

https://dspace.org/

Human thermoregulation in the heat: predictive models of physiological conductance and sweat rate

Cohen, Marc Harry

2015-02-09
http://hdl.handle.net/10539/16954

Downloaded from a DSpace repository. https://dspace.org/

GRANT, W.L. (1956). The performance characteristics of the climatic chamber of the Chamber of Mines Applied Physiology Laboratory. Journal of the South African Institution of Mechanical Engineers, Vol. 6, pp.109-157.

HALDANE, J.S. and HANCOCK, W. (1929). Salt depletion by sweating. British Medical Journal, No. 2, p.469.

HANCOCK, W., WHITEHOUSE, A.G.R. and HALDANE, J.S. (1929). The loss of water and salt through the skin and corresponding physiologic adjustments. Proceedings of the Royal Society, Vol. 105B, pp.43-59.

HARDY, J.D. (1972). Models of temperature regulation - a review. In Essays on Temperature Regulation, edited by J. Bligh and R. Moore. North-Holland Publishing Co., Amsterdam, pp.163-186.

HATCH, T. (1963). Assessment of heat stress. In Temperature its measurement and control in science and industry. Vol. 3, Part 3, edited by J.D. Hardy. Reinhold, New York.

HERTIG, B.A. (1960). Effects of immersion in water on thermal sweating. D.Sc. thesis, University of Pittsburgh.

HODGSON, T. (1974). The development of instrumentation for the direct measurement of heat loss from man in a normal working mode. Ph.D. thesis, University of Natal, Durban, South Africa.

HOUDAS, J.L., LECROART, C., LEDRU, G., CARETTE, G. and GUIEU, J.D. (1977). The thermoregulatory mechanisms considered as a follow-up system. In New trends in thermal physiology. Proceedings of the satellite symposium on thermal regulation. Lille, France, edited by Y. Houdas and J.D. Guieu. Paris, Masson.

KERSLAKE, D.McK. (1972). The stress of hot environments (Monographs of the Physiological Society No. 29). Cambridge University Press, London.

KOK, R. and STRYDOM, N.B. (1970). A guide to climatic room acclimatization. Private communication.

KONZ, S., HWANG, C., DHIMAN, B, DUNCAN, J. and MASUD, A. (1977). An experimental validation of mathematical simulation of human thermoregulation. Computers in Biology and Medicine, Vol. 7, pp.71-82.

KUZNETZ, L.H. (1979). A two-dimensional transient mathematical model of human thermoregulation. American Journal of Physiology, Vol. 6, No. 3, pp.266-277.

LADELL, W.S.S. (1945). Thermal sweating. British Medical Bulletin, Vol. 3, pp.175-179.

LEE, D.H.K. (1980). Seventy-five years of searching for a heat index. Environmental Research, Vol. 22, pp.331-356.

MACDONALD, D.K.C. and WYNDHAM, C.H. (1950). Heat transfer in man. Journal of Applied Physiology, Vol. 3, No. 6, pp.342-364.

MINARD, D. and COPMAN, L. (1963). Elevation of body temperature in health. In Temperature its Measurement and Control in Science and Industry. Vol. 3, Part 3, edited by J.D. Hardy. Reinhold, New York, pp.327-541.

MITCHELL, D. (1972). Human surface temperature its measurement and its significance in thermoregulation. Ph.D. thesis, University of the Witwatersrand, Johannesburg, South Africa.

MITCHELL, D., SENAY, L.C., WYNDHAM, C.H., VAN RENSBURG, A.J., ROGERS, G.G. and STRYDOM, N.B. (1976). Acclimatization in a hot, humid environment: energy exchange, body temperature and sweating. Journal of Applied Physiology, Vol. 40 No. 5, pp.768-778.

MITCHELL, D., SNELLEN, J.W. and ATKINS, A.R. (1970). Thermoregulation during fever : change of set-point or change of gain. Pflügers Archiv, Ges. Physiology, Vol. 321, pp.293-302.

MOLE, R.H. (1948). The relative humidity of the skin. Journal of Physiology, Vol. 107, pp.399-411.

NADEL, E.R. (1980). Circulatory and thermal regulations during exercise. Federation Proceedings, Vol. 39, pp.1491-1497.

NADEL, E.R., MITCHELL, J.W. and STOLWIJK, J.A.J. (1971a). Control of local and total sweating during exercise transients. International Journal of Biometeorology, Vol. 15, No. 2, pp.201-206.

NADEL, E.R., BULLARD, R.W. and STOLWIJK, J.A.J. (1971b). Importance of skin temperature in the regulation of sweating. Journal of Applied Physiology, Vol. 31, No. 1, pp.80-87.

NADEL, E.R. and STOLWIJK, J.A.J. (1973). Effect of skin wettedness on sweat gland response. Journal of Applied Physiology, Vol. 35, No. 5, pp.689-694.

NIELSEN, B. (1969). Thermoregulation in rest and exercise. Acta Physiologica Scandanavia Supplementum 323, Copenhagen. From the laboratory for the theory of gymnastics, University of Copenhagen, Denmark.

PATERSON, A.M. (1976). Temperature profiles in human skin: An experimental and analytical study. Ph.D. thesis, University of the Witwatersrand, Johannesburg, South Africa.

PEISS, C.N., RANDALL, W.C. and HERTZMAN, A.B. (1956). Hydration of the skin and its effect on sweating and evaporative heat loss. Journal of Investigative Dermatology, Vol. 26, pp.459-470.

PETER, J. and WYNDHAM, C.H. (1966). Activity of the human eccrine sweat gland during exercise in a hot humid environment before and after acclimatization. Journal of Physiology, Vol. 187, pp.583-594.

RAMANATHAN, N.L. (1964). A new weighting system for mean surface temperature of the human body. Journal of Applied Physiology, Vol. 19, No. 3, pp.531-533.

REED, L.J. and BERKSON, J. (1929). Application of the logistic function to experimental data. Journal of Physical Chemistry, Vol. 33, pp.760-779.

REVOW, M.D. (1981). An investigation into the dynamic performance of a two wavelength skin reflectance oximeter. M.Sc. thesis, University of the Witwatersrand, Johannesburg, South Africa.

RINGUEST, J.L. (1981). A statistical model of the controller functions of the human temperature regulating system. Ph.D. thesis, Clemson University, Clemson, SC.

ROBINSON, S. (1949). Physiological adjustments to heat. In Physiology of Heat Regulation and the Science of Clothing edited by L.H. Newburgh. W.B. Saunders Co., Philadelphia, PA., pp.193-231.

ROWELL, L.B. (1977). Competition between skin and muscle. In Problems with Temperature Regulation during Exercise, edited by E.R. Nadel. Academic Press Inc., New York, pp. 49-76.

SALTIN, B., GAGGE, A.P. and STOLWIJK, J.A.J. (1968). Muscle temperature during submaximal exercise in man. Journal of Applied Physiology, Vol. 25, No. 6, pp.679-688.

SALTIN, B. and HERMANSEN, L. (1966). Esophageal, rectal and muscle temperature during exercise. Journal of Applied Physiology, Vol. 21, No. 6, pp.1757-1762.

SARGENT, F. (1962). Depression of sweating in man: so-called "Sweat gland fatigue". In Advances in Biology of the Skin, Vol. III, edited by W. Montagna et al. Pergamon Press, London, pp.163-212.

SHEPHERD, J.T. and WEBB-PEPLOE, M.M. (1970). Cardiac output and blood flow distribution during work in heat. In Physiological and Behavioural Temperature Regulation, edited by J.D. Hardy et al. Charles C. Thomas, Springfield, IL., pp.237-253.

SHINNERS, S.M. (1972). Modern control system theory and application. Addison-Wesley Publishing Co., Reading, MA..

STEWART, J.M. (1981). Heat transfer and limiting physiological criteria as a basis for setting heat stress limits for men working in hot humid mining environments. Ph.D. thesis, University of the Witwatersrand, Johannesburg, South Africa.

STEWART, J.M. (1982). Fundamentals of human heat stress. In press.

STEWART, J.M. and VAN RENSBURG, A.J. (1976). A theoretical consideration of heat transfer from nude man. Chamber of Mines of South Africa Research Review 1976/77, pp.58-72.

STOLWIJK, J.A.J. and HARDY, J.D. (1966). Partitional calorimetric studies of man during exposure to thermal transients. Journal of Applied Physiology, Vol. 21, No. 3, pp.967-977.

STOLWIJK, J.A.J. and HARDY, J.D. (1971). Control of body temperature. Reprint from Handbook of Physiology, pp.45-68.

VAN RENSBURG, A.J. and STEWART, J.M. (1977). Saturation levels of physiological conductance. Physiological and Pharmacological Society of Southern Africa, Annual Congress, Potchefstroom (unpublished).

VERMEULEN, A.J. (1966). An investigation into convective heat transmission between a circular cylinder with large diameter and air in transverse flow. South African Council for Scientific and Industrial Research. CSIR Report MEG 476.

WERNER, J. (1977). A mathematical treatment of structure and function of the human thermoregulatory system. Biology and Cybernetics, Vol. 25, pp.93-101.

WERNER, J. (1980). The concept of regulation for human body temperature. Journal of Thermal Biology, Vol. 5, pp.75-82.

WHILLIER, A. (1977). Predicting the performance of force draft cooling towers. Journal of the Mine Ventilation Society of South Africa, Vol. 30, No. 1, pp.2-24.

WILLIAMS, C.G. et al. (1962). Circulatory and metabolic reactions to work in heat. Journal of Applied Physiology, Vol. 17, pp.625-638.

WISSLER, E.H. (1959). Steady state temperature distributions in the human. Report No. 1, Contract DA.49 007 2005, University of Texas, Austin.

WISSLER, E.H. (1961). Steady-state temperature distribution in man. Journal of Applied Physiology, Vol. 16, No. 4, pp.734-740.

WISSLER, E.H. (1964). A mathematical model of the human thermal system. Bulletin of Mathematical Biophysics, Vol. 26, pp.147-166.

WYNDHAM, C.H. (1965). Role of skin and of core temperature in man's temperature regulation. Journal of Applied Physiology, Vol. 20, No. 1, pp.31-36.

WYNDHAM, C.H. (1967). Effect of acclimatization on the sweat rate/rectal temperature relationship. Journal of Applied Physiology, Vol. 22, No. 1, pp.27-30.

WYNDHAM, C.H. and ATKINS, A.R. (1968). A physiological scheme and mathematical model of temperature regulation in man. Pflügers Archiv, Vol. 303, pp.14-30.

WYNDHAM, C.H. et al. (1964). The danger limit of wet-bulb temperature for men sitting at rest. Private communication-

WYNDHAM, C.H., STRYDOM, N.B., MORRISON, J.F., DU TOIT, F.D. and KRAAN, J.G. (1954). Response of unacclimatized men under stress of heat and work. Journal of Applied Physiology, Vol. 6, pp.681-686.

WYNDHAM, C.H., STRYDOM, N.B., MORRISON, J.F., WILLIAMS, C.G., BREDELL, G.A.G., MARITZ, J.S. and MUNRO, A. (1965). Criteria for physiological limits for work in heat. Journal of Applied Physiology, Vol. 20, No. 1, pp.39-45.

WYNDHAM, C.H. and STRYDOM, N.B. et al. (1966). Fatigue of the sweat gland response. Journal of Applied Physiology, Vol. 21, No. 1, pp.107-110.

WYNDHAM, C.H., WILLIAMS, C.G., MORRISON, J.F., HEYNS, A.J.A. and SIEBERT, J. (1968). Tolerance of very hot humid environments by highly acclimatized Bantu at rest. British Journal of Industrial Medicine, Vol. 25, pp.22-39.

WYNDHAM, C.H., STRYDOM, N.B., BENADE, A.J.S. and VAN RENSBURG, A.J. (1970). Tolerance times of high wet-bulb temperatures by acclimatized and unacclimatized men. Environmental Research, Vol. 3, No. 4, pp.339-352.

WYSS, C.R. et al. (1974). Control of skin blood flow, sweating and heart rate: role of skin versus core tempera re. Journal of Applied Physiology, Vol. 36, pp.726-733.

Author Cohen M H
Name of thesis Human Thermoregulation in the Heat: Predictive models of Physiological conductance and sweat rate 1983

PUBLISHER:
University of the Witwatersrand, Johannesburg
©2013

LEGAL NOTICES:

Copyright Notice: All materials on the University of the Witwatersrand, Johannesburg Library website are protected by South African copyright law and may not be distributed, transmitted, displayed, or otherwise published in any format, without the prior written permission of the copyright owner.

Disclaimer and Terms of Use: Provided that you maintain all copyright and other notices contained therein, you may download material (one machine readable copy and one print copy per page) for your personal and/or educational non-commercial use only.

The University of the Witwatersrand, Johannesburg, is not responsible for any errors or omissions and excludes any and all liability for any errors in or omissions from the information on the Library website.