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Neonatology Division, Department of Pediatrics
Northwestern University
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BIRTH: February 4, 1952
MARITAL STATUS: Married (wife Marcy); son (Samuel b: 7/28/84), daughter (Meryl, b: 3/22/88)

EDUCATION:
1974 B.S., Biomedical Engineering
Rensselaer Polytechnic Institute, Troy, New York
1976 M. Eng., Biomedical Engineering
Rensselaer Polytechnic Institute, Troy, New York
1980 Ph.D., Physiology. Dr. Thomas M. Saba, mentor.
Albany Medical College, Albany, New York

POST DOCTORAL TRAINING:
1979 - 1981 Fellow, Division of Pulmonary Physiology, Department of Medicine
University of California, San Diego
Dr. John B. West and Dr. Peter D. Wagner

PROFESSIONAL EXPERIENCE:
1981 - 1983 Assistant Research Physiologist, Division of Pulmonary Physiology Department
of Medicine
University of California, San Diego
1983 - 1987 Research Associate (Assistant Professor)
Department of Medicine, University of Chicago
1987 - 1989 Assistant Professor, Department of Medicine, University of Chicago
1989 - 1993 Associate Professor, Department of Medicine, and the College
University of Chicago
1994 - 2004 Professor, Department of Medicine and the College, University of Chicago
1995 - 2001 Chairman, Committee on Comparative Medicine and
Pathology, University of Chicago
2004-present Professor, Department of Pediatrics, Division of Neonatology, Northwestern
University
2005-present Patrick M. Magoon Distinguished Professor of Neonatal Research
2005-present Professor, Departments of Medicine, and Cell & Molecular Biology

TEACHING ACTIVITIES:

1. Medical Biology 303 Course- University of Chicago:
 - Pulmonary and cardiovascular physiology: 20 lectures
 - Cardiovascular and respiratory physiology - laboratory coordinator
 -1995-2004 – Cardiovascular physiology lectures
2. Advanced Respiratory Pathophysiology- University of Chicago:
 - Course Coordinator, 1984-85 and 1985-86; 1986-87; 60 hrs/yr.
 - Course Lectures, 1983-2004; 10-12 lectures/yr.
3. Biological Sciences 243 (Undergraduate in the College):
 - 4 90 min. lectures, 1989 - 2004
 - 25-50 students registered
4. Biological Sciences 20195 (Undergraduate biology course in the College)
 Co-directed course, 1997-1999; Course director, 2000-2004
 15 1 hr. lectures; Labs - 30 lab sessions x 3 hr

UNIVERSITY COMMITTEES AND OTHER SERVICE:

- "Clinical Research Center Advisory Committee" 1988 - 1990.
- "Faculty Advisory Committee on Animal Care Costs", 1988.
- "Animal Users Committee" - invited member 1984-1987, Chairman 1988-1989.
- "Committee to Coordinate the Renovation of Animal Surgical Facilities," 1986.
- Pritzker School Admissions: candidate interviews 1987-1992.
- Biological Sciences Division: Strategic Planning Task Force #6, 1989.
- BSD Task Force on Animal Use in Teaching, 1991.
- Institutional Animal Care and Use Committee, 1988 - 1990.
- Institutional Animal Care and Use Committee, Vice Chairman 1990 - 1992, 1996-2002.
- Institutional Animal Care and Use Committee, Chairman, 1992-1994.
- Search Committee for Chairman, Animal Resources Center, 1992-1995.
- Departmental Review Committee: Pharmacological and Physiological Sciences, 1996.
- Committee on Appointment in Inequities (Faculty), 1994-1998.
- Search Committee for Chairman, Department of Pathology, 1999.
- "Animal Facilities Planning and Utilization Workgroup", 2000-2002.
- Department of Pediatrics Appointments and Promotions Committee, 2010-present
- Search Committee for Chairman, Department of Biochemistry, Feinberg School of Medicine 2012
- Feinberg School of Medicine, Appointments, Promotion and Tenure Committee, 2010-2014.

EDITORIAL BOARDS AND SCIENTIFIC PEER REVIEW ADVISORY COMMITTEES:

- | | |
|-------------|---|
| 1987 - 1990 | American Lung Association, Research Grant Review Committee |
| 1989 | Ad Hoc Member, NHLBI Program Project Study Section |
| 1989 | Ad Hoc member, NIH SBIR Special Study Section - 8 |
| 1990 | Ad Hoc Member, NHLBI Program Project Study Section |
| 1990 | Ad Hoc Member, NHLBI Research Training Review Committee |
| 1990 - 1993 | Editorial Board, <i>Circulation Research</i> |
| 1991 | Ad Hoc Member, NHLBI, Clinical Sciences Study Section |
| 1991 - 1993 | Editorial Board, <i>Journal of Applied Physiology</i> |
| 1991 - 1994 | Editorial Board, <i>American Review of Respiratory Disease</i> |
| 1991 | American Heart Association Metropolitan Chicago - Research Grant Review |
| 1992 - 1993 | American Thoracic Society - Critical Care Section Secretary |
| 1992 | Ad Hoc Member, NHLBI Lung Biology and Pathology Study Section |
| 1994 | Ad Hoc Member, NHLBI Research Review Committee |
| 1994 - 1997 | Editorial Board, <i>Journal of Critical Care</i> |

1994 - 2000	Associate Editor, <i>American Journal of Respiratory and Critical Care Medicine</i>
1993 - 1994	American Thoracic Society, Program Planning Committee - Chairman Elect
1994 - 1995	American Thoracic Society, Program Planning Committee - Chairman
1995	Member, NHLBI Special Emphasis Panel on Critical Care
1995	Ad hoc Member, RAP Study Section, NIH
1996	Ad Hoc Member, NHLBI/NASA Special Emphasis Panel
1994-2008	Editorial Board, <i>Journal of Applied Physiology</i>
1996-2000	Am. Heart Assoc.: Lung, Respiration and Resuscitation Study Section Member
1998	Ad Hoc Member, Respiratory and Applied Physiology (RAP) Study Section, NIH
1999	Ad Hoc Member, Respiratory and Applied Physiology (RAP) Study Section, NIH
1999-2001	Ad Hoc Member, NHLBI Career Development Rev. Special Emphasis Panel
1999-2004	Associate Editor, <i>American Journal of Physiology: Lung, Cell. Molec. Physiol.</i>
2000-2001	Member, Respiratory and Applied Physiology (RAP) Study Section, NIH
2001-2002	Acting Chairman, Respiratory Physiology Study Section (RESP), NIH
2003	Ad Hoc member, SCCOR SEP Study Section, NHLBI
2002-2004	Chairman, Respiratory Physiology Study Section (RESP), NIH
2009	Editorial Board Member, <i>Free Radical Biology and Medicine</i>
2009-2013	Member, Cell Signaling and Regulatory Systems (CSRS) Study Section, NIH
2010	Guest Editor, <i>Respiration Physiology & Neurobiology</i>
2010-2013	Deputy Editor, <i>Am J Resp Crit Care Med (AJRCCM)</i>
2011-2015	Editor, <i>Biochemical Journal</i>
2012-2013	Editorial Board, <i>Am J Physiol Lung Cell Molec Physiol.</i>
2013-2014	Senior Deputy Editor, <i>Am J Resp Crit Care Med (AJRCCM)</i>
2015-	Consulting Editor, <i>American Journal of Physiology: Lung, Cell. Molec. Physiol.</i>
10/2016 – 2021	Editor-in-Chief, <i>Am J Resp Cell Molec Biol</i>

HONORS, AWARDS AND INVITED LECTURES

New York State Regents Scholarship, 1970-74
 NRSA Predoctoral Trainee, 1977-79
 NRSA Postdoctoral Trainee, 1979-81
 New Investigator Research Awardee, NHLBI, 1981-84
 Research Career Development Awardee, NHLBI, 1987-92
 Nova Scotia Lung Association Annual Meeting, keynote speaker, 1987, Halifax, Nova Scotia.
 "Advanced in Pulmonary Gas Exchange" meeting, Barcelona, Spain, 1987.
 Anesthesiology Grand Rounds: Rush-Presbyterian-St. Luke's Medical Center "Pathologic O₂ Supply-Dependence", 1987.
 International Symposium on Intensive Care Medicine, Brussels, March 1990, Invited speaker.
 6th Annual Meeting, European Congress on Intensive Care Medicine, Barcelona, 1992, Invited speaker.
 International Symposium on Intensive Care Medicine, Brussels, 1993, Invited speaker .
 International Meeting on Oxygen Transport in Health Disease, Barcelona, 1993, Invited speaker.
 International Symposium on Intensive Care Medicine, Brussels, 1995, Invited speaker.
 International Symposium on Intensive Care Medicine, Brussels, 1996, Invited speaker.
 9th Annual Meeting, Surgical Infection Society, Paris, 1996, Invited speaker.
 University of Illinois, Pharmacology Seminar Series, Visiting Professor, Feb 1997, Invited speaker.
 Edward Hines, Jr. Hospital, Visiting Professor, March, 1997, Invited speaker.
 3rd International Conference on Sepsis in the ICU, Maastricht, Netherlands, June 1997, Invited speaker.
 4th Autumnal Meeting on Sepsis, Paris, November, 1997, Invited speaker.
 International Symposium on Intensive Care Medicine, Brussels, March, 1998, Invited speaker.

Invited Speaker, *Classics in Physiology*, American Thoracic Society Meeting, April 1998.
 Invited Speaker, Institute for Environmental Medicine, Univ. Pennsylvania, Sept. 1998.
 10th Argentine Congress on Intensive Care, Cordoba Argentina, 19-23rd Sept 1998, Invited speaker.
 Visiting Professor, Meakins-Christie Institute, Montreal, Quebec, 7-8th Dec 1998.
 Visiting Professor, Dept. Molecular and Integrative Biology, Univ. Illinois, 10-11 Dec 1998.
 Visiting Professor, Johns Hopkins University, Dept. of Medicine, January 2000.
 International Symposium on Intensive Care Medicine, Brussels, March, 2000, Invited speaker.
 Visiting Professor, Medical College of Wisconsin/Milwaukee VA, March 2000.
 Visiting Professor, Columbia University, Roosevelt Hospital, May 2000.
 Visiting Professor, Whitaker Cardiovascular Institute, Boston University, 7 Nov 2000.
 Visiting Professor, University of South Alabama, Mobile, Dec 14, 2000.
 Invited Speaker, "Oxygen in the Heart", Paris, France, Jan 17, 2001.
 Visiting Professor, University of Wisconsin Department of Comparative Biosciences, Feb 2001.
 Visiting Professor, University of Kansas, Department of Physiology, March 26, 2001.
 Invited Speaker, International Symposium on Intensive Care Medicine, Brussels, March, 2001.
 Visiting Professor, Case Western Reserve University, May 1, 2001.
 Visiting Professor, Louisiana State University, New Orleans, LA , 27-28 August, 2001.
 Visiting Professor, University of South Alabama, Mobile, AL, 1-2nd October, 2001.
 Visiting Professor, George Washington University, Washington, DC, 11-12th October, 2001.
 Visiting Professor, University of Texas Medical Branch, Galveston, TX Mar 6-7, 2002.
 Visiting Professor, Department of Anesthesiology, Univ. Rochester SOM, Jun 5-6, 2002.
 Invited Speaker, Wound Healing and Oxygen Transport Conf, Ohio State Univ. Sept. 12-15, 2002.
 Invited Speaker, European Society of Intensive Care Medicine, Barcelona, Sept 29-Oct 2, 2002.
 Invited Speaker, 9th International Symposium on Adenosine, Cardioprotection and Clinical Application.
 Chicago, Nov 16, 2002.
 Invited Speaker, The Intensive Care Society Meeting, London, Dec 12-13, 2002.
 Recipient, Asmund S. Laerdal Memorial Award, Society of Critical Care Medicine, Jan. 2003.
 Invited Speaker, Society of Critical Care Medicine Annual Meeting, San Antonio, TX Jan 29-31, 2003.
 Invited Speaker, 13th Annual Hypoxia Symposium, Banff, Canada Feb 19-22, 2003.
 Invited Speaker, Univ. Pittsburgh Dept. of Critical Care, Oct 13-14, 2003.
 Invited Speaker, Univ. North Carolina, Chapel Hill, Dept. Cell and Develop. Biol. Apr 28, 2004.
 Invited Speaker, NATA International Conference, San Francisco, CA June 13-14, 2003.
 Invited Speaker, Keystone Meeting, Biology of Hypoxia, Steamboat Springs, CO, Mar 25-30, 2004.
 Invited Speaker, Conway Institute Hypoxia meeting, Univ. College Dublin, 20-21 Oct 2004.
 Invited Speaker, Oxidative Stress and Ion Channels, Kings College London, 19-20 Dec 2004.
 Invited Speaker, Novartis Foundation, Signaling pathways in acute oxygen sensing, London, Jan 2005.
 Invited Speaker, European Respiratory Society. Adaptations to Hypoxia, Palermo, Italy, Mar 2005.
 Invited Speaker, ARCS Foundation, Chicago, IL Mar. 2005
 Invited Speaker, European Respiratory Soc., Hypoxia in Lung Biology and Disease, Taormina, Italy
 March 2006.
 Invited Speaker, New York Academy of Science, "Life without O₂: Molecular mechanisms of hypoxia",
 March 2006.
 American Thoracic Society Scientific Accomplishment Award, May 2006.
 Member, New York Academy of Sciences, April 2006.
 Invited Speaker, Korean Cancer Society, Seoul, Korea, June 2006.
 Invited Speaker, 10th Oxford Conference on Hypoxia, Lake Louise, Canada, Sept. 2006.
 Juror, PhD Thesis Committee for Dr. Emmanuel Robin, University of Lille, France, Nov. 2006.
 Invited Speaker, Cold Spring Harbor Laboratory, "Redox regulation of Signal Transduction" Dec 2006.

Invited Speaker, Gordon Research Conference, "Oxidative Stress and Disease", Mar. 2007.
 Invited Participant, European Respiratory Society, Hypoxia Conference, Taormina, Italy, Mar 2007.
 Visiting Professor, Univ. California San Diego, School of Medicine, April 10-11, 2007.
 Invited Speaker, "Life Sciences 2007" Conference, Biochemical Soc., Glasgow, Scotland, July 2007.
 Invited Speaker, Hypoxia Conference, Monte Verita, Switzerland, November, 2007.
 Visiting Professor, McGill University, Montreal, Quebec, January 2008.
 Invited Speaker, Keystone Conference, Vancouver, B.C., Jan 15-20, 2008.
 Visiting Professor, Univ. Alabama at Birmingham, Dept. of Pathology, February 2008.
 Visiting Professor, Cincinnati Children's Hospital, Department of Pediatrics, Feb. 2008.
 Invited Speaker, ECCPS Hypoxia Conference, Max Planck Institute, Bad Nauheim, Germany, June 08
 Invited Speaker, Meeting on Oxygen Metabolism in Health and Disease, NYAS, New York, Mar 09
 Visiting Speaker, Michigan State Univ., Dept. of Biochem. & Molec Biol., East Lansing, MI April 09
 Visiting Speaker, Section of Cardiology, Cardiology Grand Rounds, Univ. of Chicago, April 2009
 Invited Speaker, Heart 2009 Conference, Nice, France, May 2009
 Invited Speaker, Meeting on Myocardial Metabolism, Padova, Italy, August, 2009
 Invited Speaker, Free Radical Biology & Medicine Meeting, San Francisco, CA, November 2009
 Invited Speaker, Meeting on Acute Respiratory Failure, Hôpital Saint Louis, Paris, April 2010
 Invited Participant, NIH Workshop on Pulmonary Hypertension, Bethesda MD May 2010
 Invited Speaker, "Chemistry and Biology of Reactive Oxygen Species", Wenner-Gren Foundations, Stockholm, Sweden, Sept. 2010
 Invited Speaker, International Meeting on Hypoxia, Leh, Ladakh, India, Sept. 2010
 Invited Speaker, TransAtlantic Airway Conference, Lucerne, Switzerland, Jan 2011
 Invited Speaker, Gordon Research Conference on Nitric Oxide, Ventura Beach, CA, Feb. 2011
 Invited Speaker, "Expanding Roles of Mitochondria in Cell Biology and Disease", HHMI Janelia Farm Campus, May 2011
 Visiting Professor, Division of Pulmonary and Critical Care, Univ. Iowa, Oct. 2011
 Invited Speaker, "Impact of Hypoxia on Cells, Mice and Men", Monte Verita, Switzerland, Oct. 2011
 Invited Speaker, "The McDowall Memorial Lecture", Kings College London, Dec. 2011
 Keystone Symposium on Hypoxia, Symposium Organizer and Invited Speaker, Banff, Canada Feb 2012
 Invited Speaker, Pediatric Sleep Medicine Section, Univ. of Chicago, July 2012
 Invited Speaker, Michigan State University, Oct 2012
 Invited Speaker, Free Radical Biology & Medicine Meeting, San Diego, CA, Nov 2012
 Invited Speaker, Banbury Center Symposium, Cold Spring Harbor Laboratory, Feb. 2013
 Invited Speaker, Am Thoracic Society Annual Meeting, Philadelphia, PA, May 2013
 Plenary Speaker, Queenstown Redox Research QMB Conference, Queenstown, New Zealand Aug 2013
 Invited Speaker, PVRI/ECCPS Congress, Bad Nauheim, Germany, Feb 2014
 Invited Speaker, Gordon research Conference on Oxygen Radicals, Ventura Beach, CA, Feb 2014
 Invited Speaker, University of Pittsburgh, Div. Pulmonary Medicine, Feb 2014
 Invited Speaker, NIH MitoIT Workshop, Bethesda, MD, Sept 2014
 Invited Speaker, Banbury Center Symposium, Cold Spring Harbor Laboratory, Oct 2014
 Invited Participant, Academia Colombiana de Medicina Critica Acomec Conference, Oct 2014
 Invited Speaker, Servicio de Inmunología, Hospital de La Princesa, Madrid, Dec 2014
 Invited Speaker, Seville Molecular Medicine Workshop, Seville, Spain, Dec 2014
 Invited Speaker, Am. Thoracic Soc. Annual Conference, Denver, CO, May 2015
 Invited Speaker, Universidad Internacional Menéndez Pelayo, Santander, Spain, July 2015
 Invited Speaker, Society for Redox in Biology and Medicine meeting, Chicago, IL June 2016
 Invited Speaker, International Society for Oxygen Transport to Tissue, meeting, Chicago, July 2016

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PUBLICATIONS

Original Manuscripts - Published or Accepted

1. Schumacker, P.T., G.R. Rhodes, J.C. Newell, R.E. Dutton, D.M. Shah, W.A. Scovill, and S.R. Powers. Ventilation-perfusion imbalance after head trauma. *Am Rev Respir Dis* 119:33-43, 1979.
2. Niehaus, G.D., P.T. Schumacker, and T.M. Saba. Reticuloendothelial clearance of blood-borne particulates. *Ann Surg* 191:479-487, 1980.
3. Schumacker, P.T. and T.M. Saba. Pulmonary gas exchange abnormalities following intravascular coagulation: reticuloendothelial involvement. *Ann Surg* 192:95-102, 1980.
4. Niehaus, G.D., P.T. Schumacker, and T.M. Saba. Influence of opsonic fibronectin deficiency on lung fluid balance during bacterial sepsis. *J Appl Physiol* 49:693-699, 1980.
5. Schumacker, P.T., J.C. Newell, T.M. Saba, and S.R. Powers. Ventilation-perfusion relationships with high cardiac output during lobar atelectasis. *J Appl Physiol* 50:341-347, 1981.
6. Niehaus, G.D., P.T. Schumacker, B.C. Dillon, and T.M. Saba. Influence of gelatin on bioassayable and immunoreactive opsonic fibronectin. *Proc Soc Exp Biol and Med* 168:15-23, 1981.
7. McEvoy, R.D., N.J.H. Davies, F.L. Manino, R.J. Prutow, P.T. Schumacker, P.D. Wagner, and J.B. West. Pulmonary gas exchange during high frequency ventilation. *J Appl Physiol* 52:1278-1287, 1982.
8. Breen, P.H., P.T. Schumacker, G. Hedenstierna, J. Ali, P.D. Wagner, and L.D.H. Wood. How does increased cardiac output increase shunt in pulmonary edema? *J Appl Physiol* 53:1273-1280, 1982.
9. Schumacker, P.T. and L.D.H. Wood. Limitation of aerobic metabolism in critical illness. *Chest* 85:453-454, 1984.
10. Schumacker, P.T., J.B. Hall, and L.D.H. Wood. Limitations of aerobic metabolism in critical illness. In J.L. Vincent, ed.: *Update in Intensive Care and Emergency Medicine* (Proceedings of the Fifth International Symposium on Intensive Care and Emergency Medicine, Brussels, March, 1985). Berlin: Springer-Verlag, 1985, pp. 144-145.
11. Schumacker, P.T., B. Guth, A.J. Suggett, P.D. Wagner and J.B. West. Effects of transfusion-induced polycythemia on O₂ transport during exercise in the dog. *J Appl Physiol* 58(3):749-758, 1985.

12. Schumacker, P.T., A.J. Suggett, P.D. Wagner, and J.B. West. Role of hemoglobin P50 in oxygen transport during normoxic and hypoxic exercise in the dog. *J Appl Physiol* 59:749-757, 1985.
13. Breen, P.H., P.T. Schumacker, J. Sandoval, I. Mayers, L. Oppenheimer, and L.D.H. Wood. Increased cardiac output increases shunt: role of pulmonary edema and perfusion. *J Appl Physiol* 59:1313-1321, 1985.
14. Hansen, D.E., K.M. Borow, A. Neumann, R.M. Lang, A.M. Fujji, P.T. Schumacker, and L.D.H. Wood. Effects of acute lung injury and anesthesia on left ventricular mechanics. *Am J Physiol: Heart Circ Physiol* 20:H1195-H1204, 1986.
15. Schumacker, P.T., J.I. Sznajder, A. Nahum, and L.D.H. Wood. Ventilation-perfusion inequality during constant flow ventilation. *J Appl Physiol* 62(3):1255-1263, 1987.
16. Schumacker, P.T., J. Rowland, S. Saltz, D.P. Nelson, and L.D.H. Wood. Effects of hyperthermia and hypothermia on the limit of oxygen extraction by tissues. *J Appl Physiol*. 63(3):1246-1252, 1987.
17. Schumacker, P.T., G.R. Long, and L.D.H. Wood. Tissue oxygen extraction during hypovolemia: role of hemoglobin P50. *J Appl Physiol* 62(5):1801-1807, 1987.
18. Nelson, D.P., C.E. King, S.L. Dodd, P.T. Schumacker, and S.M. Cain. Systemic and intestinal limits of oxygen extraction in the dog. *J Appl Physiol*. 63(1):387-394, 1987.
19. Nelson, D.P., C. Beyer, R.W. Samsel, L.D.H. Wood, and P.T. Schumacker. Pathologic supply dependence of O₂ uptake during bacteremia in dogs. *J Appl Physiol* 63:1487-1492, 1987.
20. Nahum, A., J.I. Sznajder, J. Solway, L.D.H. Wood, and P.T. Schumacker. Pressure-flow relationships in airway models during constant flow ventilation. *J Appl Physiol* 64(5):2066-2073, 1988.
21. Samsel, R.W. and P.T. Schumacker. Determination of the critical oxygen delivery from experimental data: sensitivity to error. *J Appl Physiol* 64(5):2074-2082, 1988.
22. Nelson, D.P., R.W. Samsel, L.D.H. Wood and P.T. Schumacker. Pathological supply dependence of systemic and intestinal O₂ uptake during endotoxemia in dogs. *J Appl Physiol*, 64(6): 2410-2419, 1988.
23. White, F.C., R. Kelly, S. Kemper, P.T. Schumacker, K.R. Gallagher, and R.M. Laurs. Organ blood flow haemodynamics and metabolism of the albacore tuna *Thunnus alalunga* (Bonnaterre). *Exp Biol* 47: 161-169, 1988.
24. Samsel, R.W., D.P. Nelson, L.D.H. Wood, and P.T. Schumacker. The effect of endotoxin on systemic and skeletal muscle oxygen extraction. *J Appl Physiol* 65(3):1377-1382, 1988.
25. Schumacker, P.T., J. Solway, L.D.H. Wood, and J.I. Sznajder. Lobar contribution to V_A/Q inequality during constant flow ventilation. *J Appl Physiol* 65:2132-2137, 1988.

26. Long, G.R., D.P. Nelson, J.I. Sznajder, P. Fan, L.D.H. Wood, and P.T. Schumacker. Systemic oxygen delivery and consumption during acute lung injury in dogs. *J Critical Care* 3(4):249-255, 1988.
27. Schumacker, P.T. R.W. Samsel, J.I. Sznajder, L.D.H. Wood, and J. Solway. Gas density dependence of regional V_A/V and V_A/Q inequality during constant flow ventilation. *J Appl Physiol* 66:1722-1729, 1989.
28. Ray, D.W., E.P. Ingenito, M. Strek, P. Schumacker, and J. Solway. Longitudinal distribution of canine respiratory heat and water exchanges. *J Appl Physiol*, 66:2788-2798, 1989.
29. Bredle, D.L., R.W. Samsel, P.T. Schumacker, and S.M. Cain. Critical O₂ delivery to skeletal muscle at high and low PO₂ in endotoxemic dogs. *J Appl Physiol*, 66:2553-2558, 1989.
30. Sznajder, J.I., A. Nahum, G. Crawford, E. Pollak, P.T. Schumacker, and L.D.H. Wood. Alveolar pressure inhomogeneity and gas exchange during constant flow ventilation in dogs. *J Appl Physiol*, 67(4):1489-1494, 1989.
31. Schumacker, P.T. and R.W. Samsel. Analysis of oxygen delivery and uptake relationships in the Krogh tissue model. *J Appl Physiol*, 67(3): 1234-1244, 1989.
32. Wylam, M.E., R.W. Samsel, J.G. Umans, R.W. Mitchell, A.R. Leff, and P.T. Schumacker. Endotoxin *in vivo* impairs endothelium-dependent relaxation of canine arteries *in vitro*. *Am Rev Respir Dis*, 142:1263-1267, 1990.
33. Samsel, R.W., D. Cherqui, A. Pietrabissa, W.M. Sanders, M. Roncella, J.C. Emond, and P.T. Schumacker. Hepatic oxygen and lactate extraction during stagnant hypoxia. *J Appl Physiol*, 70(1):186-193, 1991.
34. Drazenovic, R., R.W. Samsel, M.E. Wylam, C. Doerschuk, and P.T. Schumacker. Regulation of perfused capillary density in canine intestinal mucosa during endotoxemia. *J Appl Physiol* 72:259-265, 1991.
35. Schumacker, P.T. Pulmonary edema, shunt and blood flow distribution. *Intensive Care Medicine* 19:183-184, 1993.
36. Schumacker P.T., N. Chandel and A.G.N. Agusti. Oxygen conformance of cellular respiration in hepatocytes. *Am J Physiol* 265 (*Lung Cell Mol Physiol* 9): L395-L402, 1993.
37. Wylam, M.E., R.W. Samsel, P.T. Schumacker, and J.G. Umans. Extracellular calcium and intrinsic tone in the human umbilical artery. *J Pharmacol Exp Therapeutics* 266:1475-1481, 1993.
38. Umans J.G., M.E. Wylam, R.W. Samsel, J. Edwards, and P.T. Schumacker. Effects of endotoxin *in vivo* on endothelial and smooth-muscle function in rabbit and rat aorta. *Am Rev Respir Dis* 148:1638-1645, 1993.

39. Manthous, C.A. P.T. Schumacker, A. Pohlman, G.A. Schmidt, J.B. Hall, R.W. Samsel, and L.D.H. Wood. Absence of supply dependence of oxygen consumption in patients with septic shock. **J. Critical Care** 8(4):203-211, 1993.
40. Samsel, R.W., Lewis, H., W.M. Sanders, L.D.H. Wood, and P.T. Schumacker. The effect of adrenergic agonists on oxygen delivery and consumption. **J Critical Care** 9(1):25-33, 1994.
41. Schumacker, P.T., J.S. Soble, and T. Feldman. Oxygen delivery and uptake relationships in patients during aortic valvuloplasty. **Am J Resp. Critical Care Med** 149:1123-1132, 1994.
42. Samsel, R.W., G.A. Schmidt, J.B. Hall, L.D.H. Wood, S.G. Shroff, and P.T. Schumacker. Cardiovascular physiology teaching laboratories: Computer simulations vs. animal demonstrations. **Am J Physiology** 266: (Adv Physiol Education 11) S36-S46, 1994).
43. Hershenson M.B., N. Punjabi, J. Tallet, J.G. Umans, P.T. Schumacker, R.W. Mitchell, and J. Solway. Exposure of immature rats to hyperoxia increases tracheal smooth muscle stress generation *in vitro*. **J Appl Physiol**, 76(2):743-749, 1994.
44. Maginniss, L., H. Connolly, R.W. Samsel, and P.T. Schumacker. Adrenergic vasoconstrictor tone preserves systemic and hind limb VO_2 during reductions in O_2 delivery. **J Appl Physiol** 76(4):1454-1461, 1994.
45. Samsel, R.W. and P.T. Schumacker. Systemic hemorrhage augments local O_2 extraction in canine intestine. **J Appl Physiol** 77: 2291-2298, 1994.
46. Schumacker, P.T., J. Kazaglis, H.V. Connolly, R.W. Samsel, M.F. O'Connor, and J.G. Umans. Systemic and gut O_2 extraction during endotoxemia: Role of nitric oxide synthesis. **Am J Resp Crit Care Med** 151: 107-115, 1995.
47. Chandel, N., G.S. Budinger, R.A. Kemp, and P.T. Schumacker. Inhibition of cytochrome c oxidase during prolonged hypoxia. **Am J Physiol: Lung Cell Mol Physiol** 268: L918-L925, 1995.
48. Budinger G.S., N.S. Chandel Z.H. Shao, C.Q. Li, A. Melmed, L.B. Becker and P.T. Schumacker. Cellular energy utilization and supply during hypoxia in embryonic cardiac myocytes. **Am J Physiol** 270 (Lung Cell Molec Physiol 14): L44-LL53, 1996.
49. VandenHoek, T.L., Z. Shao, C. Li, R. Zak, P.T. Schumacker, and L.B. Becker. Reperfusion injury in cardiac myocytes after stimulated ischemia. **Am J Physiol: Heart Circ Physiol** 270:H1334-H1341, 1996.
50. Budinger, G.S., T. Feldman, and P.T. Schumacker. O_2 supply dependence of respiration in patients with mitral stenosis undergoing valvuloplasty. **Am J Resp Crit Care Med**. 153:1034-1040, 1996.

51. Schumacker, P.T. Oxygen delivery and consumption relationships: Current perspectives. (Proceedings from Societe De Reanimation De Langue Francaise, 3rd European Consensus Conference in Intensive Care Medicine Tissue Hypoxia, December 1995) **Reanimation Urgences** 5(2):186-190, 1996.
52. Chandel, N.S., G.R.S. Budinger, and P.T. Schumacker. Molecular oxygen modulates cytochrome c oxidase function. **J Biol Chem** 271(31): 18672-18677, 1996. PMID:8702521
53. Connolly H.V., L.A. Maginniss and P.T. Schumacker. Transit time heterogeneity in canine small intestine: Significance for oxygen transport. **J Clin Invest** 99(2):228-238, 1997.
54. Chandel, N.S., G.R.S. Budinger, S.H. Choe, and P.T. Schumacker. Cellular respiration during hypoxia: Role of cytochrome oxidase as the oxygen sensor in hepatocytes. **J Biol Chem** 272:18808-18816, 1997.
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