

Bühlmann Symposium 29./30. März 2019

Universitätsspital Zürich

Weitere Quellen für:

→ **Decompression Models: DeMystified**

→ **History and Development of Decompression Algorithms**

General:

R.Y Nishi, P. Tikuisis. CURRENT TRENDS IN DECOMPRESSION DEVELOPMENT: STATISTICS AND DATA ANALYSIS, December 1996, DCIEM No. 96-R-65.

Huggins, Karl E. (1992) The Dynamics of Decompression workbook, 1st. Edition, Ann Arbor, Michigan.

Wienke, B.R.: Equivalent Multi-Tissue and Thermodynamic Decompression Algorithms, Int J Biomed Comput, 24 (1989) 227 – 245.

Wienke, B.R.: On Modern Dive Computers and Operation, NAUI TEC papers, 13.09.2017, S. 23.

PADUA:

Beckman, Edward L. (1976) Recommendations for Improved Air Decompression Schedules for Commercial Diving, Sea Grant HAWAU-T-76-004.

EXPOSER:

Radermacher et al (1990): Nitrogen partial pressures in man after decompression from simulated scuba dives at rest and during exercise, U Biomed. Res., 18(6): 495- 501

PBPK:

Mapleson , W.W. An electrical analogue for uptake and exchange of inert gases and other agents. J. Appl. Physiol. 18: 197 – 204, 1963.

Levitt's PBPK:

Levitt DG. Heterogeneity of human adipose blood flow. BMC Clinical Pharmacology 2007; 7:1.

COMEX A/B:

THE ARTERIAL BUBBLE MODEL FOR DECOMPRESSION TABLES CALCULATIONS; JP Imbert, D Paris, J Hugon Divetech, France. In: EUBS, 2004, S.9

Single Tissue:

Baz, A and A. Seireg. 1979, Single-tissue modeling of decompression schedules. Undersea Biomed. Res. 6(3) : 217 – 229

Continuous HT:

Egi SM, Gürmen NM. Computation of decompression tables using continuous compartment half-lives. Undersea Hyper Med 2000; 27(3): 143 – 153

GFM:

Patent: DE 10 2006 028 085 A1 2007.12.20 Tauchcomputer und Verfahren zur Bestimmung von Gasbildung, Crow, Steven; Lewis, John.

Patent No.: US 7,313,483 B2 Dec.25,2007; Dive Computer and Method for Determining Gas Formation; Steven Crow, John Lewis

3CG:

A new class of biophysical models for predicting the probability of decompression sickness in scuba diving; Saul Goldman, Department of Chemistry and Guelph-Waterloo Physics Institute, University of Guelph, Guelph, Ontario, Canada; J Appl Physiol 103: 484–493, 2007. First published April 19, 2007; doi:10.1152/jappphysiol.00315.2006

CMD:

Voitsekovich, I. A mathematical decompression model based on biophysical and physiologic laws; Undersea Hyper. Med. 21(2): 209 – 213, 1994.

Articular Bends Model:

A new biophysical decompression model for estimating the risk of articular bends during and after decompression; J. Hugon, J.-C.Rostain, B.Gardette: Journal of Theoretical Biology 283 (2011) S.: 168–179

More bubble models:

Ramachandra Srinivivasan & Wayne A. Gerth, 2013:

Mathematical Models of Diffusion-Limited Gas Bubble Evolution in Perfused Tissue, TA 04-13, NEDU TR 13-05, Aug. 2013

TBDM:

Gernhardt, Michael L., Development and Evaluation of a Decompression Stress Index based on Tissue Bubble Dynamics, Dissertation, Institute for Environmental Medicine, Pennsylvania, 1991

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Ball R, Himm J, Homer LD, Thalmann ED. Does the time course of bubble evolution explain decompression sickness risk? Undersea Hyperbaric Med 1995 ; 22(3): 263 – 280

Ashida H, Ikeda T, Tikuisis P, Nishi RY. Relationship between two different functions derived from diffusion-based decompression theory. Undersea Hyperb Med 2005; 32(6): 429 – 435;

A biophysical vascular bubble model for devising decompression procedures, Ran Arieli & Abraham Marmur, Israel Naval Medical Institute, Haifa, and Eliachar Research, Physiological Reports ISSN 2051-817X, 2017 | Vol. 5 | Iss. 6 | e13191:

Van Liew, H.D., M.E. Burkhard. Density of decompression bubbles and competition for gas among bubbles, tissue and blood. J. Appl. Physiol. 75: 2292 – 2301, 1993.

Flook, V., R. Nishi, A. Khan. Modelling and Validation of Treatment Tables for Severe Decompression Accidents; in: Operational Medical Issues in Hypo-and Hyperbaric Conditions [les Questions medicale a caractere operationel liees aux conditions hypobares ou hyperbares] ADA395680, DCIEM, Oct. 2000.

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Statistically Based Decompression Tables:

a 11-volume series of papers from the NMRI:
Naval Medical Research Institute, Bethesda, Maryland.

- NMRI 85-16, Part I: Analysis of Air Dives: 1950 - 1970
- NMRI 85-17, Part II: Equal Risk Air Diving Decompression Schedules
- NMRI 86-50, Part III: Comparative Risk using U.S. Navy, British, and Canadian Standard Air Schedules
- NMRI 86-51, Part IV: Extension to Air and N2-O2 Saturation Diving
- NMRI 89-34, Part V: Haldane-Vann Models for Air Diving
- NMRI 91-84, Part VI: Repeat Dives on Oxygen/Nitrogen Mixes
- NMRI 92-85, Part VII: Selection and Treatment of Primary Air and N2O2 Data
- NMRI 92-73, Part VIII: Linear-Exponential Kinetics
- NMRI 96-05, Part IX: Probabilistic Models of the role of Oxygen in Human Decompression Sickness
- NMRI 96-06, Part X: Real-Time Decompression Algorithm using a probabilistic Model
- NMRC 99-01, Part XI: Manned Validation of the LE Probabilistic Model for Air and Nitrogen-Oxygen Diving

<https://www.divetable.info>