

FRANZ HALBERG

Omnia metire quaecumque licet et immensa ad mensuram tempestive redige
Measure what is measurable and render measurable in time what as yet is not

-- A few glimpses into his life and achievements --

-- Awards --

- *Among his awards and honors were two from the University of Ferrara, Italy and from Lucknow India, countries that held a special place in his heart.*
- *Another is from Masaryk University where cooperation began in 1990 and continues to this day.*
- *A celebration was held in his honor after his election to the French Academy of Medicine, and memorabilia and congratulations from that event are captured in a book on display here.*

Honorary Doctor of Medicine and Surgery - the University of Ferrara, Italy: March 23, 1992.

Recognition (silver platter) - International Conference on “Role of Free Radicals and Anti-Oxidants in Health and Disease”, Department of Biochemistry, King’s George Medical University, India: February 10-12, 2003.

Honorary Doctor of Science in Medicine - University of Brno, Czech Republic: 2000.

Election as a Foreign Correspondent - French National Academy of Medicine: March 6, 1990.

Minnesota Longevity Award - recognizes a Minnesota Citizen who remains physically and intellectually active beyond their retirement years: January 13, 2008.

-- *Laudatios* --

- *Recognizing his achievements and leadership role, many colleagues worldwide wrote and published laudatios; a few are exhibited today.*
- *Some celebrated milestones such as Franz's 70th, 80th and 90th birthday. We are grateful to the late Agostino Carandente for publishing a whole issue of Chronobiologia as a Festschrift for Franz's 70th birthday.*
- *Other laudatios came from colleagues who had not previously met Franz in person. This is the case of PG - Fedor-Freybergh, the Editor-in-Chief of Neuroendocrinology Letters; and of Alexander Sidorin, Editor-in-Chief of Izvestiya (Atmospheric and Oceanic Physics).*

Chronobiologia 1989; 16(4), pp. 307-480 (see pp. 383-408 for a summary of Halberg's work and the birth of chronobiology as a de facto discipline).

Cornélissen G. Letter to Franz Halberg on his 80th Birthday – a personal recognition for his work and accomplishments.

Cornélissen G. Celebration of a Lifetime's Achievements in Nutrition by Franz Halberg. Open Nutraceuticals Journal. 2012; 5 (Suppl 1-M1): 15.

Fedor-Freybergh PG. Hommage à Franz Halberg. Neuroendocrinology Letters. 1999; 20:16-17.

Lord of Time: Franz Halberg (on the 90th Anniversary of his birth, on July 5, 2009). Munich, Germany: International Publishing House "SWB". 2009; 45 pp.

Halberg F, Cornélissen G, Schwartzkopff O. A Bibliography: Toward a Chrononoosphere (From Gk chronos = Time, Gk nous = Mind and Gk spairos = Globe). Prepared for the International Congress "Natural Cataclysms and Global Problems of Modern Civilization", September 19-21, 2011, Istanbul, Turkey. 2011; 174 pp.

-- Books & Articles --

- *Franz Halberg was a prolific writer, with more than 3,600 titles to his name.*
- *His first publication related to about 24-hour rhythms (before he coined the term circadian) was published in 1950 with Maurice Visscher.*
- *One of his last was published in the American Journal of Physiology – Heart and Circulatory Physiology in 2013 with Dean Emerita Deborah Powell.*
- *Perhaps one of the most influential papers he wrote was his 1960 chapter in the Proceedings of Cold Spring Harbor Symposium on Quantitative Biology.*
- *From 1974 to 1994, Franz served as Editor-in-Chief of the journal Chronobiologia, totally devoted to the field Franz created. Its first issue is on display.*
- *By 2009 when he was invited to write on chronotherapy, Franz had demonstrated benefits to be derived not only from optimization of circadian rhythms but also of other rhythmic components, the biological week in particular.*
- *When asked for a definition of chronobiology, Franz liked to say that time is the fourth dimension of medicine, the title of a symposium held in New Orleans in 1973.*
- *Thanks to his friendship with Earl Bakken, Medtronic published several booklets introducing the concepts of chronobiology and its many practical applications in medicine and biology more generally.*
- *With the late Andrew Ahlgren, Franz wrote a book on Cycles in Nature to introduce chronobiology to school children, which was published by the National Science Teachers Association and used as part of the science curriculum at the time.*

Halberg F, **Visscher MB**. Regular Diurnal Physiological Variation in Eosinophil Levels in Five Stocks of Mice. Proc Soc Exp Biol Med (Maywood) 1950; 75: 846-847.

Halberg F, **Powell D**, Otsuka K, Watanabe Y, Beaty LA, Rosch P, Czaplicki J, Hillman D, Schwartzkopff O, Cornélissen G. Diagnosing Vascular Variability Anomalies, Not Only MESOR-Hypertension. Am J Physiol Heart Circ Physiol. 2013; 305:H279-H294.

Halberg F. Temporal coordination of physiologic function. Cold Spring Harbor Symposia on Quantitative Biology 1960; 25: 289-310. Discussion on LD50, pp. 309-310.

Chronobiologia 1974; 1(1).

Youan B-B C. (Ed.) Chronopharmaceutics: Science and Technology for **Biological Rhythm Guided Therapy and Prevention of Diseases**. New Jersey: John Wiley & Sons, Inc. 2009; 341 pp. (see Preface and articles by Franz Halberg on pp. xvii-xxxii, 217-255, and 257-323).

Nicholson, A, Chariman. Time: **The Fourth Dimension of Medicine** (A Symposium on the Clinical Implications of Chronobiology, November 2-4, 1973). New Orleans, LA: The Upjohn Company. 1973; 20 pp. (see pp. 9-10 for an article by Franz Halberg on Clinical Implications of Chronobiology: An Overview).

Halberg F, Barnwell F, Hrushesky W, Lakatua D. Chronobiology: A Science in Tune with the Rhythms of Life. MN, USA: **Earl Bakken**. 1986; 20 pp.

Cornélissen G, Halberg F. Introduction to Chronobiology – Variability: from Foe to Friend, of Mice and Men. **Medtronic Chronobiology Seminar #7**. MN, USA: Franz Halberg. 1994; 52 pp.

Cornelissen G, Delmore P, Halberg F. Health Watch 3: Why 7-Day Blood Pressure Monitoring, What Everyone Should Know about Blood Pressure. Dedicated, on his 80th birthday, to **Earl E. Bakken**, the developer of the implantable cardiac pacemaker for long-term use (and founder of Medtronic Inc., the company manufacturing many devices for rehabilitation) to be better-known in the future for pre-habilitation. Minneapolis: Halberg Chronobiology Center, University of Minnesota/Department of Communications, **Medtronic**, Inc. 2004; 31 pp.

Ahlgren A, Halberg F. Cycles of Nature: An Introduction to Biological Rhythms. Washington DC: National Science Teachers Foundation. 1990; 87 pp.

-- Foundational work in Nutrition & Aging --

- *Lifetime contributions by Franz Halberg in the fields of Nutrition and Aging have been summarized by invitation in the Open Nutraceuticals Journal, which devoted an entire issue of the journal to his work, and in Gerontology, respectively.*
-

Cornélissen G. When You Eat Matters: 60 years of Franz Halberg's Nutrition Chronomics. Open Nutraceuticals Journal. 2012; 5(Suppl 1-M1): 16-44.

Cornélissen G, Otsuka K. Chronobiology of Aging: A Mini-Review. Gerontology. 2017; 63: 118-128.

-- Remembrances --

- *Throughout his life, Franz Halberg made many staunch friends. He always made us feel as being part of his extended family. It is a very large and diverse family covering all continents.*
- *Well-wishers expressed their gratitude in many different ways. On display are just a few photographs of very dear friends.*
- *A couple of paintings from Professor Revilla's wife, Carmela Rodriguez.*
- *The picture of Franz with Norberto Montabetti, who introduced time-specified reference values, was taken in Franz's office a short time before Norberto's untimely death.*
- *The picture of Franz with Kuniaki Otsuka was taken at the beginning of a very long and productive cooperation which continues to this day. With Kuniaki, we honored Franz's last wish to publish a book on chronomics, a summary of lessons learned in chronocardiology over the past 30 some years.*

- *Novera Herbert Spector, Professor, American Institute for Neuroimmunomodulation Research, Carlsbad, California, who conceived the field of neuroimmunomodulation and served as NIH Program Director, writes:*

When we were visiting our late friend the great Ian Baciú in Romania, Ian was suffering greatly from acute kidney failure. Franz offered to pay all expenses for a kidney transplant. Possibly, it was too late.

As you know Franz was a very crusty individual, but had a heart of gold.

Love
NHS/R