

**SIPS  
2017**

**SURABAYA  
INTERNATIONAL  
PHYSIOLOGY  
SEMINAR**

**PROCEEDINGS OF  
THE SURABAYA  
INTERNATIONAL PHYSIOLOGY  
SEMINAR**

Surabaya, October 12-14, 2017

**Editors:**

Soetjipto

Muhammad Miftahussurur

Ferry Efendi

Purwo Sri Rejeki

Bambang Purwanto



# SIPS 2017

Proceedings of the  
Surabaya International Physiology Seminar

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Surabaya - Indonesia

October 12 - 14, 2017

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Edited by Soetjipto, Muhammad Miftahussurrur, Ferry Efendi, Purwo Sri Rejeki and Bambang Purwanto

Printed in Portugal

ISSN: 2184-3678

ISBN: 978-989-758-340-7

Depósito Legal: 446682/18

<http://sipsfk.conference.unair.ac.id>

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## BRIEF CONTENTS

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INVITED SPEAKERS .....	IV
ORGANIZING COMMITTEES .....	V
FOREWORD .....	VII
CONTENTS .....	XI

## INVITED SPEAKERS

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**Cheng Hwee Ming**  
University of Malaya  
Malaysia

**Daniel John Green**  
University of Western Australia  
Australia

**Fadzil Hamzah**  
Sport Center of Changi General Hospital  
Singapore

**Deanne Helena Skelly**  
Griffith University  
Australia

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## ORGANIZING COMMITTEES

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Daniel John Green, University of Western Australia, Australia

Fadzil Hamzah, Changi Sports Medicine Centre, Changi General Hospital, Singapore

Deanne Helena Skelly, University of Western Australia, Australia

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Eka Arum Cahyaning Putri, Universitas Airlangga, Indonesia

Misbakhul Munir, Universitas Airlangga, Indonesia

## FOREWORD

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**Dean of Faculty of Medicine, Universitas Airlangga**

Assalamu'alaikum Wr. Wb.

Distinguished Guests, all the Participants, Ladies and Gentlemen

On behalf of Faculty of Medicine, Universitas Airlangga, it is my great pleasure to welcome all the speakers, moderators, and participants on **Surabaya International Physiology Seminar 2017 (SIPS 2017)**, which will be held from today, October 12th until October 14th, 2017. I would like to express my hearty welcome to all the international speakers, **Prof. Cheng Hwee Ming**, from University of Malaya, Malaysia; **Prof. Daniel John Green**, from University of Western Australia; **Dr. Fadzil Hamzah**, from Sport Center of Changi General Hospital, Singapore and **Dr. Deanne Helena Skelly**, from Griffith University, Australia.

The aim of SIPS 2017 is to provide a platform for academicians, educators, researchers, practitioners, undergraduate and postgraduate students to share and discuss the knowledge of the recent issues, opinions, researchers about the development and innovation of physiology in medical science, dentistry, veterinary, plants and agriculture, sports and sciences.

I believe this event is a great purpose in order to develop knowledge, experiences and best practices that can be applied for the good, especially in the field of healthcare as a whole.

Finally, I would like to express my sincere acknowledgements to those who take part and especially for Department of Medical Physiology, Faculty of Medicine, Universitas Airlangga for their effort in holding this event and wishing all to have success.

Wassalamu'alaikum Wr. Wb.

**Prof. Dr. Soetojo, MD.**  
Faculty of Medicine, Universitas Airlangga

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**Chair of Committee / Head of Physiology Department, Faculty of Medicine, Universitas Airlangga**

Assalamu 'alaikum Wr. Wb

Greetings,

On behalf of SIPS committee and Physiology Department, Universitas Airlangga, we are welcoming to Surabaya, City of Heroes.

This year, the annual meeting of Indonesian Physiology Society (IAIFI) is hosted at Surabaya, entitled "**Surabaya International Physiology Seminar Workshop (SIPS)**". We present some update workshop and lectures in order to bring physiology research from basic to clinical application on humanities, animal welfare and good environment. All participants have opportunities to publish their research in presentation, poster and ISBN proceeding. Selected papers will be submitted to SCOPUS indexed proceeding/ journal and awarded as Best Poster and Best Oral Presentation.

We hope that all participants will get some interesting experiences for next 3 days, 12-14 October 2017. Enjoy our lectures and workshops, taste the culinary and take your time to sightseeing around Surabaya.

Wassalamu 'alaikum wr. wb.

**Dr. Bambang Purwanto**

Chairman of Committee / Head of Physiology Department

Faculty of Medicine, Universitas Airlangga

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## **Welcome Address - Surabaya International Physiology Seminar Workshop (SIPS)**

Dear fellow Physiologists and Participants,

On Behalf of the Indonesian Physiological Society (IAIFI) and the Physiology Department Faculty of Medicine Universitas Airlangga, I would like to welcome you all to Surabaya International Physiology Seminar (SIPS), held on 12-14 of October 2017.

Finally after long-awaited Surabaya gets a turn again to host and organize the International Physiology Seminar. Hence the Steering- and Organizing Committee consisting of young energetic physiologists are determined to make the Seminar a successful one. The theme of the seminar is:

*"The Role of Physiology in Translation Research: From Basic to Application"*

This annual meeting covers a wide range of topics of Physiology on Medicine, Dentistry, Veterinary, Plants and Agriculture, Sports and Sciences. We sincerely hope that SIPS 2017 enable to provide a platform for academicians, educators, researchers, practitioners and postgraduate students to present and discuss researches, development and innovations in wide range of topics as mentioned above. It will provide all participants to share knowledge, exchange new ideas and their experiences in many research topics, for then it will enhance future collaborations.

With great interest and enthusiasm I look towards the success of this Seminar, and wish all of you every success and a pleasant stay in Surabaya.

May Allah Swt. bestow upon us His Blessings.

On Behalf of the Steering and Organizing Committee Senior Physiologist,  
**Prof. R. Soedarso Djojonegoro**

# CONTENTS

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## PAPERS

### FULL PAPERS

- The Dominant Personality Type in Vertigo Patients  
*Nanda Rizky FS, Netty Herawati, Nyilo Purnami, Nining Febriyana and Abdurachman* 5
- The Role of Osteocytes in Alveolar Bone During Tooth Movement  
*Agni Febrina Pargaputri and Noengki Prameswari* 10
- Body Movement and Islamic Energy Psychology Acupressure to Improve the Future Orientation In A Person With HIV  
*Ambar Sulianti and Fenti Hikmawati* 15
- White Matter Changes in Neurodegenerative and Global Cortical Atrophy Scale Correlation in Older Patients Using Magnetic Resonance Imaging  
*Anggraini Dwi Sensusiaty* 21
- ~~The Influence of Mass Basic Life Support Training on The Skills and Attitude in Undertaking Life Support Using the Method of the Faculty of Medicine, Universitas Airlangga~~  
*Arie Utariani, Teguh Sylvaranto, April Poerwanto Basoeki, Prananda Surya Airlangga, Windy Ari Wijaya, Soni Sunarso Sulistiawan, Bambang Pujo Semedi, Christrijogo Sumartono, Hamzah, Kohar Hari Santoso, Philia Setiawan and Eddy Rahardjo* 26
- Reflections of a Physiology Teacher  
*Cheng Hwee Ming* 30
- Does Sequential Diabetes Dance Improve on Glucose Level and Glucose Tolerance?  
*Cynthia Wahyu Asrizal and Bambang Purwanto* 33
- Antioxidant Effect of Dayak Onion Extract (*Eleutherine Americana Merr.*) on Serum MDA Levels in Mice (*Mus Musculus*) Exposed by Lead Acetate  
*Dueng Agus Vieya Putri, Gadis Meinar Sari and Tjitra Wardani* 37
- Exercise as Cardiovascular Medicine: Early Detection and Optimal Prevention  
*Danny Green and Raden Argarini* 40
- The Effect of Circadian Rhythm on Hematopoietic Stem Cell Mobilization in Peripheral Blood as a Result of Submaximal Physical Exercise  
*Dhoni Akbar Ghozali, Harjanto and Agung Dwi Wahyu Widodo* 48
- The Effect of Intermitten Fasting Vs Low Calorie Diet to Insuline Like Growth Factor-1 (IGF-1) Concentration, Fat Mass and Lean Mass of *Rattus Norvegicus* Obesity Model  
*Dian Wijayanti, Sunarjati Sudigdo Adi, Achadiyani, Gaga Irawan Nugraha, Reni Farenia and Adi Santosa Maliki* 53
- Uphill 10° Inclination Angle of Treadmill Concentric Exercises Improves Blood Glucose Levels and Glut-4 Levels in Diabetes Mice Model  
*Dini Surya Noviyanti, Bambang Purwanto and Choesnan Effendi* 56

Variability in The Response to Low Impact Aerobic Exercise in Women Abdominal Obese With the Polymorphism of Uncoupling Protein-1 Gene <i>D Mukhtiar, Siagian M, N Ibrahim, Neng Tine, T Ahmad, M Suryaatmadja, SW Jusman, AS Sofro, M Abdullah, S Waspadji and S Sugondo</i>	62
The Effect of an Aluminium Foil Shield on Reducing The Strength of Electromagnetic Radiation of Mobile Phones Reaching the Oculi of Adult Male Rats <i>Dion K. Dharmawan, Viskasari P. Kalanjati and Abdurachman</i>	67
The Effect of Osteocyte Signalling on Osteocyte Apoptosis <i>Dwi Setiani Sumardiko, Purwo Sri Rejeki and Gadis Meinar Sari</i>	72
Intermittent Physical Training Decreases Peak of Blood Glucose Level after Meals in Rats <i>Eka Arum Cahyaning Putri, Raden Argarini, Bambang Purwanto and Lilik Herawati</i>	76
The Effect of Cantaloupe Extract on Sperm Quality of Adult White Rats ( <i>Rattus Novergicus</i> ) Strain Induced by Ciproteron Acetat <i>Elyna Mahruzza Putri, Achadiyani, Sunarjati, Sudigdoadi, Oki Suwarso and Adi Santosa Maliki</i>	80
Correlation Between Academic Stress, Sleep Quality, Circadian Misalignment, Cortisol Concentration and Heart Rate Value at the First Year Medical Student at the State Islamic University Maulana Malik Ibrahim of Malang <i>Ermin Rachmawati, Muhammad Farid Wafi and Ira Resmi Melani</i>	84
PIGF as Predictor of Preeclampsia Complication <i>Ernawati E, Manggala PS, Khanisyah Erza, Rozi Aditya, Cininta M, MI Aldika Akbar, Budi Wicaksono, Agus Sulistyono, Hermanto TJ, Nadir Abdullah, Erry Gumilar and Adityawarman A</i>	91
Aluminum Foil Shield Diminishes the Electromagnetic Radiation of Mobile Phones in the Cerebellum of Adult Male Rats <i>Etha Rambung, Viskasari P. Kalanjati and Abdurachman</i>	97
Sauropus Androgynus for Increasing Uterine Weight in Menopausal Women: An Experimental Study Using Animal Models <i>Exma Mu'tatal Hikmah and Retno Susilowati</i>	101
Exercise And Swimming in Pregnancy - Physiological Considerations <i>Fadzil Hamzah</i>	106
The Comparison Effect Between Bodyweight and Sprint Interval Exercises Using Tabata Method Towards Heart Rate Frequency, Lactate Blood and Physical Fatigue Perception <i>Fengki Aditiansyah, Elyana Asnar and Choesnan Effendi</i>	112
Detection of COMT <sup>Val158Met</sup> Gene Polymorphism in Chronic Schizophrenic Patients at Psychiatric Unit of DR. Soetomo Hospital Surabaya, East Java, Indonesia <i>Gwenny Ichan Prabowo, Margarita Maria Maramis, Erikavitri Yulianti, Afrina Zulaikah, Zain Budi Syulthoni, Citrawati Dyah Kencono Wungu, Hendy Muagiri Margono and Retno Hundajani</i>	117
Hyperbaric Oxygen (HBO) Heals Cell Through Reactive Oxygen Species (ROS) <i>Handi Suyono and Guritno Suryokusumo</i>	123
Correlation of Fat Free Mass and Skeletal Muscle Mass with Left Ventricular Mass in Indonesian Elite Wrestlers and Dragon Boat Rowers <i>Henny Tantonno, Mohammad Rizki Akbar, Badai B. Tiksnadi, Triwedya Indra Dewi, Sylvie Sukasasmita, Maryam Jamilah, Daniel Womsiwor, Ambrosius Purba, Augustine Purnomowati and Toni Mustahsani Aprami</i>	128

Decrease of Homocysteine Plasma Degree in Smokers by Low Intensity Weight Training and Supplementation of Folic Acid and Cyanocobalamin <i>HS Muhammad Nurfatony, Damayanti Tinduh and Tjitra Wardhani</i>	133
The Role of Physiology in Ergonomics - Empowerment Human Resources for Nations Competitiveness <i>I Putu Gede Adiatmika</i>	137
Influence of Use of Insole on Blood Glucose Rate Diabetes Mellitus Type-2 <i>Ignatius Heri Dwianto, Bambang Purwanto and Sony Wibisono</i>	143
The Profile of Endothelin-1 (Et-1), Receptor ET <sub>A</sub> , And Receptor ET <sub>B</sub> in Young and Adult Obese Wistar Rat <i>Irfan Idris, Aryadi Arsyad, A. Wardihan Sinrang and Syarifuddin Alwi</i>	147
Characteristics of Glucose Tolerance, Energy Expenditure, Lactic Acid Level, and Oxygen Saturation in Indonesian Diabetes Dance Version 6 <i>Irfiansyah Irwadi and Bambang Purwanto</i>	151
The Effect of Aluminium Foil Shielding in Hampering Electromagnetic Radiation Emitted from A Mobile Phone as an Oxidative Stressor in The Cerebra of Adult Male Rats <i>Irmawan Farindra, Viskasari P. Kalanjati and Ni Wajan Tirthaningsih</i>	154
Effect of Exercise on Learning Capability and Memory of Mice ( <i>Mus Musculus</i> ) Exposed to Monosodium Glutamate (MSG) <i>Husnur Rofiqoh, Kristanti Wanito Wigati and Suhartati</i>	159
Low, Moderate, and High Intensity Swimming Exercise Has No Negative Effect on Semen Analysis Test in Male Wistar Rats <i>Kristanti Wanito Wigati, Sundari Indah Wiyasihati and Misbakhul Munir</i>	165
High-Calorie Diet Reduces Neuroglia Count <i>Nilam Anggraeni, Kristanti Wanito Wigati, I Lukitra Wardani and Lilik Herawati</i>	169
Three Weeks of High-Intensity Interval Training (HIIT) Decreases Visfatin Level on Overweight Men <i>Amal A. Hidayat, Mohammad Budiarto and Lilik Herawati</i>	174
VO <sub>2</sub> MAX of Ergocycle Astrand Test Differs from 12-Minutes Cooper Running Test on Medical Students' Physical Fitness Level <i>Bella Anggi Afisha, Atika and Lilik Herawati</i>	178
Non-Invasive Method on Slow-Twitch Quadriceps Muscle Fibers Dominate a High Level of Fitness <i>Yuannita Ika Putri, Andre Triadi Desnantyo and Lilik Herawati</i>	182
Genotype Hepatitis B Virus Among Intravenous Drug Users with Occult Hepatitis B Infection in Surabaya, Indonesia <i>Lina Lukitasari, Lilik Herawati, Edhi Rianto, Indri Safitri, Retno Handajani and Soetjpto</i>	186
Anopheles Vagus Larval Midgut Damage as an Effect of Areca Catechu L. Seed Extract <i>Majematang Muding, Yeni Puji Lestari, Etik Ainun Rohmah, Budi Utomo, Heny Arwati and Subagyo Yotopranoto</i>	192
The Effect of Mozart's Music on <i>Mus Musculus</i> Balb/C Spermatozoa's Quantity and Motility Exposed by Lead Acetate <i>Maria Selviana Joni, Paulus Liben and Hermanto Tri Joewono</i>	198



The Lactid Acid's Decrease After Submaximal Exercise Due to Zamzam Water Treatment Compared the Packed Water <i>Moh. Tomy Yusep, Elyana Asnar STP and Harlina</i>	201
The Correlation of Lung Vital Capacity, VO <sub>2</sub> Max, and Heart Rate Recovery With Changes in Blood Lactate Levels in Young Male: Cross Sectional Study in Provoked By Repeated Sprint Sessional-3 <i>Mustofa, Susiana Candrawati, Khusnul Muflikhah, Tiara Dwivantari, Rahardita Alidris and Dessy Dwi Zahrina</i>	204
Fgf 21 Secretion as Acute Response to Exercise in High Fat Diet Fed Rats <i>Nafi'ah, Imelda Rosalyn Sianipar, Nurul Paramita, Rabia and Neng Tine Kartinah</i>	208
The Miracle of Stichopus Hermanii <i>Noengki Pramswari</i>	212
Effect of Chemical Exposure on Endocrine System Disorder (Article Review) <i>Nurul Mahmudati and Husamah</i>	220
The Effect of Acute Exercise of Basic Breathing Motion on Breathing Skills Retention in Swimming <i>Okky Sinta Dewanti and Choesnan Effendi</i>	226
Correlation Between Body Mass Index and Medial Longitudinal Arch of The Foot in Children Aged 5-6 Years <i>Purwo Sri Rejeki, Irfiansyah Irwadi, Widiarti and Misbakhul Munir</i>	230
Correlation Between Agility and Flat Feet in Children 5-6 Years Old <i>Anita Faradilla Rahim, Mistahul Nur Amaliyah, Irfiansyah Irwadi and Purwo Sri Rejeki</i>	234
Correlation Between Hand Grip and Achievement in Indonesian Female Floorball Athletes <i>Loren Fibrilia Perangin-angin, Siti Maesaroh, Irfiansyah Irwadi and Purwo Sri Rejeki</i>	238
Maternal Anthropometrics as a Predictor of Preeclampsia Risk Factor <i>Putri Wulan Akbar, Florentina Sustini, Hermanto Tri Juwono and Handayani</i>	241
Correlation Between Activity Level and Circadian Rhythmicity of Medical Students (Class Of 2014) at the Faculty of Medicine, Airlangga University <i>Qurrota Ayuni Novia Putri, Irfiansyah Irwadi, Agustina Salinding and Sundari Indah Wiyasihati</i>	244
Exercise Formula to Induce Beiging Process: A Study Based on Acute Response of Irisin <i>Rabia, Neng Tine Kartinah, Nurul Paramita, Nafi'ah and Imelda Rosalyn Sianipar</i>	248
Effects of the 6th Series of Senam Diabetes Indonesia on Energy Expenditure <i>Riza Pahlawi, Harjanto JM and Dwikora Novembri Utomo</i>	252
The Difference of B-Endorfin Level in Brain Tissue and Testicular Tissue on Wistar Rats Given Once a Week Aerobic and Anaerobic Exercise <i>Rostika Flora, Lisna Ferta Sari, Muhammad Zulkarnain and Sukirno</i>	256
The Effectiveness of Ultrasound-Guided Injection for Pain Management in Indonesia <i>Soni Sunarso Sulistiawan, Dedi Susila, Belindo Wirabuana, Herdiani Sulilstyo Putri, Yusufa Fil Ardy, Ferdian Rizaliansyah, Noryanto Ikhromi, Bambang Pujo Semedi, Arie Utariani, Hamzah and Nancy Margarita Rehatta</i>	261
Effects of Moderate Intensity Aerobic Exercise on MMP-9 Level, NOx Plasma Level and Resting Blood Pressure in Sedentary Elderly Women With Overweight <i>Suhartini SM, Gusbakti R and Ilyas EI</i>	265

Correlation Between Oxidative Stress Level with Plasma Beta Endorphin Level of Male Laboratory Rats Given Aerobic and Anaerobic Exercise <i>Sukirno, Herlia Elvita, Mohammad Zulkarnain and Rostika Flora</i>	271
Bone Age Estimates the Onset of the Adolescent Growth Spurt Among Male Basketball Players <i>Sundari Indah Wiyasihati, Bambang Purwanto and Agus Hariyanto</i>	277
The Correlation Between Haemoglobine and Body Mass Index With The Changes of Blood Lactate Levels in University of Jenderal Soedirman's Medical Students - A Study at Repeated Sprint Sessional 3 <i>Susiana Candrawati, Wiwiek Fatchurohmah, Ahmad Agus Faisal and Hana Khairunnisa</i>	280
Laughter Therapy Lowers Blood Pressure and Heart Rate in Hypertensive Balinese Patients at Ambarashram Ubud Bali <i>Suyasning HI and Adi Pratama Putra P</i>	284
The Different Effects of Contrast Water Immersion and Warm Water Immersion on Blood Lactic Acid Levels After Submaximal Physical Activity Among Basketball Athletes <i>Taufan Reza Putra, Elyana Asnar STP and Dwikora Novembri</i>	288
Diabetes Sprague-Dawley Model Induced With Fat Diet And Streptozotocin <i>Thressia Hendrawan, Nurul Paramita, Dewi Irawati and Ani Retno Prijanti</i>	292
The Difference of Heart Rate and Blood Pressure in Aerobic and Anaerobic Predominant Athlete Koni West Java Year 2016 <i>Titing Nurhayati, Hafiz Aziz and Nova Sylviana</i>	294
Effect of Exhaustive Exercise on Blood Lymphocyte Count and Diameter of Splenic White Pulp in Rats <i>Tri Hartini Yulawati, Dewi Ratna Sari, Rimbun, Atika, Iskantijah and Ari Gunawan</i>	298
The Use of Purple Sweet Potato ( <i>Ipomoea Batatas L.</i> ) to Decrease Levels of Mda and Recover Muscle Damage <i>Utami Sasmita Lestari, Elyana Asnar and Suhartati Soewono</i>	304
Risk Factors of Low Back Pain Among Tailors in Kramat Jati, East Jakarta <i>Vivi Anisa Putri, Leli Hesti and Nurfitri Bustaman</i>	310
The Correlation of Norovirus Infection to Severity Degree of Acute Diarrhea in Children Under Five Years Old in Mataram City, Lombok <i>Warda Elmaida, Juniastuti and Soetjipto</i>	316
Malaria Prevalence in Alor District, East Nusa Tenggara, Indonesia <i>Yeni Puji Lestari, Majematang Mading, Fitriah, Avia Putriati Martha, Didik Muhammad Muhdi, Juniarsih, Zainal Ilyas Nampira, Sukmawati Basuki and Florentina Sustini</i>	321
The Potential Role of 25-Hydroxycholecalciferol on Calcium Regulation in Young Sedentary Women With Goat's Milk Intervention <i>Yusni</i>	326
Hemoglobin A1C as the Strongest Influencing Factor in relation to Vascular Stiffness in Type 2 Diabetes Mellitus - Metabolic Syndrome Patients <i>Deasy Ardiany, Soebagijo Adi, Ari Sutjahjo and Askandar Tyokropawiro</i>	331
Thyroid Crisis and Hyperosmolar Hyperglycemic State in a Hyperthyroid Patient <i>Yudih Annisa Ayu Reskitha, Rio Wironegoro, Hermawan Susanto, Soebagijo Adi and Ari Sutjahjo</i>	336

Effect of Growth Hormone Deficiency on the Cardiovascular System <i>Irma Magfirah, Soebagijo Adi Soelistijo, Hermina Novida and Deasy Ardiany</i>	342
Metformin, Effects Beyond Glycemic Control <i>Soebagijo Adi Soelistijo and Askandar Tjokprawiro</i>	349
The Correlation of Initial CD4 Cell Count with Increased Alanine Aminotransferase in Patients with Human Immunodeficiency Virus Who Have Received Nevirapine <i>Abdur Rokhim, Usman Hadi and Erwin Astha Triyono</i>	356
Profile of Bacteraemia and Fungemia in HIV/AIDS Patients with Sepsis <i>Sajuni Widjaja, Erwin Astha Triyono and Arthur Pohan Kawilarang</i>	363
The Association between Cryptococcal Antigenemia and CD4+ T lymphocyte Count in HIV/AIDS Patients with Suspected Cryptococcus Infection <i>Sajuni Widjaja, Erwin Astha Triyono and Arthur Pohan Kawilarang</i>	370
Impact of Music on Sport Intensity (Allegro) and on Levels of Left Ventricular Myocardial Damage in Wistar Rats <i>Faris Pamungkas Wicaksono, Sugiharto, Rias Gesang Kinanti, Paulus Liben, Suhartono Taat Putra and Purwo Sri Rejeki</i>	378
Association of Topical Capsaicin Exposure Dosage and Its Influence on Macrophages and Neutrophils in Periodontal Tissue <i>Ratna Mustriana, Haryono Utomo and Purwo Sri Rejeki</i>	382
Pharmacological Therapy of Portal Hypertension <i>Mukhammad Burhanudin, Iswan Abbas Nusi, Poernomo Boedi Setiawan, Herry Purbayu, Titong Sugihartono, Ummi Maimunah, Ulfa Kholili, Budi Widodo, Muhammad Miftahussurur, Husin Thamrin and Amie Vidyani</i>	389
Chronic Constipation Management in Adults <i>Erliza Fatmawati, Iswan Abbas Nusi, Poernomo Boedi Setiawan, Herry Purbayu, Titong Sugihartono, Ummi Maimunah, Ulfa Kholili, Budi Widodo, Husin Thamrin, Amie Vidyani and Muhammad Miftahussurur</i>	397
Diagnosis and Management of Ulcerative Colitis <i>Rendy Revandana Bramantya, Iswan Abbas Nusi, Poernomo Boedi Setiawan, Herry Purbayu, Titong Sugihartono, Ummi Maimunah, Ulfa Kholili, Budi Widodo, Amie Vidyani, Muhammad Miftahussurur and Husin Thamrin</i>	405
The Diagnosis and Management of Achlorhydria <i>Dicky Febrianto, Iswan Abbas Nusi, Poernomo Boedi Setiawan, Herry Purbayu, Titong Sugihartono, Ummi Maimunah, Ulfa Kholili, Budi Widodo, Amie Vidyani, Muhammad Miftahussurur and Husin Thamrin</i>	413
Acute Liver Failure <i>Troy Fonda, Iswan Abbas Nusi, Poernomo Boedi Setiawan, Herry Purbayu, Titong Sugihartono, Ummi Maimunah, Ulfa Kholili, Budi Widodo, Husin Thamrin, Amie Vidyani and Muhammad Miftahussurur</i>	421
Transient Elastography as Non-Invasive Examination of Hepatic Fibrosis <i>Satyadi, Iswan Abbas Nusi, Poernomo Boedi Setiawan, Herry Purbayu, Titong Sugihartono, Ummi Maimunah, Ulfa Kholili, Budi Widodo, Amie Vidyani, Muhammad Miftahussurur and Husin Thamrin</i>	426

Termination of Antiviral Administration in Chronic Hepatitis B <i>Edward Muliawan Putera, Iswan Abbas Nusi, Poernomo Boedi Setiawan, Herry Purbayu, Titong Sugihartono, Ummi Maimunah, Ulfa Kholili, Budi Widodo, Husin Thamrin, Amie Vidyani and Muhammad Miftahussurur</i>	431
Management for a Patient with Barret's Esophagus: A Case Report <i>Muhammad Miftahussurur, Iswan Abbas Nusi, Poernomo Boedi Setiawan, Herry Purbayu, Titong Sugihartono, Ummi Maimunah, Ulfa Kholili, Budi Widodo, Husin Thamrin and Amie Vidyani</i>	438
Thrombocytopenia in Chronic Hepatitis C <i>Arvi Dian Prasetia Nurwidda, Poernomo Boedi Setiawan, Iswan Abbas Nusi, Herry Purbayu, Titong Sugihartono, Ummi Maimunah, Ulfa Kholili, Budi Widodo, Amie Vidyani, Muhammad Miftahussurur and Husin Thamrin</i>	446
Short Bowel Syndrome: Review of Treatment Options <i>Nina Oktavia Marfu'ah, Herry Purbayu, Iswan Abbas Nusi, Poernomo Boedi Setiawan, Titong Sugihartono, Ummi Maimunah, Ulfa Kholili, Budi Widodo, Muhammad Miftahussurur, Husin Thamrin and Amie Vidyani</i>	453
Problematic Diagnosis of a Patient with Tuberculosis Peritonitis <i>Elieza L. Pramugaria, Iswan Abbas Nusi, Poernomo Boedi Setiawan, Herry Purbayu, Titong Sugihartono, Ummi Maimunah, Ulfa Kholili, Budi Widodo, Husin Thamrin, Amie Vidyani and Muhammad Miftahussurur</i>	462
Pathophysiology of Irritable Bowel Syndrome <i>Rastita Widyasari, Iswan Abbas Nusi, Poernomo Boedi Setiawan, Herry Purbayu, Titong Sugihartono, Ummi Maimunah, Ulfa Kholili, Budi Widodo, Husin Thamrin, Amie Vidyani and Muhammad Miftahussurur</i>	470
Recent Pathophysiology and Therapy for Paralytic Ileus <i>I Putu Surya Pradiana, Ulfa Kholili, Iswan Abbas Nusi, Poernomo Boedi Setiawan, Herry Purbayu, Titong Sugihartono, Ummi Maimunah, Budi Widodo, Amie Vidyani, Muhammad Miftahussurur and Husin Thamrin</i>	477
A Case Report of a Patient with a Rare and Aggressive Plasma Cell Leukemia <i>Ugroseno Yudho Bintoro, Putu Niken Amrita, Raharjo Budiono, Made Putra Sadana and Ami Ashariati</i>	482
Decreased Triglyceride and Protein Levels in Diabetic Rat Muscle Following Physical Exercise <i>Susi Anggawati, Bambang Purwanto and Sutji Kuswarini</i>	487
Abnormal Uterine Bleeding with Three Different Doses and Intervals of Hormonal Contraceptive Injection <i>Ananda Febina Kimresti A, Ashon Sa'adi, Lilik Djuari and Maftuhah Rochmanti</i>	491
Hypertrophic Scars Cause Burn Injuries Assessed by the Vancouver Scar Scale <i>Ardea Ramadhanti Perdanakusuma, Iswinarno Doso Saputro and Diah Mira Indramaya</i>	497
Description of Body Mass Index Changes in Emergency Patients at the Intensive Observation Room—Emergency Installation <i>Galang Damariski Lusandi, Prananda Surya Airlangga and Ariandi Setiawan</i>	501
Laboratory Profile of Acute Diarrhea and Chronic Diarrhea in Children <i>Mochammad Nasrulloh, Alpha Fardah Athiyyah and Arifoe! Hajat</i>	505



Effect of Ethanol Extract of <i>Ruellia tuberosa</i> L. Leaves on Total Cholesterol Levels in Hypercholesterolemia Model of <i>Mus Musculus</i> L. <i>Nurin Kusuma Dewi, Siti Khaerunnisa and Danti Nur Indriastuti</i>	512
Combination of Aerobic and Resistance Exercise in Lowering Blood Glucose Levels Compared to Aerobic or Resistance Exercises in a Male Wistar Rat Model with Diabetes Mellitus <i>Sahrul Latif, Dwikora Novembri Utomo and Purwo Sri Rejeki</i>	517
AUTHOR INDEX	523

# PAPERS

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## **FULL PAPERS**

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# The Dominant Personality Type in Vertigo Patients

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**Keywords:** Conscientiousness, NEO-PI Questionnaire, The Dominant Personality Type, The Big-Five Personality, Vertigo.

**Abstract:** Vertigo is an abnormality that originates from vestibular dysfunction or other organic damage and that causes psychological conditions such as panic attacks and depression. There is scarce research to adapt into a questionnaire in order to find a correlation between personality and vertigo. To determine the dominant personality type in vertigo patients, an observational descriptive cross-sectional design was used. Samples were taken from vertigo-diagnosed ambulatory patients (January–March 2017) of the ENT and Neurology Department, Soetomo Hospital, Surabaya, Indonesia. Patients who passed the inclusion criteria were given an informed consent form, then interviewed using an NEO personality inventory (NEO-PI) questionnaire to determine their personality type based on the Big Five Personality Theory. Data were collected, and groupings were based on sex, age, and demographic characteristics. There were 38 patients: female = 31 (81.82%). Ratio of vertigo: female and male 4.43:1. The dominant group age was 51–60 years (42.1%), with a mean age of 47.3 years (SD 13.24). The dominant personality types are Neuroticism and Conscientiousness. Furthermore, the total mean score for conscientiousness was higher compared to neuroticism. The most dominant personality type in vertigo patients is Conscientiousness.

## 1 INTRODUCTION

Vertigo is a common health problem in society. Ropper and Brown (2005) mention that vertigo is a condition that makes a person feel like the objects around him/her spin or move in a certain direction or rhythm. Vertigo is also a sensation, namely dizziness of the head and/or body.

Deispenza (2014) finds that vertigo is one of many complaints encountered in the medical arena. The percentage is approximately 20–30% of the population. Bisdorff et al. (2013) also find that vertigo and dizziness are the most frequent reasons for someone to visit a specialist. An episode of vertigo lasts about two minutes. The majority of vertigo patients are women, of ages ranging from 18 to 86 years old.

According to Allport (1961), personality is the dynamic organization in an individual associated with the psychological system. Personality is able to explain the characteristics of one's behavior and

thinking. One of the most commonly used personality theories is the Big Five Personality Traits. The Big Five Personality Traits consists of five personality dimensions: Openness, Conscientiousness, Extrovert, Agreeableness, and Neuroticism. Each personality is closely related to the particular condition of one's health status (Schultz, 2015).

Many studies mention the relationship between vertigo and psychological status. Gilain and Englebert (2008) divide vertigo into three types based on psychological aspects. Staab (2010) explains that psychological factors are capable of causing blood flow to the balance center of the brain to clog. Furman et al. (2010) describe the association of vestibular disorders with psychiatric disorders. Areas of study, in terms of adapting the Big Five Personality questionnaire to the collection of data regarding the relationship between personality trait and vertigo, remain unexplored (Gilain and Englebert, 2008). Vertigo, hypothetically, has a close connection with certain personality traits.

Further, it is known that the need to take psychological dimensions into account in otoneurology has been increasing; therefore, a study to investigate the dominant personality trait in vertigo patients is imperative.

## 2 METHODS

### 2.1 Participants

This study is descriptive observational using a cross-sectional design. Samples were taken from patients diagnosed with vertigo by the specialists in the department of ENT and Neurology, outpatient unit, at Dr. Soetomo General Hospital, from January to March 2017. The patient was, then, selected according the inclusion criteria. The inclusion criteria were: (1) patients were diagnosed with vertigo by the department of ENT and Neurology at Dr. Soetomo General Hospital, Surabaya; (2) willing to participate in the study; (3) able to read and speak Bahasa Indonesia fluently; (4) minimum age of 20 years old; and (5) residing in Surabaya. The exclusion criteria were: (1) the patients could not be interviewed (stroke which interferes with speaking ability, mental retardation, etc.), (2) severe physical diseases and mental disorders were found, making communication almost impossible; (3) the patient refused. Patients who met the inclusion criteria were required to fill in the informed consent form. The patients were, subsequently, interviewed using the NEO Personality Inventory (Appendix 1) questionnaire to identify the personality trait, based on the Big Five Personality Theory. Furthermore, data collection, grouping, and descriptions were based on demographics, sex, and age group.

### 2.2 Instrument

Questionnaires were completed by conducting structured interviews. The interviews were conducted by the researcher himself. The questionnaire used was NEO Personality Inventory Questionnaire. Each questionnaire consists of 40 questions (Appendix 1).

### 2.3 Procedure

The score is the total value obtained (Appendix 1). The highest score indicates the most dominant personality in the patient.

Table 1: Blueprint as a measurement trait.

Trait	Item		
	Favorable	Unfavorable	Total
Conscientiousness	1, 15, 23, 36	10, 16, 28, 35	8
Neuroticism	2, 14, 22, 37	9, 17, 29, 34	8
Agreeableness	3, 13, 21, 38	8, 18, 30, 33	8
Openness	4, 12, 26, 39	7, 19, 24, 32	8
Extroversion	5, 11, 27, 40	6, 20, 25, 31	8
Total			40

## 3 RESULTS

### 3.1 Patient Demography

There were 72 patients in the department of ENT and Neurology at Dr. Soetomo General Hospital, Surabaya. These patients are over 20 years old. They were diagnosed with vertigo during January to March 2017. The total number of patients participating in this study was 38. Of 38 patients, 7 were from the ENT department and the other 31 patients were from the Neurology department.

From the collected data, 81.58% of the patients are female. The ratio of female and male is 4.43:1. The distribution of patients based on age shows that 42.1% of the patients are 51–60 years old (mean 47.3, SD 13.24).

Table 2: Distribution of ENT and Neurology patients based on sex.

Sex	N	(%)
Female	31	81.58
Male	7	18.42
Total	38	100

Table 3: Distribution of ENT and neurology patients based on age group.

Age Group	N	(%)
21-30	2	5.26
31-40	6	15.8
41-50	7	18.42
51-60	16	42.1
61-70	4	10.53
71-80	2	5.26
81-90	1	2.63
Total	38	100

### 3.1.1 Dominant Personality Trait of Patients in The Department of ENT and Neurology at Dr. Soetomo General Hospital, Surabaya

Based on the frequency (Table 3), the dominant personality of patients with vertigo is Neuroticism and Conscientiousness (13 patients) (34.21%).

Table 4: Frequency and percentage of personality trait of patients with vertigo.

Personality Trait	N	(%)
Openness	3	7.9
Conscientiousness	13	34.21
Extroversion	2	5.26
Agreeableness	0	0
Neuroticism	13	34.21
Multiple result of personality trait	7	18.42
Total	38	100

Table 5: Comparison of mean total score of personality trait of Conscientiousness and Neuroticism.

Vertigo Patient No.	Total Score	
	Conscientiousness	Neuroticism
1	34	36
2	31	34
3	38	35
4	33	35
5	34	34
6	32	32
7	40	33
8	34	38
9	38	40
10	36	36
11	39	32
12	32	36
13	35	26
Total	456	447
Mean	35.0769	34.3846
%	50.5	49.5

## 4 DISCUSSION

Many have asserted there is a relationship between psychological factors and vertigo. Garcia et al. (2003) mention in their study that there are complaints from 38 vertigo patients (63.4%) which are associated with psychological disorders. The psychological disorders mentioned are: moderate depression, panic, anxiety, somatization, and obsessive-compulsive disorder. According to SCL-90, it is found that obsessive-compulsive disorder, anxiety, and depression are the highest-scoring

conditions. The result of this study supports the evidence of the relationship between psychological factors and vertigo. Another similar study is by Gilain (2008), according to whom someone with vertigo indirectly becomes limited in terms of socializing, doing work, and mobilization. This condition causes confidence to decrease and also leads to depression. Vertigo can develop and appear out of the blue, which causes anxiety and panic whenever the attack emerges. The sudden emergence of vertigo causes one to avoid certain situations and/or activities. Furthermore, it can also lead to stress (Schneiderman, 2008). Yardley et al. (1992) assert that vertigo patients tend to force themselves to limit activity due to the fact that when the attack emerges they become helpless. The attack also occurs repeatedly, which can lead the patients to frustration. It supports the somatopsychic mechanism (vestibular disorder causing psychiatric abnormality) as stated by Furman et al. (2010).

Groen (1983) and Savastano et al. (1996) in Orji (2014) discuss the psychological characteristics of vertigo patients. Groen (1983) finds that vertigo patients display a certain personality structure, denoted by high intelligence, great diligence, and a strong sense of responsibility. Meanwhile, Savastano et al. (1996) and Horner & Cazals (2003) consider that vertigo patients are obsessive compulsive, perfectionists, and vulnerable to stress. Similarly, Brandt et al. (2005) state that patients with vertigo, especially phobic postural vertigo, are usually obsessive compulsive and perfectionists. Takahashi et al. (2001) in Staab (2010) conclude that vertigo patients have a meticulous personality, always try to finish their work, are competitive, and acquire stressors from work and/or family.

The two preceding paragraphs describe the properties of the conscientiousness dimension. Conscientiousness is a relatively stable individual personality trait; it obeys the social norms, is compulsive, well-planned, visionary, and fearful of being disobedient. Similarly, it is mentioned by Costa & McCrae (1998) in Abdurrachman (2014) that those with the Conscientiousness personality type are perfectionists, compulsive, understand the risk in making a decision, are hard workers, workaholics and reliable. It can, thus, be concluded that conscientiousness individuals are those who strive to be successful, efficient in terms of work, and competent.

A study by Bogg and Robert (2004) mention that individuals with the personality trait of conscientiousness are more likely to suffer from stress. The results of this study are also supported by



De Valck CF et al. (2007) who reveal that of 108 vertigo patients, the majority had the personality type of Conscientiousness. In this study of the NEO Personality Inventory, the result indicates that the conscientiousness score is significantly high in vertigo patients.

Nagarkar et al. (2000) propose a slightly different result. They point out that of 75 vertigo patients, the patients perceive themselves as lonely, depressed, and anxious, with a significant outcome in the three categories of Benign Paroxysmal Positional Vertigo (BPPV, psychogenic vertigo, and control) ( $p < 0.1$ ). It is also mentioned that the emergence of an emotional aspect is a result of patients' inability to control the vertigo. Yardley et al. (1992) also state that anxiety and depression are found in chronic vertigo.

Related to the high value of neuroticism, it is more associated with a negative state of emotions: panic, sadness, irritability, stress, depression, and being temperamental (Costa & McCrae, 1992). Chiarella G. et al. (2016) state that a high result in terms of neuroticism tends to be found in patients with persistent dizziness, hypersensitivity to a certain movement, and exposure to complex visual stimulation. Such complaints are commonly called Chronic Subjective Dizziness (CSD). CSD can be stimulated by acute vestibular disease and depression as well as anxiety, which are the predisposing factors of CSD. The result of anxiety on neuroticism is occasionally found in peripheral vestibular disorder and in control patients, yet the highest score is more often found in CSD patients rather than in peripheral vestibular disorder patients. Indovina et al. (2015) also assert that CSD patients ( $n=11$ ) have the highest mean score on the personality trait of Neuroticism (55 SD +9). Tsehan et al. (2011) in Dieterich et al. (2016) conclude that patients with personality traits of Conscientiousness and Agreeableness are less likely to suffer from CSD after acute vestibular syndrome.

## 5 CONCLUSIONS

In this study, it is found that women in middle age, ranging between 51 and 60 years old are most likely to be diagnosed with vertigo. Vertigo patients have dominant personality traits of Conscientiousness and Neuroticism. The total mean score of conscientiousness is higher than of neuroticism.

Further research employing more samples is needed.

## ACKNOWLEDGEMENTS

Thanks to the Dean of Faculty of Medicine, Universitas Airlangga, and the Director of Dr. Soetomo General Hospital for their support in conducting this study.

Conflict of interest

"All authors declare there is no conflict of interest regarding publication of this manuscript".

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