

- ✓ Better Data
- ✓ Better Decisions
- ✓ Better Performance

Research Publications Using Equivital™ Products

This bibliography contains references to publications, papers, journals and field studies that have featured Equivital™ products. If you have published papers which include the use of Equivital™ products, we would appreciate receiving reprints if available, and if not, the full citation. Please send to: info@equivital.com, or the address at the bottom of this document.

Temperature

P. Lazaro, M. Momayez. Validation of the Predicted Heat Strain Model in Underground Mines. 2019.

Shane T. Mueller, Yin-Yin Tan, Isaac Flint. Development and Evaluation of a Model of Human Comfort and Cognitive Ability for Moderate Differences in Thermal Environment. 2019.

Teunissen L.P.J, A de Haan, de Koning J.J, Clairbois H.E, Daanen H.A.M. Limitations of temperature measurement in the aural canal with an ear mould integrated sensor. 2011. *Physiol. Meas.* 32 (2011) 1403–1416.

YH Shen, JW Zheng, ZB Zhang, CM Li. Design and Implementation of a Wearable, Multiparameter Physiological Monitoring System for the Study of Human Heat Stress, Cold Stress, and Thermal Comfort. *Instrumentation Science & Technology*, 2012

M. Buller, W. Tharion, R. Hoyte, O. Jenkins. Estimation of Human Internal Temperature from Wearable Physiological Sensors. Natick 2012 pp 1 - 6

Seeberg, T.M.; Vardøy, Astrid-Sofie; Taklo, M.M.; Austad, H.O. Decision Support for Subjects Exposed to Heat Stress. *Biomedical and Health Informatics, IEEE Journal of Issue 99 Feb 2013*

Judith Eisenburg, M Methner, C Dowell, C Mueller. Evaluation of Heat Stress, Heat Strain and Rhabdomyolysis during Structural Fire Fighter Training. 2015

Temperature Variations For Health Rick Kramer, Yoanna Ivanova, Wei Luo, Hannah Pallubinsky and Wouter van Marken Lichtenbelt pp 36 - 38.

Maastricht University (UM), the Netherlands

Elisa Sarda, Validation of the ISP131001 Sensor for Mobile Peripheral Body Temperature Measurement pg 22

Sean Pham, Danny Yeap, Gisela Escalera, Rupa Basu, Xiangmei Wu. Wearable Sensor System to Monitor Physical Activity and the Physiological Effects of Heat Exposure <https://doi.org/10.3390/s20030855>

Hannah Pallubinsky, Esther Phielix, Bas Dautzenberg, Gert Schaart, Niels J. Connell, Vera de Wit-Verheggen, Bas Havekes, Marleen A. van Baak, Patrick Schrauwen, Wouter D. van Marken Lichtenbelt, Passive exposure to heat improves glucose metabolism in overweight humans <https://doi.org/10.1111/apha.13488>

PalomaLazaro, MoeMomayez Development of a modified predicted heat strain model for hot work environments <https://doi.org/10.1016/j.ijmst.2020.05.009>

Biometrics

Foteini Agrafioti, Francis M. Bui, Dimitrios Hatzinakos. Medical biometrics in mobile health monitoring. *Security and Communication Networks*. May 2011. Volume 4, Issue 5, pp. 525–539.

Foteini Agrafioti, Dimitris Hatzinakos, Adam K. Anderson ECG Pattern Analysis for Emotion Detection. *IEEE Transactions on Affective Computing*, 18 Aug. 2011. IEEE Computer Society Digital Library. IEEE Computer Society.

Matta, R, Lau, J.K.H, Agrafioti, F, Hatzinakos, D. Real-time continuous identification system using ECG signals. Edward S. Rogers Dept.

- ✓ Better Data
- ✓ Better Decisions
- ✓ Better Performance

of Electr. & Comput. Eng., Univ. of Toronto, Toronto, ON, Canada. Electrical and Computer Engineering (CCECE), 24th Canadian Conference on 8-11 May 2011.

Foteini Agrafioti, Francis M. Bui, Dimitrios Hatzinakos Article first published online: Medical biometrics in mobile health monitoring Published May 2011, Volume 4, Issue 5, pp 525 – 539

T. Zlatar. Influence of severe cold thermal environment on core and skin temperatures. 2017

D. Looney, MJ Buller. Estimating resting core temperature using heart rate. 2018

M. Methner, J. Eisenberg. Evaluation of heat stress and heat strain among employees working outdoors in an extremely hot environment. 2018.

Ana Bonell , Jane Hirst , Ana M. Vicedo-Cabrera , Andy Haines, Andrew M. Prentice , Neil S. Maxwell. A protocol for an observational cohort study of heat strain and its effect on fetal wellbeing in pregnant farmers in The Gambia. Wellcome Open Res 2020, 5:32 (<https://doi.org/10.12688/wellcomeopenres.15731.2>)

Priyam Singh, Farzana Shaik, Princy Eunice, Isaac Luther, R.Sai.Deepthi, Yatavakilla Amarendra Nath A Novel Method for Monitoring SpO2 in Wearable Health Monitoring Applications DOI: 10.35940/ijeat.A1043. 1291552019

Sleep

Marije te Kulve, Luc J. M. Schlangen & Wouter D. van Marken Lichtenbelt . Early Evening Light Mitigates Sleep Compromising Physiological and Alerting Responses to Subsequent Late Evening Light. 2019. <https://doi.org/10.1038/s41598-019-52352-w>

Walter Karlen, Claudio Mattiussi, Dario Floreano. Improving Actigraph Sleep/Wake Classification with Cardio-Respiratory Signals.

Engineering in Medicine and Biology Society, 2008. EMBS 2008. 30th Annual International Conference of the IEEE, pp. 5262 – 5265.

Van Wouwe NC, Valk PJ, Veenstra BJ. Sleep monitoring: a comparison between three wearable instruments. July 2011. Military Medicine, Vol.176. Ch7 pp.811.

J. Carpenter, R. Robillard, D. Hermens. Sleep-wake profiles and circadian rhythms of core temperature and melatonin in young people with affective disorders. 2017.

Azouz, A. Issa. Evaluation of Use of Wearable Sensor Garment in Home Screening for Sleep Apnea Events. 2018

K J Reid, K Kräuchi, D Grimaldi, J Sbarboro, H Attarian, P C Zee, 0015 Manipulating Body Temperature: Effects on Sleep in Postmenopausal Women, Sleep, Volume 43, Issue Supplement_1, April 2020, Pages A6–A7, <https://doi.org/10.1093/sleep/zsaa056.014>

A Gozar, A Seixas, L Hale, C Branas, M Barrett, W D Killgore, C C Wills, M A Grandner, 0013 Mobile Device Use in Bed and Relationships to Work Productivity: Impact of Anxiety, Sleep, Volume 43, Issue Supplement_1, April 2020, Page A5, <https://doi.org/10.1093/sleep/zsaa056.012>

Activity

D. Ferguson, SC Barthel, ML Pruett. Physiological Responses of Male and Female Race Car Drivers During Competition. 2019.

Bruhtesfa Godana, Geert Leus, Andr´e Barroso. Quantifying Human Indoor Activity Using a Software Radio-based Radar. Circuits and Systems, 2009. ISCAS 2009. IEEE International Symposium on. May 2009. pp. 1449 – 1452.

Matthias Weippert, Jan Stielow, Mohit Kumar, Steffi Kreuzfeld1, Annika Rieger, Regina Stoll. Tri-axial high resolution acceleration for oxygen consumption estimation: validation of a multi-sensor device and a novel analysis method. 2012 pp1 - 29

- ✓ Better Data
- ✓ Better Decisions
- ✓ Better Performance

Military

D. Bustos, J. C. Guedes, R. S. Pinto, F. Conceicao, M. Vaz. Real Time Fatigue Assesment: A Short Review Evidencing the Usage of Safety Monitoring Systems with Military Enforcement. 2019.

Pierre J.L. Valk, MSc, Veenstra B.J, MSc. Military Performance and Health Monitoring in Extreme Environments. Papers presented at the RTO Human Factors and Medicine Panel (HFM) Symposium held in Sofia, Bulgaria, October 2009. Paper 10 pp. 8.

Buller M.J Karis A.J. Heart Rate and Respiratory Rate during fitness training, obstacle course runs, and mass casualty simulations - performance of two warfighter physiological status monitoring systems. August 2007. USARIEM technical report T07-10.

Cynthia Clements, M. Buller, A. Welles, J. Stower, C. Desantis, D. Economous, M. Richter, W. Tharion. Practical Real Time Assessment of Human Thermal Work Strain. US Army Research Institute of Environmental Medicine, Natick, USA, PM Marine Expeditionary Rifle Squad, Stafford, USA. 2nd International Congress on Soldiers' Physical Performance May 4-7, 2011, Jyväskylä, Finland

Karlen, W.; Cardin, S.; Thalmann, D.; Floreano, D.; Enhancing pilot performance with a SymBodic system. Electr. & Comput. Eng. in Med. Group (ECEM), Univ. of British Columbia (UBC), Vancouver, BC, Canada. Engineering in Medicine and Biology Society (EMBC), 2010 Annual International Conference of the IEEE Date of Conference: Aug. 31 2010-Sept. 4 2010

Tharion, William J. ; Buller, Mark J. ; Karis, Anthony J. ; Hoyt, Reed W. Chapter: Development of a Remote Medical Monitoring System to Meet Soldier Needs Published by Army Research inst of Environmental Medicine Natick ma Biophysics and Biomedical Modelling div 2010.

Dr. Reed Hoyt. Real-time physiological and psychophysiological status monitoring for

human protection and operational health applications. US Army Research Institute of Environmental Medicine Natick 2009. Chapter 1 pp 1- 6

M. R. Stekkinger. Can hostile intent be detected by means of signalling? University of Twente. TNO: Behavioral and Societal Sciences 2011 pp 12 - 13

Närväinen J. et al. (2021) Development of a Demonstrator System for Online Measurement of Soldier Cognitive Readiness in Field and in Simulator Environments. In: Ayaz H., Asgher U. (eds) Advances in Neuroergonomics and Cognitive Engineering. AHFE 2020. Advances in Intelligent Systems and Computing, vol 1201. Springer, Cham. https://doi.org/10.1007/978-3-030-51041-1_22

First Responder

Mol E, Layden J. D, Tiemessen I.J.H, Vrijkotte S. Is There A Cumulative Physiological Effect On Fire-Instructors During 5 Consecutive Days Of Live Fire Training. May 2010 - Medicine & Science in Sports & Exercise. Volume 42 - Issue 5 – pp. 131.

John S Cuddy Glycogen Levels in Wildland Firefighters During Wildfire Suppression presentation at the 2009 American College of Sports Medicine National Conference in Seattle, WA: Effect of Issued Meals on Muscle Glycogen Levels in Wildland Firefighters, 1458, Board #60, May 27, 2009.

Brearley MB, Heaney MF, Norton IN. Physiological Responses of Medical Team Members to a Simulated Emergency in Tropical Field Conditions. Prehosp Disaster Med. 2013 Jan 23:1-6.

Clinical

Yan Liu , Shai H. Zhu , Guo H. Wang , Fei Ye , Peng Z. Li . Validity and reliability of multiparameter physiological measurements recorded by the Equivital LifeMonitor during activities of various intensities. Journal of Occupational and Environmental Hygiene

- ✓ Better Data
- ✓ Better Decisions
- ✓ Better Performance

published: 21 December 2012.

Vishal Patel, Sabine Giesebrecht , Alexander R. Burton , Erin Cvejic , Jim Lemon , Dusan Hadzi-Pavlovic , Stephen Dain , Andrew Lloyd , Ute Vollmer-Conna. Reliability revisited: Autonomic responses in the context of everyday well-being. *International Journal of Cardiology*, September 2012 pp 1 - 3

Neubert S, Arndt D, Thurow K, Stoll R. Mobile real-time data acquisition system for application in preventive medicine. 2010 May *Telemed J E Health.*;16(4):504-9.

R J McCrindle, V M Williams, C R Victor, A P Harvey, S R Nyman, J Barrett, H Hogarth, P Levene, R Smith, P Panek, G Edelmayer, P Mayer, P Needham and N Floratos. Wearable device to assist independent living. *Proc. 8th Intl Conf. Disability, Virtual Reality & Associated Technologies Viña del Mar/Valparaíso, Chile*, 31 Aug. – 2 Sept. 2010.

P. García-Sánchez, S. González, A. Rivadeneyra, M. P. Palomares and J. González. Context-Awareness in a Service Oriented e-Health Platform. *Lecture Notes in Computer Science*, 2011, Volume 6693, Ambient Assisted Living, Pages 172-179.

Matthis Weippert, Dagmar Arndt, Steffi Kreuzfeld. Regina Stoll. Validity of a mobile multi-sensor system for RR interval measurement and HRV analysis in psychophysiology-specific issues. *Edition Czwalina* 2012 pp 1 – 5

Pablo García-Sánchez. Jesús González Antonio M. Mora . Alberto Prieto. Deploying intelligent e-health services in a mobile gateway. *Expert Systems with Applications* Volume 40, Issue 4, March 2013, pp 1231–1239

Tim Trull. Yi Shang. Remote wireless sensing network for the assessment of emotion dysregulation and craving for substance use. *Missouri University* July 2012 pp 2 – 3

Moreno Sanchez, Pedro Antonio and Hernando Perez, Maria Elena and Poorter, A. of and

Pallares, A. and Hernandez Ortiz, Alberto and Gonzalez Vidal, Francisco and Gómez Aguilera, Enrique J. Rich Presence Enabler. *Telemonitoring applications of biomedical variables IP Multimedia Subsystem Networks* (2010) 24/11/2010 - 26/11/2010, Madrid, Spain.

Ngauss Ngom, Serge Rodrigue. Design of a low power signal processing module with field applications for programmable gate array for medical applications. *Universita Genova, Facoltà di Ingegneria Dipartimento di Ingegneria Biofisica ed Elettronica* 2010/2011 pp 24 – 26

Dr. Emil Jovanov. Mladen Milosevic. Real-Time Physiological Monitoring laboratory. *The University of Alabama in Huntsville* 2012 pp 5-7

Ulrich W. Ebner-Priemer. Thomas Kubiak. Psychological and Psychophysiological Ambulatory Monitoring. *European Journal of Psychological Assessment* 2007; Vol. 23(4): pp 214–226

M Damas, H Pomares, S Gonzalez, A Olivares, I Rojas. Ambient Assisted Living Devices Interoperability Based on OSGi and the X73 Standard. *Telemedicine and e-Health*, 2012 Volume: 19 Issue 1: January 14, 2013

TM Tan, BCT Field, KA McCullough, RC Troke. Coadministration of Glucagon-Like Peptide-1 During Glucagon Infusion in Man Results in Increased Energy Expenditure and Amelioration of Hyperglycemia *American Diabetes Association* December 17, 2012

N. Jahne-Raden, T. Martin, M. Marschollek, K. Huesser, J. Tank. BCG Mapping of the thorax using different sensors, first experiences and signal quality. 2017

D. P Looney, W. Santee, L. Blanchard, A. Karis, A. Carter, A. Potter. Cardiorespiratory responses to heavy military load carriage over complex terrain. 2018.

B. Veenstra, T. Wyss, L. Roos, S. Devles, M. Buller, N. Beeler. An Evaluation of measurement systems estimating gait speed during a loaded military march over graded terrain. 2018

- ✓ Better Data
- ✓ Better Decisions
- ✓ Better Performance

JavierRodriguez, Leonardo JuanRamírez López, Gabriel Alberto, Puerta Apontec Analysis of acute heart dynamics in intensive care unit based on dynamic systems <https://doi.org/10.1016/j.imu.2020.100333>

William K. Cornwell, Tomio Tran, Lukasz Cerbin, Greg Coe, Akshay Muralidhar, Kendall Hunter, Natasha Altman, Amrut V. Ambardekar, Christine Tompkins Matthew Zipse, Margaret Schulte, Katie O'Gean, Morgan Ostertag, Jordan Hoffman, Jay D. Pal, Justin S. Lawley, Benjamin D. Levine, Eugene Wolfel, Wendy M. Kohrt, Peter Buttrick New insights into resting and exertional right ventricular performance in the healthy heart through real-time pressure-volume analysis <https://doi.org/10.1113/JP279759>

JavierRodriguez, Leonardo Juan Ramírez López, Gabriel Alberto Puerta Aponte Analysis of acute heart dynamics in intensive care unit based on dynamic systems <https://doi.org/10.1016/j.imu.2020.100333>

Tristão Parra, M., Esmeaeli, N., Kohn, J., Henry, B. L., Klagholz, S., Jain, S., ... Mills, P. J. (2020). Greater Well-Being in More Physically Active Cancer Patients Who Are Enrolled in Supportive Care Services. *Integrative Cancer Therapies*. <https://doi.org/10.1177/1534735420921439>

Psychophysiology

F. Agrafioti, D. Hatzinakos, A. K. Anderson ECG Pattern Analysis for Emotion Detection Jan.-March 2012 (vol. 3 no. 1) pp. 102-115

Ali Mahmood Khan. Personal state and emotion monitoring by wearable computing and machine learning. Department of Computer Sciences, TZI Universität Bremen 2010 pp 2 – 3

J. Eisenburg, M. Methner, C. Dowell, C. Mueller. Evaluation of Heat Stress, Heat Strain, and Rhabdomyolysis during Structural Fire Fighter Training. 2015.

John S, C. MS, S. BS, W. S. Work Patterns Dictate

Energy Demands and Thermal Strain During Wildland Fighting. 2015.

Henry B. Ogden, Joanne L. Fallowfield, Robert B. Child, Glen Davison, Simon C. Fleming, Robert M. Edinburgh, Simon K. Delves, Alison Millyard, Caroline S. Westwood, Joseph D. Layden. Reliability of gastrointestinal barrier integrity and microbial translocation biomarkers at rest and following exertional heat stress. Pg 4, DOI: 10.14814/phy2.14374

Vollmer-Conna, U., Beilharz, J. E., Cvejic, E., Macnamara, C. L., Doherty, M., Steel, Z., ... Parker, G. (2020). The well-being of medical students: A biopsychosocial approach. *Australian & New Zealand Journal of Psychiatry*. <https://doi.org/10.1177/0004867420924086>

Occupational Health

Richard Adderley and Michelle Smith Assessing Stress in UK Operational Police Officers. From International Police Executive Symposium 2009.

Elsbeth de Korte, Lottie Kuijt and Rick van der Kleij. Effects of Meeting Room Interior Design on Team Performance in a Creativity Task. Lecture Notes in Computer Science, 2011, Volume 6779, Ergonomics and Health Aspects of Work with Computers, Pages 59-67

Umberto C. Gatti, Giovanni C. Migliaccio, Suzanne Schneider, Rafael Fierro. Assessing physical strain in construction workforce: a first step for improving safety and productivity management Paper from 27th International Symposium on Automation and Robotics in Construction (ISARC 2010).

WH Sinclair, JC Brownsberger. Wearing long pants while working outdoors in the tropics does not yield higher body temperatures. *New Zealand Journal of Public Health*, 5th Feb 2013

J.J. Davies, R Orr, C Kornhauser, K. Holmes, R Holmes. Differences in initial fitness scores between highway patrol cadets who successfully complete or fail to complete a 17-

- ✓ Better Data
- ✓ Better Decisions
- ✓ Better Performance

week training academy. 2016.

A. Decker, R. Orr, R. Pope, B. Hinton. Physiological demands of law enforcement occupational tasks in Australian Police Officers. 2016.

Rüdiger Kramme, Klaus-Peter Hoffmann, Robert S. Pozos. Springer Handbook of Medical Technology. 2012, Part F, 1217-1246, DOI: 10.1007/978-3-540-74658-4_67.

K. Stoll, R.: Mobiles Online-Erfassungssystem für arbeitsphysiologische Untersuchungen. Proceedings, 55. Frühjahrskongress der Gesellschaft für Arbeitswissenschaft e.V. 04.-06.03.2009, Dortmund (D), GfA Press 2009 ISBN 978-3-936804-07-9, pp. 723-726

Carroll, M., Ruble, M., Dranias, M., Rebensky, S., Chaparro, M., Chiang, J. and Winslow, B. (2020) Automatic Detection of Learner Engagement Using Machine Learning and Wearable Sensors. Journal of Behavioral and Brain Science 10, 165-178. doi: 10.4236/jbbs.2020.103010.

M. Haghi et al., "A Flexible and Pervasive IoT Based Healthcare Platform for Physiological and Environmental Parameters Monitoring," in IEEE Internet of Things Journal. DOI: 10.1109/JIOT.2020.2980432

Peng Sun: Improving Object Recognition In Aerial Image And Ambulatory Assessment Analysis By Deep Learning pg78 - 84

Sport

Silvy Juditya*, Adang Suherman, Amung Ma'mun, Agus Rusdiana Reliability and Construct Validity Of the Basketball Movement Skills Instrument

M. Kiely, G. Warrington. Physiological and Performance Monitoring in Competitive Sporting Environments. 2019.

M. Heather, L. Mc Naughton. Characterizing Thermoregulatory Demands of Female Wheelchair Basketball Players. 2019.

Rebecca Tanner. Christopher Gore. Physiological Tests for Elite Athletes-2nd Edition, Australian

Institute of Sport. 2012

Koen Levels, Jos J. de Koning, Carl Foster, Hein A. M. Daanen. The effect of skin temperature on performance during a 7.5-km cycling time trial. Eur J Appl Physiol. 2012 September; 112(9): 3387-3395.

Melissa J Bargh, Prof. Roderick F.G.J King, Mr Michael P Gray, Dr. Ben Jones. Why do team sports athletes drink fluid in excess when exercising in cool conditions. 2016

Kenny J, Cullen S. The Ice Mile: Case study of two swimmers. 2016

Meriam A.R Berkulo, S. Bol, R. Lamberts, H.A.M Daanen, T. Noakes. Ad-libitum drinking and performance during a 40-km cycle time trial in the heat. 2016.

D, Dupre, B. Bland, A. Bolster, G. Morrison, G. Mckeown. Dynamic Model of Athletes' Emotions Based on Wearable Devices. 2017

David P. Ferguson, Nicholas D. Myers. Physical Fitness and Blood Glucose Influence Performance in IndyCar Racing. 2018.

P.R Barratt. Measuring Performance at the Great Britain Cycling Team: A case Study of Optimizing Bicycle Setup Parameters. 2018

White Papers & Field Studies

White paper by the International Civil Engineering and Environmental Technology Group. Studying the effects of physical exertion on employees working within nuclear reactors while wearing breathing air protection and/or skin protection (gas suits) in elevated ambient temperature conditions.

Ian Norton, Matt Brearley, Terry Trewin, Kirsten. CBR Heat Stress: A comparison of novel cooling methods for prevention of hyperthermia in CBR responders in tropical conditions

John S. Cuddy, MS, Dustin R. Slivka, PhD, Tyler J. Tucker, MS, Walter S. Hailes, MS, Brent C. Ruby - Montana Woodland Fire Fighters - EquiVital was evaluated in the field under real fire conditions over a 4 day period 2011.

- ✓ Better Data
- ✓ Better Decisions
- ✓ Better Performance

Miscellaneous

R Kamins - US Patent App Physiological Sign Assessment Security Scanner System Siefert, Caleb J. (Ann Arbor, MI, US) Short imagery task (sit) research method Assignee:

Naghmeb Niknejada, Waidah Binti Ismail, Abbas Mardani, Huchang Liao, Imran Ghani. A comprehensive overview of smart wearables: The state of the art literature, recent advances, and future challenges. <https://doi.org/10.1016/j.engappai.2020.103529>

Catherine O'Brien, William J. Tharion, Anthony J. Karis, Heather M. Sullivan. Predicting military working dog core temperature during exertional heat strain: Validation of a Canine Thermal Model <https://doi.org/10.1016/j.jtherbio.2020.102603>

Paraschiakos, S., Cachucho, R., Moed, M. et al. Activity recognition using wearable sensors for tracking the elderly. User Model User-Adap Inter (2020). <https://doi.org/10.1007/s11257-020-09268-2>

Dupré, D., Andelic, N., Moore, D.S. et al. Analysis of physiological changes related to emotions during a zipline activity. Sports Eng 23, 15 (2020). <https://doi.org/10.1007/s12283-020-00328-9>

Further information

If you require any further information about Hidalgo or Equivital™ please contact us:

Tele: +44(0) 1954 233430

info@equivital.com

Fax: +44(0) 1954 233431

www.equivital.com

Hidalgo Limited
Unit F, Trinity Court,
Buckingway Business Park,
Swavesey,
Cambridge,
CB24 4UQ,
United Kingdom