



2nd ICHMS & 2nd LSC

PROCEEDING

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The 2nd International Conference of Medical and Health Sciences (ICMHS) and The 2nd Life Sciences Conference (LSC) 2016

*"Towards a Better Quality of Life
through Interdisciplinary Research"*

Yogyakarta, 9th-10th December 2016
The Alana Hotel and Convention Center

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TABLE OF CONTENT

COMMITTEE	viii
WELCOMING SPEECH	
Welcome Message from Committee	ix
Welcome Message from Dean	x
Welcome Message from Rector	xi
Welcome Message from the Head of Provincial Health Office Special Region of Yogyakarta	xiii
KEYNOTE SPEAKER OF INTERNATIONAL CONFERENCE	xv
REVIEWER	xvi
FULL ARTICLE	
Diabetic Neuropathy - A Chance Towards A Better Treatment <i>Tri Wahyuliati</i>	2
Herbal Medicine a Holistic Approach; in Case of Food Supplement Formulation of <i>Sauropus androgynus</i> and <i>Elephantopus scaber</i> to Modulate Immune and Hormonal System in Pregnant <i>Salmonella typhi</i> Infected Mice <i>Muhammad Sasmito Djati</i>	10
Continuing Competence of Practicing Nurses in Indonesia <i>Fitri Arofiati, SKep.,Ns, MAN Ph.D</i>	19
The Influence of Neuromuscular Taping (NMT) in Walking Speed for the Patients After Ischemic Stroke <i>Umi Budi Rahayu</i>	29
Correlation between Larvae Free Number with DHF Incidence in Sleman, Yogyakarta, Indonesia <i>Tri Wulandari Kesetyaningsih, Sri Andarini, Sudarto, Henny Pramoedyo</i>	34
Correlation Interdialytic Weight Gain-Idwg towards Physical and Psychological Health to Quality of Life in Patients with Hemodialisa <i>Cecilya Kustanti, Maria Putri Sari Utami</i>	42

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Quality of Life in Hemodialysis Patiens with Hypertension <i>Maria Putri Sari Utami, Elsy Maria Rosa, Azizah Khoiriyati</i>	48
Environmental Housing Characteristic of Pulmonary Tuberculosis Sufferers in Slum Area <i>Iwan Stia Budi, Yustini Ardillah, Indah Purnama Sari, Dwi Septiawati</i>	55
Exploration Study in Psychological Changed on First Trimester Pregnant Women at Kembaran II Health Center, Banyumas <i>Wilis Dwi Pangesti, Dewi Ambarwati, Inggat Ratna Kusuma</i>	63
The Anxiety of Pregnant Mother with History of Abortion in Health Service 2 Banyumas Qualitative Study <i>Evicenna Naftuchah Riani, Wilis Dwi Pangesti, Diah Atmarina Yuliani</i>	72
Analysis of Infection Control Risk Assessment and Strategies to Reduce Health-Care Associated Infections in RS PKU Muhammadiyah Gamping Yogyakarta <i>Nurmalita Sari, Elsy Maria Rosa</i>	76
Health Promotion Program for Disaster Eruption of Mount Merapi Refugee in Youth Centre Sleman Distric, Yogyakarta Special Province, Indonesia <i>Novitasari Ratna Astuti</i>	91
Pap Smear is Important Screening of Cervical Cancer for Women <i>Ivanna Beru Brahmana</i>	100
Analysis of Compliance on Implementing Standard Precautions on Dental Health Service at PKU Muhammadiyah Gamping Hospital of Yogyakarta <i>Maria Margaretha S Nogo Masa, Elsy Maria Rosa</i>	108
Qualitative Study of Stakeholders' Knowledge Regarding Alert Village Program in Ogan Ilir Regency <i>Asmaripa Ainy, Iwan Stia Budi</i>	123
The Influence of Parents Knowledge and Health Care Access to the Identification of Children with Hearing Impairment <i>Asti Widuri, Alazi, Muhammad Pringgo Arifianto</i>	131

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

The Comparison of Maternal Leukocytosis Incidence between Preterm Premature Rupture of Membranes and Premature Rupture of Membranes at Term in Panembahan Senopati Hospital Bantul Yogyakarta <i>Choirotun Jum'iyatin Nisak, Supriyatningsih</i>	137
Analysis of Patient Safety Culture Instrument by MaPSaF <i>Arum Astika Sari, Arlina Dewi</i>	143
The Relationship of Fish Consumption to Cognitive Development in Students of SD Saptosari, Gunungkidul, Yogyakarta <i>Dewi Ngaisyah</i>	158
Inter Professional Education and Collaborative Practice: Reflection from Health students <i>Wiwik Kusumawati, Ika Setyawati, Romdzati, Likky Tiara Alphianti</i>	164
Steroidal Saponin in Ethanol Extract Tuber of Purple Yam (<i>Dioscoreaalata L.</i>) Decrease IL-4 Density of Blood Sera on BALB/c Mice Model Digestive Tract Allergy <i>Sri Nabawiyati Nurul Makiyah, Muhaimin Rifa'i, Widodo, Muhammad Sasmito Djati</i>	173
Managerial Leadership Competence in PKU Muhammadiyah Hospital of Gamping <i>Ranggit Oktanita, Qurratul Aini, Ekorini Listiowati</i>	184
Malaria Occurrence Factor Analysis Based on Elevation of Sea Surface in the District of OganKomeriungUlu, South Sumatra <i>Pademi Alamasyah, Chairil Anwar, Dwi Setyawan, Laila Hanum</i>	200
Increasing Family Involvement to Reduce of Cigarette Consumption with Participatory Learning Action (PLA) Approach <i>Tri Hastuti Nur Rochimah, Salmah Orbayinah</i>	212
Air Pollution Effect to Human Health in Palembang City <i>Marsidi, M.T. Kamaluddin, Fauziah N. Kurdi, Novrikasari</i>	230
Identification of Patient Satisfactory Profile for Outpatient Pharmaceutical Service at Private and Government Hospital within Semarang District <i>Pramitha Esha Nirmala Dewi, Novita Dwi Dahliyanti</i>	241

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Intervention of Family Nutritional Awareness to Increase Family's Food Security <i>Fatmalina Febri, Anita Rahmiwati, Fenny Etrawati</i>	249
The Effects of Exercises in Molecular Neuron Cells of Cerebellum in Congenital Hypothyroidism Rats <i>Idiani Darmawati, Marten Bhara Suryo Aji, Zulkhah Noor</i>	258
The Effect of Air Freshener Exposure on Corneal Thickness of White Rat (<i>Rattus norvegicus</i>) <i>Yuningtyaswari, Pajar Sigit Nugroho</i>	265
The Correlation between Education about Personal Hygiene and Knowledge and Attitude of Personal Hygiene of the Adolescent <i>Kusbaryanto, Wahana</i>	272
The Relationship between Sports Activities and Premenstrual Syndrome In SMA N 1 Sentolo, Kulon Progo <i>Fenthy Vabiella, Alfaina Wahyuni</i>	277
Relationship Thyroid Status to the Physical Growth and Psychomotor Development on Children Under 2 Years in Endemic Areas of Iodine Deficiency Disorders in District Samigaluh of Kulonprogo Regency <i>Adang Muhammad Gugun, Zulkhah Noor, Jifani Rasyad, Mardylla Nur Fitriany..</i>	282
Baby Blood Vessel Detection-Based Touch Sensors <i>Ade Pajar Pirdianto, Anna Nur Nazila Chamim</i>	299
Analysis of Factors that Influence Smokers Using Alcohol among Students in a Private University in Yogyakarta <i>Iman Permana, Gibran Ilham Setiawan</i>	306
The Effectiveness of Combined Warm Water Foot Submerging and Breath Relaxation Therapy on Lowering the Blood T Pressure in Hypertensive Patients in the Work Area of Puskesmas Penumping Surakarta <i>Prima Trisna Aji, Novita Kurnia Sari, Sri Nabawiyati Nurul Makiyah</i>	315
Assessment of Interprofessional Communication and Collaboration: Using Multi Methods <i>Sri Sundari Purbohadi</i>	335

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Bed Side Teaching as Effort for Decreasing Needle Stick and Sharp Injury in Clinical Practice Students of PSIK FKIK UMY <i>Azizah Khoiriyati, Novita Kurnia Sari</i>	342
The Relationship between Working Period and Cholinesterase Blood Levels among Pesticides-Spraying Workers in the Oil Palm Plantation <i>Restu Dewi Lestari, Merry Tiyas Anggraini</i>	350
The Effect of Interpersonal Relationship toward Birth Satisfaction <i>Hema Dewi Anggraheny</i>	356
Effect of Early Mobilization Education of The Level Anxiety and Independence of Patients After Total Knee Replacement in Hospital <i>Amik Muladi, Sagiran, Azizah Khoiriyati</i>	363
The Effect of Normal Dose Extract Gempur Batu Kejibeling (<i>Strobilanthus crispus.BL</i>) to the Histological of Rat's Digestive Tract <i>Yoni Astuti, Ali Usodo Mulyo, Harminani</i>	371
Effectiveness of Alcohol 70%, Clorhexidine Gluconate 4% Soap and Irgasan DP 300 as Hand Sanitizers in Reducing Bacterial Growth <i>Inayati, Pinter Hartono</i>	377

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

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and
The 2nd Life Sciences Conference 2016**

**Chair person of The 2nd International Conference of Medical and
Health Sciences and The 2nd Life Sciences Conference 2016**



Welcome to Jogja, sugeng rawuh!

For the second time, the Faculty of Medicine and Health Sciences Universitas Muhammadiyah Yogyakarta is going to conduct the 2nd International Conference of Medical and Health Sciences (ICMHS) this December in vibrant Yogyakarta, Indonesia. This year we are going to collaborate with the Life Sciences Society of Pakistan for their 2nd Life Sciences Conference (LSC) with Dr. Zahid Iqbal as the general secretary.

This year's conference theme "Towards a better quality of life through interdisciplinary research" will be celebrating an era of seamless interdisciplinary integration and collaboration in scientific innovations with the involvement of more extensive topics and disciplines in the conference. We aim to exhibit the products of that kind of approach in solving challenges, improving the quality of life, and creating sustainable developments. We are happy to announce that our conference is filled with Invited speakers from Pakistan, United States of America, Uni Emirates Arab, Malaysia and Indonesia. Presentations will be conducted in oral as well as poster that covers topics from medicine, public health, dentistry, pharmacy, biomedical to agriculture. To put more credibility to the conference we are collaborating with Isra Medical Journal and the Asian Journal of Agriculture and Biology to publish selected papers from the event. Other paper will be published in the ISBN Proceeding book.

The last but not least, enjoy the conference, start networking and sharing ideas, and let immerse yourself to the heritage cultural ambient of Jogja, sumonggo!

Yogyakarta, 1st December 2016

dr. Iman Permana, M.Kes, Ph.D.

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

**Dean of Faculty of Medicine and Health Sciences,
Universitas Muhammadiyah Yogyakarta**



Assalamu'alaikum Wr. Wb.

Science, especially in the areas of health and life growing more rapidly. We need to work together in the research of various disciplines to the advancement of science and to provide benefits to human life.

After successfully organized international scientific meeting last year, the Faculty of Medical and Health Sciences Universitas Muhammadiyah Yogyakarta, held the second scientific meeting ICMHS along with "2nd Life Sciences Conference". In this second scientific meeting, FKIK UMY collaborates with various researchers, among others from Pakistan, Malaysia, and the United States. Taking the theme "Towards a better quality of life through interdisciplinary research" we hope to establish cooperation with various parties to be able to contribute ideas to the civilization of human life.

Finally, we congratulate the scientific meeting in the city of Yogyakarta Indonesia. Enjoy the beautiful city of Yogyakarta with priceless historical relics. We hope that this meeting can run smoothly and provide benefits to the advancement of knowledge.

Wassalamu'alaikum Wr. Wb.

Yogyakarta, 1st December 2016

dr. Ardi Pramono, M.Kes, Sp.An.

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Rector of Universitas Muhammadiyah Yogyakarta



Assalaamu'alaikum Wr. Wb.

Ladies and Gentlemen,

Welcome to the 2nd International Conference on Medical and Health Science in conjunction with the 2nd Life Sciences Conference 2016

Welcome to Yogyakarta City of Tolerance

Our Faculty of Medicine and Health Sciences has been doing such international conference almost every year for the last ten years. This and other previous conferences are the things that supporting our vision as an excellence and Islamic university, a young and global university. We will always try to keep monitoring the development of science through sending more lecturers to do the sabbatical leave overseas, doing international research collaborations and also the international conference. Each department should do this strategy of internationalization so that each department has its own network. Faculty of medicine and health science is one of the most progressive units in implementing this strategy by inviting international experts on a regular basis. This program will certainly strengthen our vision.

International conference on medicine and health sciences is a smart choice to offer our lecturers access to the most recent development of the subjects. The participants will also gain the same knowledge and latest information on medicine and health sciences. As everyone knows that the development of science and technology are faster today compared to the previous period. Information technology, computer, and other development havefastened the transformation of medicine and health science into the different and more complex stage.

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Cellular technology, for instance, can be used for several functions including those that directly impacts our daily life. There is no long distance call anymore today because cellular phone can do everything we need to contact other people far from where we stand anytime anywhere. People will finally innovate cellular phone for the sake of personal health services. We will in the future using our simple cellular phone to detect our body temperature, blood pressure, even how much fat we have in our body and how much it is supposed to be. We may also be able to check the health of our body without leaving our house and order medicine without going into the drug store. Everything is almost possible as long as we think hard for the better of people in the future. Enjoy the conference and don't forget to visit our rich tourist destinations, mountains, beaches or caves (underground waterways).

Thank you

Wassalaamu'alaikum Wr. Wb.

Prof. Dr. Bambang Cipto, MA

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

Keynote Speech

**by Head of Provincial Health Office Special Region of Yogyakarta
in International Conference
of Medical and Health Sciences and Life Sciences Conference**

The Alana Hotel and Convention Center, Yogyakarta, December 9-10, 2016

The honorable:

- Rector of Muhammadiyah University of Yogyakarta,
- The Dean of Medical and Health Sciences Muhammadiyah University of Yogyakarta,
- The chairman of organizing committee of the international conference of medical and health,
- Distinguished guests and colleagues.

Assalamu'alaikum Warahmatullahi Wabarakatuh,

First of all, we thank God for His blessings that today we may attend the International Conference of Medical Health Towards a Better Quality of Life Through Interdisciplinary Research in Yogyakarta.

My distinguished colleagues,

In Indonesia National Long Term Development Plan (2005-2024), the Indonesian Ministry of Health have determined a paradigm shift that have governed health services in health development plan. There has been a shift from Curative Health Services to Preventive and Promotive Health Services.

Recently, Indonesia suffers from a triple burden of diseases as health development challenges. The triple burden of diseases are: 1) the backlog of common infections, undernutrition, and maternal mortality; 2) the emerging challenges of non-communicable diseases (NCDs), such as cancer, diabetes, heart disease; and 3) mental illness, and the problems directly related to globalization, like pandemics and the health consequences of climate change.

Dear colleagues,

Here are some data that show several health problems in Indonesia:

1. Maternal mortality rate in 2015 is 4,809 cases, infant mortality rate in 2015 is 22,267 cases;
2. Regarding to children under the age of five, the national stunting rate is 37.2% which consists of 18% for very short dan 19.2% for short (Riskesdas 2013);

The 2nd International Conference of Medical & Health Sciences and The 2nd Life Sciences Conference 2016

3. HIV testing coverage is 14% dan antiretroviral (ARV) therapy coverage is 65.58% (Directorate General of Disease Control and Prevention Ministry of Health, 2015);
4. Tuberculosis (TB) notification rate in 2015 is 73.5% and tuberculosis treatment success rate is 72% (Directorate General of Disease Control and Prevention Ministry of Health, 2015).

Distinguished guests,

Indonesia Health Development Program in 2015-2019 strengths in improving human quality life through Health Indonesia Program with family approach. The Indonesian Ministry of Health issued The Minister of Health Regulation (Permenkes) No. 39 Year 2016 as a Guideline of Implementation of Health Indonesia Program with Family Approach. This program has 12 main indicators as markers of a family health status. Currently, many health programs have been implemented by Indonesian Ministry of Health, Provincial Health Offices, and District Health Offices. However, many health problems, some as mentioned above, still become health burdens. We may ask a question whether the programs that we conducted have answered the health problems we have in Indonesia.

It would be better if all health programs that we implement based on scientific health research, especially interdisciplinary research. The research should be related to detection, prevention, and treatment of diseases or problem solving for better health.

My dear colleagues,

Being a province with speciality, Special Region of Yogyakarta placed Traditional Medicine as one of the priority programs in Provincial Medium Term Development Plan (2017-2022). We still encounter many challenges in developing Traditional Medicine, especially in providing services which are based on scientific evidence.

Distinguished colleagues,

We look forward to results of interdisciplinary research which would support health problem solving, especially by developing traditional medicine in Yogyakarta. We believe that collaboration in interdisciplinary research would improve quality of human life.

Finally,

Thank you for your attention. We wish you a successful conference.

Wassalamu'alaikum Warahmatullahi Wabarakatuh,

On behalf of
the Head of Provincial Health Office
Special Region of Yogyakarta

Drg. Pembajun Setyaningastutie, M.Kes

**The 2nd International Conference of Medical & Health Sciences
and
The 2nd Life Sciences Conference 2016**

**SPEAKER OF
INTERNATIONAL CONFERENCE**

Zahid Iqbal

Al-Nafees Medical College Isra University Islamabad Campus Islamabad, Pakistan
"One Health Program for Public Health Benefit"

Prof. Dr. Abdul Khaliq

Professor, Department of Agronomy, University of Agriculture, Faisalabad
"Role of Agriculture in Poverty Alleviation of Rural Areas"

Fitri Arofati

Universitas Muhammadiyah Yogyakarta, Indonesia
"Continuing Professional Development of Practicing Nurses in Indonesia"

Tri Wahyuliati

Universitas Muhammadiyah Yogyakarta, Indonesia
"Diabetic Neuropathy - A Chance Towards A Better Treatment"

Mohammad Khalid Ashfaq

University of Mississippi, USA
"Natural Products –Use or Misuse"

Muhammad Mukhtar

American University of Ras Al Khaimah, United Arab Emirates
"Emerging Biotechnologies and Genomic Medicines in Human Health and Well-Being"

Muhammad Sasmito Djati

Brawijaya University Malang, Indonesia
"Herbal Medicine a Holistic Approach: in case of food supplement formulation of Sauropusandrogynus and Elephantopuscaberto modulate immune and hormonal system in pregnant Salmonella typhi infected mice"

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and
The 2nd Life Sciences Conference 2016**

REVIEWER

1. Dr. Zahid Iqbal, Ph.D (Isra University, Islamabad, Pakistan)
2. Prof. Dr. Abdul Khaliq (University of Agriculture, Faisalabad)
3. Dr. Mohammad Khalid Ashfaq, DVM, DTVM, MS, Ph.D (University of Mississippi, USA)
4. Dr. Muhammad Mukhtar, Ph.D (American University of Ras Al Khaimah, United Arab Emirates)
5. Dr. Ir. Muhammad Sasmito Djati, MS. (Brawijaya University Malang, Indonesia)
6. Fitri Arofiati, S.Kep., Ns., MAN., Ph.D (Universitas Muhammadiyah Yogyakarta, Indonesia)
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20. Drh. Tri Wulandari K, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
21. Dr. dr. Wiwik Kusumawati, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
22. Sabtanti Harimurti, S.Si., M.Sc., Ph.D., Apt. (Universitas Muhammadiyah Yogyakarta, Indonesia)

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and
The 2nd Life Sciences Conference 2016**

**SPEAKER OF
INTERNATIONAL CONFERENCE**

The Influence of Neuromuscular Taping (NMT) in Walking Speed for the Patients After Ischemic Stroke

Umi Budi Rahayu

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Universitas Muhammadiyah Surakarta
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Abstract

Walking is one of the problems that found from the patients after ischemic stroke which are enhanced by motoric and posture control. Motoric and posture control can be seen from vertebrae control, pelvis, and knee joint. Neuromuscular Taping (NMT) is one of the interventions which can be applied on lumbar and knee area. The application of NMT in lumbar area effects skin, lymph, blood circulation, muscle fibers decompression; those are increase the blood circulation and lymphatic drainage. The application of NMT on the knee joint will give movement control which increases the patient walking performance. This research aims to know the influence of NMT application in increasing walking speed of patients after ischemic stroke. The research type is quasi experimental using pre-test and post-test without control group design. This research was conducted from February to March 2016 at Poliklinik Rehabilitasi Medik RSUD Kab. Sukoharjo. NMT application was done for lumbar and knee functional application while 5 times. In this research, the walking speed was measured using stopwatch about 3 meters. The result data before and after treatment was tested using statistical analysis (SPSS), Wilcoxon sign test. The result of statistical analysis shown that p-value = 0.043 ($\alpha < 0.05$), then H_0 is rejected, there was difference of average pre-test and post-test scores in walking speed after ischemic stroke. Neuromuscular Taping (NMT) with lumbar and knee functional application increased walking speed on patients after ischemic stroke.

Keywords: Neuromuscular Taping (NMT), walking speed, after ischemic stroke.

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INTRODUCTION

Stroke is one of cardiovascular disease which influences artery in the brain. Stroke occurs when artery that transport oxygen and nutrition to the brain was blocked, the result was the brain cannot get the blood for needed and the brain nerve cells will be death. WHO states that stroke is functional brain disruption which develop vocal and global earlier, that is taken place more than 24 hours (can cause a death), with the clear of vascular causes.¹ Almost 2/3 patients after Ischemic stroke was started with mobility deficit and after 6 months more than 30% of patients cannot walk independently, besides, walking speed and the capacity could be increased about 60% of patients.²

Disability is the big problem post ischemic stroke which was caused by the function of motoric and postural control restrictiveness as the result of nerve damage in the brain. Disability also associates with the abnormal movement.³ Biologist, functional, and postural control characteristics is better predictor to reach independent functional of patients post ischemic stroke (involve walking performance), especially in the patient with the motoric and sensory deficit.⁴ Patient with the increasing of the balancing and performing of walking had an important role in the improving the physical activity.⁵ Neuromuscular Taping (NMT) is one of biomechanical therapy which is innovated with compression and decompression stimulation to get the positive effect on the musculoskeletal, neurology, vascular and lymphatic system.⁶ Basic functions of NMT activates the skin, muscle, venous, lymphatic and joint system to normalization the muscle tension, correction the joint and influence the posture. NMT action in the muscular level could correct muscle tone, improve muscle contraction, and decrease excessive muscle contraction, whereas articular could stabilize at the level of the fascia and increase range of motion.⁷

MATERIALS AND METHODS

Participants of this research were five post ischemic stroke patients. The participants were elderly aged 50-65 years old who was included in criteria. Inclusions of criteria were post ischemic stroke, vital sign relatively stable and no complications. All of participants were patients who come to Poliklinik Rehabilitasi Medik RSUD Kab. Sukoharjo. This design research is quasi experimental by using pre-test and post-test without control group design to analyze the effectiveness of NMT application in walking speed of patients post ischemic stroke. Walking speed was measured using stopwatch, in this case the patients asked to walk in the straight line with length about 3 meters. The walking speed data was analyzed before and after treatment. The treatment was done in 5 times. NMT application includes lumbar application and knee functional application. Lumbar application was used 2 tape with 30 cm length and 5 cm width in I-shaped form. Knee area was used knee functional application. After adhering the

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tape, do to activation. All of data were checked normal distribution of data normality, while test of variance showed variances are not same. The walking speed data, before and after treatment was tested using statistical analysis (SPSS), Wilcoxon sign test (the distribution and variation data is not normal).

This experimental research have objective to determine the influence of NMT application in increasing walking speed in the patients after ischemic stroke. The respondents are patients post ischemic stroke which have motoric deficit, especially in decreasing the walking performance.

RESULTS

Five respondents of patients post ischemic stroke at Poliklinik Rehabilitasi medik RSUD Kab. Sukoharjo had been given NMT application intervention in 5 times with the lumbar and knee functional application. Before the intervention, the patients checked to measure the walking speed in the straight lines about 3 meters. After giving intervention, the patients were measured again. The result of the walking speed before and after intervention describes in the Table 1.

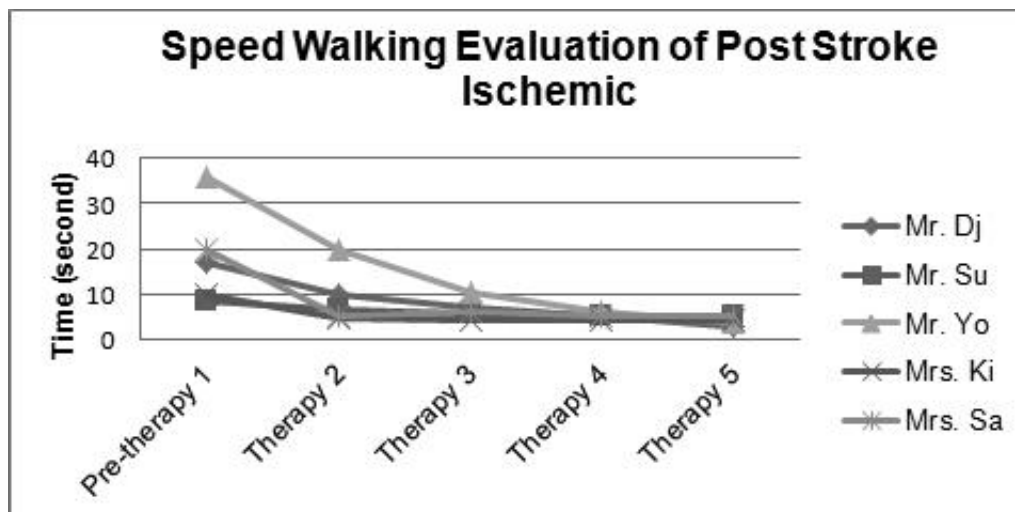
Table 1. The Description of Walking Speed about 3 Meters for Patients After Ischemic Stroke

Respondent	Pre-intervention	Therapy 2	Therapy 3	Therapy 4	Therapy 5
Tn. Dj	17 second	10 second	7 second	5 second	3 second
Tn. Su	8.67 second	6.8 second	5.5 second	5 second	5.3 second
Tn. Yo	36 second	20 second	10.58 second	6 second	4 second
Ny. Ki	10.03 second	4.86 second	4.1 second	4.3 second	4.3 second
Ny. Sa	20 second	5.38 second	6.15 second	5 second	5 second

The long duration of walking speed is 36 second, whereas the most speed is 8.67 second. After applied in 5 times, there is an increasing of walking speed that the lowest is 3 second in 3 meters and latest 5.3 second in 3 meters. The walking speed data, before and after treatment was tested using statistical analysis (SPSS), Wilcoxon sign test. The result of statistical analysis shown that p-value = 0.043 ($\alpha < 0.05$), then H_0 is rejected, there was difference of average pre-test and post-test scores in walking speed after ischemic stroke. The NMT application with lumbar and knee functional application can improve walking speed on post ischemic stroke.

The explanation of walking speed in the patients in each intervention showed in the graphic bellow (Graphic 1).

Graphic. 1 The Development of Walking Speed in the Patients After Ischemic Stroke



DISCUSSION

This research evaluated the effectiveness of NMT in walking speed for the patients post ischemic stroke. There is other research too using NMT to give effect for walking strategy in a patient with joint hypermobility syndrome.⁸ It shows that NMT have a role as a sensitive input that is integrated by the central nervous system and used for assisting motor program execution process known as sensorimotor integration. The main finding in this experiment is $p\text{-value} = 0.043$ ($\alpha < 0.05$). It means that there was significant increase of walking speed in the patients post ischemic stroke by neuromuscular taping (NMT) application. This is strengthened,⁹ reported that the application of NMT was able to improve significantly the motor performance.

A characteristic sign of post ischemic stroke is reduced walking speed. The long duration of walking speed is 36 second, whereas the most speed is 8.67 second. After applied in 5 times, there is an increasing of walking speed that the lowest is 3 second in 3 meters and latest 5.3 second in 3 meters. NMT, which is placed on the skin, provides a greater cutaneous nociceptive signal and improves balance and gait ability by not only stimulating proprioceptive sense but also identifying the right position of the joint even in a comfortable posture with no weight loaded. Furthermore, NMT is well-known to be effective for increasing functional movements by improving muscle strength and endurance. Besides, NMT helps to maintain the coordination of agonist, synergist and antagonist muscles by controlling muscle tones, inducing body balance and muscle control recovery. Thus, balance and muscle control recovery through NMT can increase

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walking speed.¹⁰ These receptors activate nerve impulses when mechanical loads (touch, pressure, vibration, stretch and itch) create deformation. Their activation by an adequate stimulus causes local depolarization, which triggers nerve impulses along the afferent fibers travelling toward the central nervous system.

CONCLUSION

It can be concluded that there was a difference in average score on walking speed before and after giving an NMT application about 5 times to patients after Ischemic stroke. There was a significant increase of walking speed in the patients post ischemic stroke by neuromuscular taping (NMT) application.

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