angeles CA 2/99.
39. "Ambulatory Measurements of Ventilation: First Steps to Field Application." Presented at the Electric Power Research Institute, Palo Alto, CA 2/99.
40. "Ambulatory Measurements of Ventilation: First Steps to Field Application." Presented at the Bronx VA Spinal Cord Injury Center, Bronx, NY 9/99.
41. "Personal Ventilation Monitoring." Presented at Pulmonary Research Conference, Temple University Hospital, Philadelphia, PA 3/2000.
42. "Personal Ventilation Monitoring, Theory, Applications, and Pitfalls". Colloquium, National Center for Neurogenic Communication Disorders, University of Arizona, Tucson, Arizona 5/2000.
43. "Assessing the Respiratory Muscles: From the Lab to the Bedside". New England Chapter of the American College of Chest Physicians, Providence, R.I. 9/00.
44. "Diaphragm Ultrasonography: Methods and Application". Mount Sinai Medical Center, New York, N.Y. 7/01.
45. "Recent Advances in Diaphragm Monitoring". American College of Chest Physicians Meeting, Philadelphia, PA, 11/01.

46. "Non-Invasive Positive Pressure Ventilation". Family Care Grand Rounds, St. Joseph Hospital, Providence, RI, 02/02.
47. "New Concepts for Measuring Breathing Patterns". SCI Research Rounds, VA Medical Center, Bronx, NY, 05/02.
48. "Asthma and the Consequences of Hyperinflation of the Lung". Allergy/Immunology Grand Rounds, Brown Medical School, Providence, RI, 06/02.
49. "Respiratory Muscle Function in Kyphoscoliosis". Symposium on Advances in Management and Repair of Chest Wall Disorders in Children. American Thoracic Society International Conference, Seattle, WA, 05/03.
50. "Protussive Therapy". Symposium on Cough. American College of Chest Physicians, Orlando, FL 10/03.
51. "Diaphragm Ultrasonography and Diseases of the Chest Wall. Erasmus Hospital, Brussels, Belgium 9/04
52. "Recent Advances in the Treatment of COPD" Grand Rounds, Maine General Hospital, Waterville ME, 9/04
53. "Recent Advances in the Treatment of COPD" Grand Rounds, Maine General Hospital, Augusta ME, 9/04

PATENTS

U.S. Patent Application No. 60/160,298
 Filing Date: 10/18/99
 Title: Apparatus and Method for Assessing Pulmonary Ventilation
 Inventor: F. Dennis McCool

GRANT SUPPORT

1. Principal Investigator, "Effects of SRS and Leukotrienes on Tracheal Epithelial Ion Transport." NIH-Biomedical Research Support Grant, 4/83-3/85, \$20,000.
2. Principal Investigator, "Respiratory Muscle Endurance in Normal Subjects." NIH HL34149, 5/85-4/88 \$107,500.
3. Principal Investigator, "Respiratory Muscle Performance." ALA Trudeau Scholarship, 7/85-6/88 \$75,000.
4. Co-Investigator, "Respiratory Dysfunction in Spinal Cord Injury." VA-Merit Review, 5/86-4/89, \$166,000.
5. Principal Investigator, "Respiratory Muscle Dysfunction in Parkinson's Disease." BMRSB-NIH S07RR05862, 7/86-6/88 \$16,624.
6. Co-Investigator, "Respiratory Dysfunction in Spinal Cord Injury." VA-Merit Review, 5/89-4/94, \$310,000.
7. Principal Investigator, "Inspiratory Pump: Pressure, Flow, Volume Performance." NIH R01 6/89-7/92, \$249,000.

8. Principal Investigator, "Pressure-Flow Performance During Submaximal Inspiratory Efforts." NIH-BMRSG, 7/89-6/90, \$6,860.
9. Principal Investigator, "Measurement of Ventilation in Freely Ranging Subjects." Health Effects Institute, 7/89-6/93, \$130,231.
10. Co-Investigator, "Respiratory Dysfunction in Spinal Cord Injury." VA-Merit Review, 5/94-4/99, \$250,000.
11. Principal Investigator, "Non-Invasive Measurements of Ventilation." Electric Power Research Institute, 11/96-12/98, \$218,000.
12. Principal Investigator, "Non-Invasive Measurements of Ventilation." Electric Power Research Institute, 1/99-5/00, \$56,609.
13. Co-Investigator, "Evaluation of Oxandrin Therapy on Body Weight, Pulmonary Function and the Serum Lipid Profile in Subjects with Tetraplegia" Bio-Technology General Corporation, 5/99-4/00, \$129,409.
14. Principal Investigator, "Evaluation of Breathing Pattern and Dyspnea in Subjects with Tetraplegia." American Paraplegia Society, 12/99 - 11/00, \$10,000.
15. Principal Investigator, "The Use of Oxandrolone to Facilitate Liberation from Mechanical Ventilation." Bio-Technology General Corporation, 7/00 - 6/01, \$31,000
16. Principal Investigator, "Evaluation of Breathing Pattern During Sleep." Electric Power Research Institute, 11/00-10/01, \$42,744.
17. Co-Investigator, "Anabolic Therapies: New Hope for Treating the Secondary Disabilities of SCI." VA-Merit Review, VA Medical Center, Bronx New York 7/01-6/06, \$3,634,411.

UNIVERSITY TEACHING ROLES

Brown University:

1981-93	Lecturer	Special Topics in Respiratory Physiology, (Biomed 209)
1981-89	Lecturer/Group Leader	Integrated Medical Sciences, (Respiratory Pathophysiology) (Biomed 281)
1991-93	Group Leader	Integrated Medical Sciences, (Respiratory Pathophysiology) (Biomed 281)
1982-84	Lecturer	Advance Cardiac Life Support for Residents and Medical Students
1983-91	Lecturer/Preceptor	Introduction to Clinical Medicine, (Biomed 373)
1992-	Lecturer/Preceptor	Introduction to Clinical Medicine, (Biomed 373)
1985-	Director	Pulmonary Clerkship Memorial Hospital (Biomed 314B)
1987-91	Lecturer	Brown Community Learning Center
1990-96	Group Leader	Respiratory Physiology, (Biomed 117)
1997-	Group Leader	Integrated Medical Sciences, (Respiratory Pathophysiology) (Biomed 281)

1998- Lecturer Integrated Medical Sciences, (Respiratory Pathophysiology) (Biomed 281)

1998- Group Leader Respiratory Physiology, (Biomed 117)

Harvard University:

1987 Lecturer Physiology 222, Respiratory Physiology

Boston University:

1998- Lecturer Cardiopulmonary Pathophysiology, "Physiology and Pathophysiology of Respiratory Muscle Performance"

HOSPITAL TEACHING ROLES

1981- Pulmonary Mentor for Medicine Residents during their elective Inpatient Pulmonary rotations.
On average, 1 resident, 2 months/year.

1981 - General Medical Attending for Medical Students, Internal Medicine Residents and Family Care Residents.
On average, 6 residents and 2 students, 1-2 months/year.

1981- Pulmonary Mentor for Pulmonary Clinical Fellows.
On average, 1 fellow, 4 months/year.

1981- Lecturer for Internal Medicine Noon Conferences.
On average, 1 hour/session 2-4 sessions/year

1982- Pulmonary Mentor for Pulmonary Research Fellows.
On average, 1 fellow/year.

1996- Pulmonary Mentor for Medicine Residents during their elective Pulmonary outpatient rotations
On average, 5 resident/year, 5 months/year.