

## **Curriculum Vitae**

### **Claes E.G. Lundgren**

CITIZENSHIP: Sweden  
VISA STATUS: Resident Alien

MARITAL STATUS: Married - Wife: Lone  
Children: Pia, Anna, and Eva

MILITARY STATUS: Lt. Commander, M.C., Royal Swedish Navy, Retired

## **ACADEMIC HISTORY**

1959 M.D., University of Lund School of Medicine, Lund, Sweden  
1967 Ph.D. (in Physiology), University of Lund, Sweden  
Thesis: Experimental decompression sickness in goats in relation to predicted tissue gas super-saturation

## **PROFESSIONAL HISTORY**

1951-54 Junior Teacher, Medical Physiology, Institute of Physiology, University of Lund, Sweden  
1955-59 Assistant Teacher, Medical Physiology, Institute of Physiology, University of Lund, Sweden  
1959 Postdoctoral Fellow, August Krogh Institute of Human Physiology, Univ of Copenhagen, Denmark  
1960-63 Research Physician, Swedish Board of Aviation and Naval Medicine  
1964-67 Research Physician, Swedish Medical Research Council  
1967-70 Deputy Associate Professor of Physiology, University of Lund, Sweden  
1971-77 Associate Professor of Physiology, University of Lund, Sweden  
1974-75 Visiting Associate Professor of Physiology, University at Buffalo, SUNY, Buffalo, NY.  
1976 Professor of Physiology, University at Buffalo, SUNY, Buffalo,  
1977-85 Director, Hyperbaric Research Laboratory, University at Buffalo, SUNY, Buffalo, NY.

- 1978 Appointment to Divisional Committee, Executive Committee of the Graduate School, University at Buffalo, SUNY, Buffalo, NY.
- 1985-94 Director, Center for Research in Special Environments, University at Buffalo, SUNY, Buffalo, NY.
- 1994-present Director, Center for Research and Education in Special Environments, University at Buffalo, SUNY, Buffalo, NY.
- 1998-present Professor of Physiology & Biophysics, University at Buffalo, SUNY, Buffalo, NY.

**CONSULTANTSHIPS, SERVICES AND EDITORIAL BOARDS:**

- 1954-77 Medical Supervisor, Altitude Test Chamber, University of Lund, Sweden
- 1964-77 Consultant, Hyperbaric Medicine, University Hospital of Lund, Sweden
- 1965-77 Medical Consultant, Swedish Sport Divers Association
- 1967-70 Consultant, Oceanic Institute, Makapuu Point, Oahu, Hawaii
- 1970-72 Member, Committee on Ocean Research, Swedish Board of Technical Development
- 1974-77 Member, Subcommittee on Medical Defense Research, Swedish Medical Research Council
- 1974-79 Member, Editorial Board, Undersea Biomedical Research
- 1975-78 Member, Executive Committee, Undersea Medical Society
- 1977-78 Consultant, Hyperbaric Medicine Program, Veterans Administration Hospital, Buffalo, New York
- 1977-78 Member, Editorial Board, Journal of Applied Physiology: Respiratory, Environmental and Exercise Physiology
- 1977-78 Member, Buswell Research Committee, University at Buffalo, SUNY, Buffalo, NY.
- 1977-78 Member, International Affairs Committee, Undersea Medical Society
- 1978 Member, Environmental and Occupational Health Evaluation Committee, University at Buffalo, SUNY, Buffalo, NY.
- 1978 Member, Health Sciences Instruments Shop, Special Advisory Committee, University at Buffalo, SUNY, Buffalo, NY.

- 1978 Member, Master's Program Committee, University at Buffalo, SUNY, Buffalo, NY.
- 1978-79 Member, Stockton Kimball Award Committee, University at Buffalo, SUNY, Buffalo, NY.
- 1978-81 Chairman, Buswell Research Committee, University at Buffalo, SUNY, Buffalo, NY.
- 1981 Member, Scientific Program Committee of the 1981 Annual Scientific Meeting of the Undersea Medical Society
- 1982 Member, Health Sciences Instruments Shop, Special Advisory Committee, University at Buffalo, SUNY, Buffalo, NY.
- 1982 Member, Faculty Council Committee for Continuing Medical Education, University at Buffalo, SUNY, Buffalo, NY.
- 1983-86 Member, Veterans Administration Hospital Research and Development State Committee, University at Buffalo, SUNY, Buffalo, NY.
- 1983 Chairman, Safety Committee, Department of Physiology, University at Buffalo, SUNY, Buffalo, NY.
- 1984 Member, Search Committee for Chairman of Nuclear Medicine, University at Buffalo, SUNY, Buffalo, NY.
- 1984 Member, Promotions Committee, Department of Physiology, University at Buffalo, SUNY, Buffalo, NY.
- 1984-87 Member, First Year Committee, School of Medicine, University at Buffalo, SUNY, Buffalo, NY.
- 1984-85 Member, Committee for Physiology Research Day, School of Medicine, University at Buffalo, SUNY, Buffalo, NY.
- 1985-90 Chairman, Workshop Committee of the Undersea Medical Society
- 1985-87 Member, University at Buffalo President S. Sample's Research Advisory Council
- 1985 Member, Operations Committee for Center for Research in Special Environments

- 1986 Member, Technical Advisory Board of the Health-Care Instruments and Devices Institute
- 1987 Member, Program Committee for 1987 annual meeting of Undersea and Hyperbaric Medical Society
- 1987-88 Member, Faculty Committee on Performance Recognition
- 1987 Advisor, U.S./Japan Cooperative Program in Natural Resources (UJNR) Panel on Diving Physiology and Technology
- 1987-92 Member, Editorial Board, Undersea Biomedical Research
- 1993 Member, Editorial Board, Undersea & Hyperbaric Medicine
- 1987-90 Member, Committee for Direction of Hyperbaric Unit, Millard Fillmore Hospital
- 1988 Member, Hyperbaric Chamber Advisory Committee, Millard Fillmore Hospital
- 1988-89 Member, Nominations Committee of the Undersea and Hyperbaric Medical Society
- 1989 Member, Niagara Frontier Association of Research and Development Directors (NFARDD)
- 1990-91 Member, Anesthesiology Chair Search Committee
- 1990 Member, Review Board, European Journal of Applied Physiology and Occupational Physiology
- 1992 Member, University at Buffalo Working Group on Economic Development
- 1994-96 Member, International Physiology Committee of the American Physiological Society
- 1997 Faculty Senate Committee on Research and Creative Activities
- 1997 Search Committee for Director, UB Technology Transfer Services
- 1998-2001 Alternate member, Health Sciences Institutional Review Board (IRB) (May 1, 1998 through April 30, 2001)
- 1998 Search Committee for Director, UB Technology Transfer Services
- 2005 Technology transfer assistance: An advanced cardiovascular diagnostic system has been invented by D. Hickey, MD and assigned to the University at Buffalo. Concerted efforts over ten years by the university technology transfer

office and several expert consultants had been unsuccessful in finding a licensee for this invention with a substantial market potential when, in 2005 Dr. Lundgren identified a potential industrial partner (Medi-Hut, Inc) for the project. Through a personal information drive he primed the company's interest with the result that the Intellectual Property Division (J. Dunbar, Director) of STOR in 2006 was able to close a license agreement with the company to manufacture and market the Hickey-system world-wide.

#### **HONORS AND AWARDS:**

- 1959 Ebba and Herman Bing Award, Copenhagen, toward post-doctoral research in Physiology in Denmark
- 1959 Visiting Scientist, August Krogh Institute of Human Physiology, University of Copenhagen, Denmark
- 1963 Honorary Member, Swedish Divers Association
- 1967 Charter Member, Undersea Medical Society
- 1967 Docent of Aviation and Naval Physiology, University of Lund
- 1975 Visiting Associate Professor of Physiology, Department of Physiology, State University of New York at Buffalo
- 1982 Stover-Link Award, Undersea Medical Society
- 1993 Teaching Excellence for Preclinical Teaching, SUNY at Buffalo, School of Medicine and Biomedical Sciences
- 1997 The Albert Behnke Jr. Award, Undersea and Hyperbaric Medical Society
- 1997 Achievement in Health Care Award, D'Youville College, Buffalo, NY
- 1998 Invited Key-note speaker, XXIV Annual Scientific Meeting of the European Underwater and Baromedical Society
- 1999 First Place, Niagara Frontier Inventor of the Year Award in Life Sciences; for US Patent no. 5,869,538 "Method of enhancing transport of gases to tissues" (C. Lundgren and coinventors, H. VanLiew, M. Burkhard, I. Tyssebotn). Nomination for this award was made by the University of Buffalo Technology Transfer and Licensing Office and sponsored by the Niagara Frontier Intellectual Property Law Association.
- 1999 Visiting Professor, Harvard Medical School/Brigham and Women's Hospital, November 3.

- 1998           Invited speaker, Symposium on “Current Advances in Biophotonics and Nanomedicine”, held October 19-21, 2000 in Buffalo, New York.
- 2001           Visiting Professor, Institute of Environmental Medicine, Department of Anesthesia, University Penn. Medical Center, February 8-9.
- 2002           Outstanding Inventor Award from The Research Foundation of the State University of New York
- 2004           UB Exceptional Scholar Award for Sustained Achievement
- 2004           Western New York Pioneer of Science Award from Hauptmann-Woodward Medical Research Institute
- 2005           2005 State University of New York Chancellor’s Award for Excellence in Scholarship and Creative Activities.
- 2006           Invited to deliver the 2007 Annual Sven Berggren Lecture of the Royal Physiographic Society; Academy for Natural Sciences, Medicine and Technology in Lund, University of Lund, Sweden.

**PROFESSIONAL SOCIETY MEMBERSHIPS:**

- Aerospace Medical Association
- American Physiological Society
- European Undersea Biomedical Society
- Swedish Inventors Association
- Undersea and Hyperbaric Medical Society

**CONGRESSES:**

Participated by invitation in several International Physiology Workshops, Symposia, and Congresses, as well as serving on their organizational and program committees.

Organizer and Chairman, by invitation, of workshop on "Monitoring Vital Signs in the Diver," under the auspices of Undersea Medical Society, held in Bethesda, Maryland, March 17-18, 1978.

Member, Planning Committees for 1983 and 1984 International Symposia on Underwater Physiology.

Organizer and Chairman of workshop "The Physiology of Breath-hold Diving" held October 28-29, 1985 at the State University of New York at Buffalo under the auspices of the New York Sea Grant Institute.

Organizer and Chairman of workshop "Physiological and Human Engineering Aspects of Underwater Breathing Apparatus held April 10-11, 1989 at the Center for Research in Special Environments.

Invited speaker to The 9<sup>th</sup> International Symposium on Blood Substitutes, Tokyo. a, 3-5 March, 2003.

Invited speaker to The 13<sup>th</sup> Keio University International Symposium for Life Sciences and Medicine. *Research and Development of Artificial Oxygen Carrier - Its Frontline-*. Tokyo, Japan, February 28- March 1, 2003.

Invited speaker and co-organizer (w. Dr MP. Krafft, Institut Charles Sadron (ICS) CNRS (UPR 22), Strasbourg Cedex,(France) , a forum on "New developments in Perfluorocarbon based oxygen carriers" at the X<sup>th</sup> International Symposium on Blood Substitutes, June 12-15, 2005, Brown University, Providence, Rhode Island.

Keynote speaker at Blue2005: European Symposium on the physiology of breath-hold diving in Pisa, Italy, Dec.1-2, 2005.

Keynote speaker at international workshop on the physiology of breath-hold diving June 20-21 held at the annual scientific meeting of the Undersea and Hyperbaric Medical Society Meeting, June 2006.

## **PATENTS**

Holds, with co-inventors ore than 100 patents (list available on request) pertaining to, among other areas, human engineering and the pharmaceutical fields (Nicorette® for smoking withdrawal; Method for enhancing transport of gases to tissues, Method and apparatus for respiratory muscle training). Several of the inventions relate to breathing gear for divers. The present standard mixed gas breathing apparatus of the Swedish, Finnish and Danish Navies has for several decades been based on patents held by C. Lundgren and coinventors.

## **BIBLIOGRAPHY**

### **Selected Scientific Publications:**

Lundgren, C.E.G. Alveolar oxygen concentration during oxygen administration in healthy and hypoxemic subjects. *Acta Physiol. Scand.*, 1953, 30, Suppl. III.

Arborelius, M. and C.E.G. Lundgren. En andningsapparat for undervattensbruk. (An underwater breathing apparatus.) *Meddelanden fran Flyg-och Navalmedicinska Namnden*, nr. 3, 1956, 5.

Arborelius, M. and C.E.G. Lundgren. Fri uppstigning - kontrollerad uppstigning. (Free ascent - controlled ascent.) *Meddelanden fran Flygoch Navalmedicinska Namnden*, nr. 2, 1957.

- Lundgren, C.E.G., A. Muren and B. Zederfeldt. Effect of cold-vasoconstriction on wound healing in the rabbit. *Acta Chir. Scand.* 118:1-4, 1959.
- Lichtneckert, S., C.E.G. Lundgren and L. Akesson. A method for controlling volume of tidal air in respiratory experiments. *J. Appl. Physiol.* 14:1061-1062, 1959.
- Bouhuys, A., R. Jonsson, S. Lichtneckert, S. Lindell, C.E.G. Lundgren and G. Lundin. The effect of epinephrine and hexamethonium bromide on the pulmonary ventilation in man. *Acta. Physiol. Pharmacol. Naerland.* 8:437-446, 1959
- Bouhuys, A., R. Jonsson, S. Lichtneckert, S. Lindell, C.E.G. Lundgren, G. Lundin and T. Ringqvist. Effects of histamine on pulmonary ventilation in man. *Clin. Science* 19:1, 1960.
- Lundgren, C.E.G. Oxygen dissociation curve of human blood equilibrated with high concentrations of oxygen. *Scand. J. Clin. Lab. Invest.* 13:291-296, 1961.
- Bouhuys, A., S. Lichtneckert, C.E.G. Lundgren and G. Lundin. Voluntary changes in breathing pattern and N<sub>2</sub> clearance from lungs. *J. Appl. Physiol.* 16:1039-1042, 1961.
- Lichtneckert, S. and C.E.G. Lundgren. An index of alveolar ventilation. *J. Appl. Physiol.* 18:639-645, 1963.
- Goransson, A., C.E.G. Lundgren and G. Lundin. A theoretical model for the computation of decompression tables for divers. *Nature* 199:384, 1963.
- Lichtneckert, S., C.E.G. Lundgren and L. Akesson. Mechanical aid for plotting multiple breath nitrogen elimination curves. *J. Appl. Physiol.* 19:147, 1964.
- Lichtneckert, S. and C.E.G. Lundgren. Semigraphical method for calculation of the index of alveolar ventilation (IAV). *J. Appl. Physiol.* 19:148-149, 1964.
- Lundgren, C.E.G. and N. Sandberg. Influence of hyperbaric oxygen on the tensile strength of healing skin wounds in rats. In: *Hyperbaric Oxygenation*, I. McA. Ledingham (Editor). Livingstone, Edinburgh, pp. 393-396, 1965.
- Lichtneckert, S. and C.E.G. Lundgren. A method of equalizing pressure in middle ear. *The Lancet*, June 12, p. 1282, 1965.
- Lundgren, C.E.G. Alternobaric vertigo - a diving hazard. *Brit. Med. J.* 2:511-513, 1965.
- Lichtneckert, S. and C.E.G. Lundgren. Distribution of inspired gas during ventilation without respiratory movements. *J. Appl. Physiol.* 20:1350-1354, 1965.
- Lundgren, C.E.G. and L. Malm. Alternobaric vertigo among pilots. *Aerospace Med.* 37:178-180, 1966.
- Lundgren, C.E.G. and N. Sandberg. Effect of hyperbaric oxygen on wound healing in rats after acute hemorrhage. In: *Hyperbaric Medicine*, I.W. Brown, Jr. and B.G. Cox (Editors). Natl. Acad. Sci.-Natl. Res. Council, Wash., DC, pp. 601-603, 1966.

Lundgren, C.E.G. Relations between bends symptoms and tissue gas saturation. In: Underwater Physiology, edited by C.J. Lambertsen. Williams & Wilkins Co., Baltimore, pp. 183-190, 1967.

Lundgren, C.E.G. Experimental decompression sickness in goats in relation to predicted tissue gas super-saturation. Forsvarsmedicin 3 (Suppl. 3), pp. 1-67, 1967.

Lundgren, C.E.G. and L. Akesson. Temperature regulating device for high pressure chambers. Forsvarsmedicin 4:167-168, 1968.

Balldin, U., S.-A. Hedstrom, C.E.G. Lundgren and D. Thomson. Fall av gasbrand behandlade med hyperbar O<sub>2</sub>. (Cases of gas gangrene treated with hyperbaric oxygen.) Nord. Med. 79:589-591, 1968.

Lundgren, C.E.G. and D. Thomson. Air embolism and Babinski reflex. Brit. Med. J., 559-560, 1968.

Astrup, P., C.E.G. Lundgren, K. Mellempgaard, R.O. Mulhausen and M. Rorth. Changes of oxygen affinity of blood at low and high pressures. The Lancet, 7570:732-733, 1968.

Lundgren, C.E.G. and B. Zederfeldt. Influence of low oxygen pressure on wound healing. Acta Chir. Scand. 135:555-558, 1969.

Eger, E.J.,II, C.E.G. Lundgren and S.L. Miller. Anaesthetic potency of CF<sub>4</sub> and SF<sub>6</sub> in dogs. Nature 221:468-469, 1969.

Eger, E.J. II, C.E.G. Lundgren, S.L. Miller and W.C. Stevens. Anaesthetic potencies of sulfur hexafluoride, carbon tetrafluoride, chloroform, and ethrane in dogs: Correlation with the hydrate and lipid theories of anaesthetic action. Anaesthesiology 30:129-135, 1969.

Balldin, U., C.E.G. Lundgren and H. Westling. The influence of added respiratory dead space on decompression sickness in goats. Forsvarsmedicin 7:33-38, 1971.

Balldin, U., G. Dahlback and C.E.G. Lundgren. Changes in vital capacity produced by oxygen breathing during immersion with the head above water. Aerospace Med. 42:384-387, 1971.

Balldin, U., C.E.G. Lundgren, J. Lundvall and S. Mellander. Changes in the elimination of <sup>133</sup>Xenon from the anterior tibial muscle in man induced by immersion in water and by shifts in body position. Aerospace Med. 42:489-493, 1971.

Arborelius, M. Jr., U. Balldin, B. Lilja and C.E.G. Lundgren. Hemodynamic changes in man during immersion with the head above water. Aerospace Med. 43:592-598, 1972.

Arborelius, M. Jr., U. Balldin, B. Lilja and C.E.G. Lundgren. Regional lung function in man during immersion with the head above water. Aerospace Med. 43:701-707, 1972.

Dahlback, G. and C.E.G. Lundgren. Pulmonary air-trapping induced by water immersion. Aerospace Med. 43:768-774, 1972.

Lundgren, C.E.G. and H. Ornhagen. Oxygen consumption in liquid breathing mice. Aerospace Med. 43:831-835, 1972.

Balldin, U. and C.E.G. Lundgren. Effects of immersion with the head above water on tissue nitrogen elimination in man. *Aerospace Med.* 43:1101-1108, 1972.

Lundgren, C.E.G. and H. Ornhagen. Hydrostatic pressure tolerance in liquid breathing mice. In: *Underwater Physiology V*, C.J. Lambertsen (Editors). FASEB, Bethesda, MD., pp. 397-404, 1976.

Ferno, O., S. Lichtneckert and C.E.G. Lundgren. A substitute for tobacco smoking. *Psychopharmacologia (Berlin)* 31:201-204, 1973.

Dahlback, G. and C.E.G. Lundgren. Dynamic factors in pulmonary air-trapping during immersion. In: *Proc. First Ann. Sci. Meet. of the European Undersea Biomed. Soc.*, C.M. Hesser and D. Linnarsson (Editors). *Forsvarsmedicin* 9:247-250, 1973.

Lundgren, C.E.G. On alternobaric vertigo - epidemiologic aspects. IN: *Proc. First Ann. Sci. Meet. of the European Undersea Biomed. Soc.*, edited by C.M. Hesser and D. Linnarsson. *Forsvarsmedicin* 9:406-409, 1973.

Lundgren, C.E.G., O. Tjernstrom and H. Ornhagen. Alternobaric vertigo and hearing disturbances in connection with diving: An epidemiologic study. *Undersea Biomed. Res.* 1(3):251-258, 1974.

Lundgren, C.E.G. Hydrostatic pressure effects in liquid breathing mice. In: *The Strategy for future diving to depths greater than 1,000 feet*, M.J. Halsey et al. (Editors). *Undersea Med. Soc. Rept. No WS:6-15-75*, pp.25-28, 1976.

Lundgren, C.E.G. and H. Ornhagen. Nausea and abdominal discomfort - possible relation to aerophagia during diving: An epidemiologic study. *Undersea Biomed. Res.* 2(3):155-160, 1975.

Brattstrom, P., B. Lindvall, C.E.G. Lundgren and H. Ornhagen. Influence of body posture and ear clearing on body buoyancy during diving. *Undersea Biomed. Res.* 2(3):161-166, 1975.

Lundgren, C.E.G. and H. Ch. Ornhagen. Heart rate and respiratory frequency in hydrostatically compressed, liquid breathing mice. *Undersea Biomed. Res.* 3(4):303-320, 1976.

Lundgren, C.E.G. and H. Ch. Ornhagen. Sex difference in the tolerance to hydrostatic pressure. In: *Proc. of VII Internatl. Symp. on Marine Medicine*, 23-30 Sept. 1976, Odessa, USSR.

Ivarsson, A., C.E.G. Lundgren, O. Tjernstrom, R. Uddman and H. Ornhagen. Eustacian tubal function during immersion. *Undersea Biomed. Res.* 4(1):9-18, 1977.

Thalman, E.D., D.K. Sponholtz and C.E.G. Lundgren. Chamber-based system for physiological monitoring of submerged exercising subjects. *Undersea Biomed. Res.* 5(3):293-300, 1978.

Thalman, E.D., D.K. Sponholtz and C.E.G. Lundgren. Effects of immersion and static lung loading on submerged exercise at depth. *Undersea Biomed. Res.* 6(3):259-290, 1979.

Lundgren, C.E.G. Physiological and medical monitoring of the diver. IN: Twenty-Third Undersea Medical Society Workshop "Techniques for Diving Deeper than 1,500 Feet" in Wilmington, North Carolina, U.S.A., 19-21 March 1980. UMS Publication No 40 WS(DD) 6-30-80.

Ornhagen, H., C. Lundgren and A. Muren. Hydrogen oxygen exposure of rabbits at 3.0 MPA (30 atm) with multiday survival. Presented at the 7th Symposium on Underwater Physiology, July 5-11, 1980, Athens, Greece.

Kurss, D.I., C.E.G. Lundgren and A.J. Pasche. The effect of water temperature on vital capacity during head-out immersion. In: Underwater Physiology VII, A.J. Bachrach and M.M. Matzen (Editors). Undersea Med. Soc., pp. 297-301, 1981.

Matsuda, M., S.K. Hong, H. Nakayama, H. Arita, Y.C. Lin, J. Claybaugh, C. Lundgren and R.M. Smith\*. Physiological responses to immersion at 31 ATA (Seadragon IV). In: Underwater Physiology VII, A.J. Bachrach and M.M. Matzen (Editors). Undersea Med. Soc., pp. 283-296, 1981.

Ohta, Y., H. Arita, H. Nakayama, S. Tamaya, C. Lundgren, Y.C. Lin, R.M. Smith, R. Morin, L.E. Farhi and M. Matsuda\*. Cardiopulmonary functions and maximal aerobic power during a 14-day saturation dive at 31 ATA (Seadragon IV). In: Underwater Physiology VII, A.J. Bachrach and M.M. Matzen (Editors). Undersea Med. Soc., pp. 209-221, 1981.

Lundgren, C.E.G. and A. Pasche. Static lung loading and other immersion effects. Pp. 121-123 in: The Unconscious Diver: Respiratory Control and Other Contributory Factors. Proceedings of the twenty fifth Undersea Medical Society Workshop in Madison, Wisconsin, 18-20, September, 1980. UMS Publ. No. 52WS (RC) 125-82.

Hickey, D.D. and C.E.G. Lundgren. Lessons from breathhold diving. IN: The Unconscious Diver: Respiratory Control and Other Contributory Factors. Proceedings of the Twenty-Fifth, Undersea Medical Society Workshop in Madison, Wisconsin, 18-20 September, 1980. UMS Publ. No. 52WS (RC).

Lundgren, C.E.G. A physiologist's approach to breathing gear design. In: Proceedings of the First Ocean Technology Congress, Toronto, Ont., Canada, March 11-12, 1982, pp. 216-243.

Lundgren, C.E.G. and J.C. Mollendorf. Factors influencing air release in water within 1 - 70 atm range. American Institute of Aeronautics and Astronautics/Electric Power Research Institute, sponsored by International Conference on Underground Pumped Hydro and Compressed Air Energy Storage. San Francisco, Cal. Sept. 20 - 22, 1982.

Hickey, D.D., C.E.G. Lundgren and A.J. Pasche . Influence of exercise on maximal voluntary ventilation and forced expiratory flow at depth. Undersea Biomed. Res. 10(3): 241-254, 1983.

Hickey, D.D., C.E.G. Lundgren and A.J. Pasche. Enhancement of Maximal voluntary ventilation and expiratory flow at depth by exercise. Pp. 475-480 In: Proceedings of the 8th Symposium on Underwater Physiology, St. Jovite, Quebec, June 15-19, 1983.

Lundgren, C.E.G. Respiratory effects of static lung load during exercise at depth. In: *Hyperbaric Medicine and Underwater Physiology*. K. Shiraki and S. Matsuoka (Editors). Kitakyushu, Japan: The Program Committee of III UOEH Symposium, 1983, pp. 35-43.

Liner, M.H. and C.E.G. Lundgren. Cardiorespiratory observations in simulated breath-hold dives to 20 m. In: *Proceedings of the Seventh Meeting of the United States-Japan Cooperative Program in Natural Resources (UJNR) Panel on Diving Physiology and Technology*. Tokyo, Japan: Japan Marine Science & Technology Center, 1983, pp. 300-311.

Lundgren, C.E.G. Breath-hold Diving Mammals. In: *Third International Banff Hypoxia Symposium*, Alberta, Canada, January 25-28, 1983. New York: Alan R. Liss, Inc., 1983.

Lundgren, C.E.G. Respiratory function during simulated wet dives. *Undersea Biomed. Res.* 11:139-147, 1984.

Hajduczuk, Z., D.D. Hickey and C.E.G. Lundgren. Cardiac Output Adjustment to Sudden Immersion Determined by Impedance Cardiography. In: *Proceedings of the 8th Symposium on Underwater Physiology*, St. Jovite, Quebec, June 15-19, 1983. Bethesda, Maryland: *Undersea Biomed. Res.*, 1984, pp. 295-300.

Sterba, J.A. and C.E.G. Lundgren. Diving bradycardia and breath-holding time in man. *Undersea Biomed. Res.* 12(2):139-158, 1985.

Ferrigno, M., D.D. Hickey, M.H. Liner and C.E.G. Lundgren. Cardiac Performance in Humans During Breath-holding. *J. Appl. Physiol.*, 60(6):1871-1877, 1986.

Ferrigno, M., D.D. Hickey, M.H. Liner and C.E.G. Lundgren. Simulated breath-hold diving to 20 meters: cardiac performance in humans. *J. Appl. Physiol.* 62(6):2160-2167, 1987.

Lundgren, C.E.G. Theoretical Consideration of Hydrogen as a Breathing Gas in Diving. In: *Proceedings of the Thirty-third Undersea and Hyperbaric Medical Society/National Oceanic and Atmospheric Administration Workshop: Conference on Use of Hydrogen as a Diving Gas*. Oct. 3-5, 1985, Institute for Marine Biomedical Research, Wilmington, NC. Ralph W. Brauer (Editor). Bethesda, MD, 1987, pp. 141-143.

Norfleet, W.T., D.D. Hickey and C.E.G. Lundgren. A comparison of pulmonary function in divers breathing with a mouthpiece or a full face mask. *Undersea Biomed. Res.* 14(6):503-526, 1987.

Hickey, D.D., W.T. Norfleet, A.J. Pasche and C.E.G. Lundgren. Respiratory function in the upright working diver at 6.8 ATA (190 fsw). *Undersea Biomed. Res.* 14(3):241-262, 1987.

Rahn, H., A. Olszowka, C.E.G. Lundgren. Shallow Water and Ascent Blackout during Breath-hold Diving. In: *"Adaptive Physiology to Stressful Environments"*; Proceedings of an International Symposium on Environmental Physiology, Aug. 1984 in Jerusalem, Israel. S. Samueloff and M.K. Yousef, (Editors), Florida: CRC Press, Inc., 1987, pp. 43-50.

Morin, Frederick C. III, Edmund A. Egan, Claes E.G. Lundgren, Daniel D. Swartz. Prostacyclin does not change during an oxygen induced increase in pulmonary blood flow in the fetal lamb. *Prostaglandins Leukotrienes and Essential Fatty Acids* 32:139-144, 1988.

Morin, Frederick C. III, Edmund A. Egan, William Ferguson and Claes E.G. Lundgren. Development of the pulmonary vascular response to oxygen. *Am. J. Physiol.* 254 (Heart Circ. Physiol. 23):H542-H546, 1988.

Sterba, J.A. and C.E.G. Lundgren. Breath-hold duration in man and the diving response induced by face immersion. *Undersea Biomed. Res.* 15(5):361-375, 1988.

Niu, A.K.C., S.K. Hong, J.R. Claybaugh, J.M. Goldinger, O. Kwon, M. Li, E. Randall and C.E.G. Lundgren. Absence of diuresis during a 7-day saturation dive at 2.5 ATA N<sub>2</sub>-O<sub>2</sub>. *Undersea Biomed Res.* 17(3):189-199, 1990.

Warkander, D., W.T. Norfleet, G.K. Nagasawa and C.E.G. Lundgren. CO<sub>2</sub> retention with minimal symptoms but severe dysfunction during wet simulated dives to 6.8 ATA. *Undersea Biomed. Res.* 17(6):515-523, 1990.

Ferretti, G., M. Costa, M. Ferrigno, B. Grassi, C. Marconi, C.E.G. Lundgren and P. Cerretelli. Alveolar gas composition and exchange during deep breath-hold diving and dry breath-holds in elite divers. *J. Appl. Physiol.* 70(2):794-802, 1991.

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Shastri, K.A., G.L. Logue and C.E.G. Lundgren. *In vitro* activation of human complement by nitrogen bubbles. *Undersea Biomed Res.* 18(3):157-165, 1991.

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