PROCEEDINGS

2ND YOGYAKARTA INTERNATIONAL SEMINAR ON HEALTH, PHYSICAL EDUCATION, AND SPORT SCIENCE (2ND YISHPESS)

“Community Building and Development through Physical Education and Sports”

In conjunction with

1ST CONFERENCE ON INTERDISCIPLINARY APPROACH IN SPORTS (1ST CoIS)

“Integrating sports science intervention to optimize human performance”
2nd Yogyakarta International Seminar on Health, Physical Education, and Sport Science
(YISHPESS 2018)

1st Conference on Interdisciplinary Approach in Sports
(CoIS 2018)

October 26-27, 2018,
Yogyakarta, Indonesia

Edited by
Prof. Dr. Siswantoyo, M.Kes., AIFO.
Dr. Or. Mansur, M.S.
Soni Nopemri, Ph.D.
Dr. Muhammad Ikhwan Zein, Sp.K.O.

ATLANTIS PRESS
AMSTERDAM – PARIS – BEIJING
This book is part of the series Advances in Social Science, Education and Humanities Research (Volume 278) (ISSN 2352-5398) published by Atlantis Press.


The proceedings series Advances in Social Science, Education and Humanities Research aims to publish proceedings from conferences on the theories and methods in fields of social sciences, education and humanities.

Topics covered by this series:
- Psychology
- Sociology
- Education
- History
- Communication studies
- Linguistics and language
- Law and law enforcement
- Political science
- Religious studies
- Philosophy
- Globalization
- Humanities
- Archaeology
- Anthropology
- Inter-cultural studies
- Development
- Geography
- Health
- Human Factors and Ergonomics
- Library and Information Sciences
- Safety Research
- Transportation

Publishing information

The series aims at publishing original proceedings from international conferences. With a fast turnaround time and free access on the Internet, the proceedings in this series provide an excellent means for conferences and their participants to quickly publish their articles to the widest possible audience.

The series as a whole has as an ISSN-number where each individual volume of proceedings will have its own ISBN number.

© ATLANTIS PRESS, 2018
www.atlantis-press.com
ISBN: 978-94-6252-634-1


All rights reserved. No part of this book may be reproduced, translated, stored or transmitted in any form or by any means, including electronic, mechanical, photocopying, recording or otherwise, without prior permission from the publisher.

1st Conference on Interdisciplinary Approach in Sports (CoIS 2018)

October 26-27, 2018, Yogyakarta, Indonesia

Organizing Committees:

Steering Committee:

- Prof. Dr. Sutrisna Wahana, M.Pd., Universitas Negeri Yogyakarta, Indonesia
- Prof. Dr. Margana, M.Hum., M.A., Universitas Negeri Yogyakarta, Indonesia
- Prof. Dr. Edi Purwanto, M.Pd., Universitas Negeri Yogyakarta, Indonesia
- Prof. Dr. Sumaryanto, M.Kes., Universitas Negeri Yogyakarta, Indonesia
- Dr. Rer. Nat. Senam, M.Si., Universitas Negeri Yogyakarta, Indonesia
- Prof. Dr. Wawan S. Suherman, M.Ed., Universitas Negeri Yogyakarta, Indonesia
- Assoc. Prof. T. Herawan, Universitas Negeri Yogyakarta, Indonesia

Scientific Committee:

- Prof. Dr. Tandiyo Rahayu M.Pd., Universitas Negeri Semarang, Indonesia
- Prof. Dr. H. Nurhasan, M.Kes., Universitas Negeri Surabaya, Indonesia
- Prof. Dr. H. Adang Suherman, MA., Universitas Pendidikan Indonesia, Indonesia
- Dr. Abdul Sukur, S.Pd, M.Si., Universitas Negeri Jakarta, Indonesia
- Prof. Dr. M.E. Winarno, M.Pd., Universitas Negeri Malang, Indonesia
- Prof. Yoshiro Sugiyama, Ph.D., Kyushu University, Japan
- Assoc. Prof. Kenji Masumoto, Ph.D., Kyushu University, Japan
- Asst. Prof. Uchida Wakaki, Ph.D., Kyushu University, Japan
- Asst. Prof. Wanchai Boonrod, Ph.D., Chulalongkorn University, Thailand
- Profesor Madya Dr. Ahmad bin Hashim, Universiti Pendidikan Sultan Idris, Malaysia
- Dr. Wayne Cotton, Sydney University, Australia
- Dr. Jose Vicente Garcia Jimenez, Universidad de Murcia, Spain
- Prof. Stuart Biddle, B. Ed, M.Sc., Ph.D., University of Southern Queensland, Australia
- Prof. Michael Chia, Ph.D., National Institute of Education, Singapore
- Jacqueline D. Goodway, Ph.D., Ohio State University, USA
- Jung Sok Oak, Ph.D., Profesor Emiritus Dankook University, South Korea
- Dr. Rakesh Tomar, King Fahd University of Petroleum and Minerals, Saudi Arabia
- Melissa Parker, Ph.D., University of Limerick, Ireland
- Joshua E. Umefekwem, Ph.D., University of Nigeria, Nigeria
- Jose Vicente Garcia-Jimenez, Ph.D., Universidad de Murcia, Spain
- Asst. Prof. Wanchai Boonrod, Ph.D., Chulalongkorn University, Thailand
- Assoc. Prof. Dr. Mohd Salleh Bin Aman, University of Malaya, Malaysia
• Prof. James J. Laskin, University of Montana, United States
• Dr. Nguyen Tra Giang, Ton Duc Thang University, Vietnam
• Prof. Tankiso Moloi, University of Johannesburg, South Africa
• Prof. Dr. Evert Verhagen, Ph.D., VU Medical Center, Netherlands
• Dr. Ashril Yusof, University Malaya, Malaysia
• Prof. Rajesh Kumar, Osmania University, Hyderabad, India
• Dr. C. Veerender, FGDPC., Osmania University, Hyderabad, India

Organizing Committee:
• Prof. Dr. Siswantooyo, M.Kes., AIFO., Universitas Negeri Yogyakarta, Indonesia
• Dr. Or. Mansur, M.S., Universitas Negeri Yogyakarta, Indonesia
• Soni Nopembri, Ph.D., Universitas Negeri Yogyakarta, Indonesia
• Dr. Sigit Nugroho, M. Or., Universitas Negeri Yogyakarta, Indonesia
• Dr. Endang Rini Sukamti, M.S., Universitas Negeri Yogyakarta, Indonesia
• Dr. Abdul Alim, M. Or., Universitas Negeri Yogyakarta, Indonesia
• Dr. M. Ikhwaz Zein, Sp.K.O., Universitas Negeri Yogyakarta, Indonesia
• Nur Sita Utami, M. Or., Universitas Negeri Yogyakarta, Indonesia
• Saryono, M. Or., Universitas Negeri Yogyakarta, Indonesia
• Ch. Fajar Sriwijayani, M. Or., Universitas Negeri Yogyakarta, Indonesia
• Faidullah Kurniawan, M. Or., Universitas Negeri Yogyakarta, Indonesia
• Nawant Primasoni, M. Or., Universitas Negeri Yogyakarta, Indonesia
Preface

First of all, please allow us to extend our warmest greetings and welcome to you all to the 2nd Yogyakarta International Seminar on Health, Physical Education, and Sports Science (YISHPESS 2018). The conference is held in conjunction with the 1st Conference on Interdisciplinary Approach in Sports (CoIS) by the Faculty of Sport Sciences Universitas Negeri Yogyakarta in Yogyakarta, Indonesia on October 26-27, 2018.

The community building and development require integrated aspects in physical education and sports. These issues should be solved by researchers, lecturers, students and even practitioners to share and present their current research. The purposes of the conference are to share and present the reflection and research results related to Physical Education, Health, and Sports Science. In another issue, interdisciplinary approach has been defined as cross disciplines with an in-depth knowledge in one aspect working together to solve problems. Interdisciplinary approach in sports is very important to gain optimal result of performance. In line with the first goal of this conference, it seeks better understanding both in theoretical and practical situation in every expert's aspects.

With the YISHPESS's conference theme: “Community Building and Development through Physical Education and Sports” and CoIS’s theme: “Integrating Sports Science Intervention to Optimize Human Performance”, approximately 236 papers have been submitted at this conference but only 169 of these have been accepted for the presentation after a blind peer review process. We do hope that this conferences proceeding can enrich our understanding of the role of physical education, sports, and health in maintaining community building and development as well as become a meeting point for academics, sport practitioners and sports professional to share ideas and knowledge for improving performance in sports.

We would like to thank to all parties who helped running this program. Hopefully, all the time and efforts we have spent for these two conferences may be beneficial and impactful for the future.

Yogyakarta, October 20, 2018
Organizing Committee
Committee Report

Dear Excellences, Rector of Universitas Negeri Yogyakarta, invited speakers, distinguished guests, and ladies and gentlemen,

It is our pleasure to welcome you to the 2nd Yogyakarta International Seminar on Health, Physical Education, and Sports Science (YISHPESS 2018) and the 1st Conference on Interdisciplinary Approach in Sports (CoISe) held by Faculty of Sport Sciences, Universitas Negeri Yogyakarta. We would like to welcome all invited speakers from overseas who come from different countries to share their knowledge and ideas at this international conference.

We organize two conferences with the theme: “Community Building and Development through Physical Education and Sports” and “Integrating Sports Science Intervention to Optimize Human Performance”. These events reflect the role of sport science and physical education for developing human performance at this century.

Active participation from 11 invited speakers and 158 presenters reflect the important role of lecturers, students, researchers, and related background in sport and physical education. They will be organized into several panel and parallel sessions to facilitate main presentations and discussions. Moreover, all selected papers will be published in the international indexed proceeding.

We wish you enjoy these conferences and have a memorable time at Universitas Negeri Yogyakarta. Have a great day in Yogyakarta!

Organizing Committee
# Table of Contents

Organizing Committees ................................................................. iii
Preface ......................................................................................... v
Committee Report ........................................................................ vi

## Part 1. Health

The association between body mass index (BMI), leg power, speed, and cardiorespiratory fitness (CRF) among adolescents

*Dzihaan Khilm Ayu Firdausi, Muhammad Eka Maridyansyah Simbolon* .............................................. 1

The correlation between body mass index, abdominal circumference, and hip circumference on cardiorespiratory endurance using the Rockport Method

*Prijo Sudibjo, Cerika Rismayanti, Krisnanda Dwi Apriyanto* ................................................................. 4

Reduction of LDL Cholesterol through MICT and HIIT in rats

*Yamuar Dhama Ardhiyanto, Wadiyanto, Samsul Mu'arif* ................................................................. 8

The effects of health educational lessons using learning activities that make students apply the knowledge

*Hideki Tanimoto* ............................................................................. 12

The effect of sport and circulo massage on the improvement of work productivity of the physically disabled

*Sumarto, Sigit Nugroho, Agus Kristiyanto* ......................................................................................... 17

Smartphone: Social attitude and healthy lifestyle

*Erwin Setyo Kriswanto, Indah Prasetyawati Tri P.S., Ranintya Meikahani, Fredericus Suharjana* 21

The potentials of spring water in Bintik Indonesia as the stroke therapy medium

*Anita Puspa Ningrum, B.M. Wara Kushartanti* ................................................................................... 26

The role of physical exercise for menopausal women

*Ni Luh Kadek Alit Arsani, I Ketut Sudianna* ...................................................................................... 31

## Part 2. Physical Education

The learning model of handball basic movement skills through simple games

*Rofiqul Umam, Hari Amirullah Rachman* ......................................................................................... 35

Developing playing activity models in physical education towards improving multilateral abilities among elementary school students

*Iliham Eryk Pratittiis Robinson, Sri Winarni* .................................................................................... 37

Developing basketball using TGfU approach in elementary schools

*Muhammad Nasihul Waффak, Pamuji Sukoco* ................................................................................. 45
The design of sports club of Pencak Silat in elementary school  
**Suratmin, Adilyana Putra, I Putu Darmayasa** .................................................. 49

Analysis implementation learning adapted physical education in state high school  
**Pasca Tri Kaleka, Sugeng Purwanto, Yuyun Ari Wibowo** .................................. 54

Elementary school physical education and sport in integrated curriculum  
**Banu Setyo Adi** ................................................................................................. 58

Intervention model of perceptual motor development in preschool children movement development  
**Hari Amirullah Rachman, Tudianto, Sujawo, Sudardiyono** .................................. 61

Instructional model of self-defense lesson in physical education: A systematic review  
**Nur Rohmah Muktiani, Erlina Listyarini, Mr. Saryono, Soni Nopembri** ................. 66

Students, teachers, and parents: Urgency implementation of water activity in physical education  
**Suci Cahyati, Wawan S. Suherman** .................................................................... 70

Phenomenological study of experience and meaning on K-13 implementation by elementary physical education teacher Purworejo Regency  
**Muhammad Sigid, Caly Sitiawati** ....................................................................... 76

Gobak Sedor games and cardiovascular endurance of elementary school children  
**Boyu Insanisty, Dian Pujiarto** ............................................................................ 82

The implementation of learning big ball game in high school  
**Nurhadi Santoso, Suhadi, Sri Mawarti, Riki Dwihanadika** ................................. 85

Analysis for the development of a physical education learning model for children with special needs  
**Sumaryanti, Margono, Berinada Suhartini, Dapan** ............................................. 88

The implementation of 2013 curriculum in elementary schools  
**Ahmad Syarif, Tomoliyus, B.M. Wara Kushartanti** ............................................ 90

Students' participation in physical education learning through modification of equipment  
**Merryko Wahyu Juanna, Hari Amirullah Rachman** .............................................. 94

Goenrich basic technique model with playing approach for a beginner tennis player  
**Nurkadi** ........................................................................................................... 96

The difference in physical fitness levels of Indonesian male and female junior high school students  
**Aprida Agung Priambodo, Fitría Dwi Andriyani, Dapan, Desi Ardiyani** ............... 101

The effectiveness of task assessment standard (TASK) in the teaching and learning process of physical and health education teachers  
**Mohd Izwan Shahril, Norkhidid Salimun, Shaharuddin Abdul Aziz, Saryono** .......... 105

Physical education teachers' knowledge and practice of educational assessment based on gender: A survey  
**Azali Rahmat, Othman Lebar, Siti Eshah Mokshin, Jamol Nordin Yusuf, Napisoh Kepol, Mohd Uzi Dollah, Azliza Mohammad, Razmaawaty Mohamad, Laili Fazlin Khairil, Salzuriawani Ridzwan** ........................................ 109
Bowling modification to increase the basic movement of throwing in the learning of physical education
Kartini, Eddy Parnomo .................................................. 113

The influence of visual media on the footwork in badminton
Abdillah, Lismadiana .................................................. 115

The development of athletic game model to develop character in fourth-grade students
Dita Ayuning Tyas, Ria Luwintaro .................................. 117

Engaging the community in project SKIP to promote early years physical literacy in Indonesia
Jacqueline D. Goodway, Ruri Famelia, Yung-Ju Chen ........ 120

Physical education is the basic foundation to build high performance athlete
Rajesh Kumar .......................................................... 126

Validity and reliability of the holistic assessment standard (SPH) based on the invasion game category in physical education
Mohammad Asnadi Bin Sandin, Mohd Izwan Bin Shahri, Norkhalid Bin Salimin ................................. 128

Nation character building through physical education: Lesson learned from 2013 Indonesia national curriculum
Wawan Sundawan Subekti ............................................. 133

Spiritual development through elementary physical education classes
Sonny Nopieprihi, Ahmad Rizhaudin, Saryono, Yoshio Sugiyama ......................................................... 137

Developing affective instrument based on performance in extracurricular swimming
Rahma Afidilla Nasution, Pamuji Sukoco ........................................ 141

Effects of training methods and power on shooting accuracy in football
Rian Desta Sintoko, Suhajana ........................................... 144

Motion-and-song-based warm-up model for children with visual impairment
Hendra Kuswoyo, Sri Winarni .......................................... 147

Exercise box jump to increase the strength of long passes and shots
Fadli Suardhana Eka Putra, Hari Amirullah Rachman ........ 150

Identification of the obstacle factors for 2013 curriculum implementation of public junior high schools in Sleman District
Bobitya Adriana, Wawan S. Suherman ................................. 153

The Influence of ball modification on Sepak Takraw service learning outcome
Khairun Nizam, F.X. Sugiyanto ........................................ 156

Reliability of futsal skill test for high school players
Agus Sasworo Dwi Marhaendra ....................................... 160

Students reasoning achievement using games performance assessment instrument in physical education
Norkhalid Salimin, Abdul Razak Norazzman, Mohd Izwan Shahri, Md Amin Md Taffi, Sved Kamarsuman Syed Ali ................................. 166
Differences of influence of playing Playdough and puzzles on fine motor skills and logical-mathematical intelligence in early childhood
Panggung Sulapa, Yudik Prasetyo, Fakhurrahman Ariwana, Hadwi Prihatantzi .................................................. 171

Changes in children behavior with music yoga motion exercise
Nurmala Dewi, Sumaryanti ........................................... 175

The athletics literacy through need assessment software in contribution to the physical education and health learning process
Muhammad Imam Rahmatullah, Yustinus Sukarmin .......................................................... 178

Developing a model of character education of Sj-based Pencak Silat
Prabowo Hadi Saputro, Siswantoyo ........................................... 181

The effect of plyometrics training and strengths on power skills and agility of male player in extracurricular volleyball
Wiga Nurlatiifa Romadhoni, Djoko Pekik Irianto .......................................................... 186

The capabilities of sports education teachers in making character oriented lesson plans and learning practices
Diniyani, Komaruddin, Ernawati Susanto, Joko Purwanto ........................................... 190

Whole part or mini games, which one is the most effective training method to improve forearm passing ability in volleyball?
Yadi Pratama, Djoko Pekik Irianto ........................................... 194

The effect of exercise methods and coordination towards students’ extracurricular basketball skills
Muhammad Syafullah Irwan, Lismadiuana .......................................................... 198

Learning activity to develop physical literacy in kindergarten
Ury; Gustian, Eka Supriatna, Edi Purnomo ........................................... 204

Development of authentic assessment model of learning outcomes in field tennis courses
Guntur, Sridadi, Ngatman, Donang Purwo Broto ........................................... 208

Evaluation of the 2013 curriculum implemented by physical education teachers
Budi Setiadi, Soegiyanto, Setiyow Rahayu, Hari Setijono ........................................... 214

Badminton game empowerment: A symbol of leadership in the university student association
Amat Komari, AM Bandi Utama, Agus Susworo Dwi Marhaendro, Raden Sunardianta ........................................... 220

The construction of inclusion and inclusive teaching by physical education teachers
Calv Setiawan, Muhammad Humid Anwar, Fathani Nurcahyo ........................................... 224

A systematic review of teaching swimming based on constructivist approach
Subagyo, Moch. Slamet, Nur Siti Utami, Hedi Ardiyanto ........................................... 231

Using the context, input, process, and product evaluation model (CIPP) to evaluate elementary school teacher-learner program of physical education in Yogyakarta City
Agus Sunuhandata Suryobroto, Tri Ani Hastuti, Herka Maya Jatnika ........................................... 233
Part 3. Sport Science

A comparative study of effect of interval and continuous training toward oxidative stress level, antioxidant enzyme capacity, and resistance of erythrocyte membrane
Moch. Yunus, Endang Sri Wahjuni, Nurul Riyad Fadhilli ........................................... 241

Evaluation program for special class of sport in senior high school level
Ridho Gata Wijaya, Nurhasan, Edy Minarto ............................................................... 247

Strategy of sport industry development as supporting tourism in DIY
Ahmad Nasrulloh, Sumaryanto, Sigit Nugroho, Sumarjo ........................................... 252

Roles of parenting aquatic athletes through mediators achievement motivation
F.X. Sugiyanto, Agus Supriyanto, Nur Indai Pangastuti .............................................. 259

Martial art of Dayak Central Kalimantan (a study of history, philosophy, and techniques of traditional martial arts)
Eko Hernando, Siswantojo ............................................................................................ 262

Evaluation of student selection test model of sports-specific class
Tri Hadi Karyono, Abdul Alim ....................................................................................... 267

Positive mental health and its association with posture: With reference to school children
Ghanash K. Dhokrat .......................................................................................................... 269

Comparative study on mental health among badminton players and table tennis players of the Kalaburagi District in India
H.S. Jangge ...................................................................................................................... 271

Effective counseling methods to overcome the psychological factor of a sportsperson
C. Veerender .................................................................................................................... 273

The picture of teaching physical education and sports in primary school in Burundi Country
Japhet Ndayisenga, Wara Kushartanti ............................................................................ 277

Psychology preparation of athletes in Malaysia: It looks impressive, but they have no real value in reality
Shaharudin Abd Aziz, Mohd. Izwan Shahril, Zulkifli Mamat ........................................... 280

The history of Pencak Silat goes to the world in the period of 1980-2000
Firdhana Wahyu Putra, Siswantojo .................................................................................. 284

Analysis of interpersonal communication in sports
Ika Novatari M. Ari Subarkah ......................................................................................... 288

Chronological changes during 10-day intermittent fasting with low energy intake on high intensity aerobic performance and lipid constituents
Ashril Yusof, Mohamed Nasrurdin Naharuddin ............................................................... 292
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation of aeromodelling coaching system</td>
<td>298</td>
</tr>
<tr>
<td>Liesda Oktovianti Nugraha, Wara Kushartanti</td>
<td></td>
</tr>
<tr>
<td>Games to introduce basic motion of martial arts</td>
<td>301</td>
</tr>
<tr>
<td>Sulaskin Sahli Kadir, Siswantoyo</td>
<td></td>
</tr>
<tr>
<td>Identification of basic agility movement skills on soccer students of KU between 11-13 years</td>
<td>305</td>
</tr>
<tr>
<td>Wahyu Wibowo Eko Yulianto, Siswantojo, R. Agung Purwadono Seti.HE</td>
<td></td>
</tr>
<tr>
<td>The effects of circuit and fartlek exercise method and peak expiratory flow on VO2max</td>
<td>310</td>
</tr>
<tr>
<td>Leo Pratama, Wara Kushartanti</td>
<td></td>
</tr>
<tr>
<td>Football skills: Training methods and motor educability</td>
<td>316</td>
</tr>
<tr>
<td>Yudha Rello Pambudi, Widiyanto</td>
<td></td>
</tr>
<tr>
<td>The effect of artistic gymnastics talent scouting application to artistic gymnastic basic skills</td>
<td>319</td>
</tr>
<tr>
<td>Eswang Rini Sukamti, Sebastianus Pranatnadi</td>
<td></td>
</tr>
<tr>
<td>The effect of various passing exercise and ankle coordination on the accuracy of short passing in football</td>
<td>322</td>
</tr>
<tr>
<td>Ega Giar Venbiarto, Lismadiina</td>
<td></td>
</tr>
<tr>
<td>Influence of training method and leg power on running speed</td>
<td>327</td>
</tr>
<tr>
<td>Galih Dewanti, Ria Lunimubaru</td>
<td></td>
</tr>
<tr>
<td>Training model of badminton footwork for beginner</td>
<td>333</td>
</tr>
<tr>
<td>Ari Subarkah, Ika Novitarr</td>
<td></td>
</tr>
<tr>
<td>The contest validation of circuit training design to improve biomotor components in table tennis performance</td>
<td>336</td>
</tr>
<tr>
<td>Tomoliyas, Devi Tirtawiyra, Rumpis Agus Sudarko, Hasman Alhaffz Arif, Harry Widodo</td>
<td></td>
</tr>
<tr>
<td>The combination of dribbling and shooting training models based on speed and agility in football</td>
<td>339</td>
</tr>
<tr>
<td>Yulianto Dwi Saputro, Sudarsono, Luthfie Lufshaniza</td>
<td></td>
</tr>
<tr>
<td>The exercise method and eye-foot coordination in soccer playing skills for 14-15 years old players</td>
<td>346</td>
</tr>
<tr>
<td>Marwuki, Pamutik Sukoco</td>
<td></td>
</tr>
<tr>
<td>The effect of physical condition on the artistic gymnastic basic skills</td>
<td>351</td>
</tr>
<tr>
<td>Rina Budiarti</td>
<td></td>
</tr>
<tr>
<td>Coaching achievements KKO in senior high school as an evaluation to sport achievements</td>
<td>354</td>
</tr>
<tr>
<td>Fajar Sitiwahyuniati, Risti Nurfadhiya</td>
<td></td>
</tr>
<tr>
<td>The effect of plyometric training to speed of volleyball athletes</td>
<td>357</td>
</tr>
<tr>
<td>Mansur, Subagyo Trianto, Fadjiliek Kurniawan</td>
<td></td>
</tr>
<tr>
<td>Relationship between flexibility with balance in the elderly based on clinical pathophysiology</td>
<td>359</td>
</tr>
<tr>
<td>Cerika Rismayanti</td>
<td></td>
</tr>
<tr>
<td>The role of sports medicine in elite sports</td>
<td>361</td>
</tr>
<tr>
<td>Evert Verhagen</td>
<td></td>
</tr>
</tbody>
</table>
Long-term effect of marathon to cardiac health – potential myocardial fibrosis

Radina Lailly Mukti, Evert Verhagen, Harald Jorstad .................................................. 363

Physical activity and mental health in young people

Stuart J.H. Biddle ................................................................. 366

Linkages of sports activities with spirituality and religiosity of community: The case in Muslim majority country

Rakesh Tomar ................................................................ 369

Shooting drills with target changes to improve the accuracy of penalty kick in soccer

Arif Hidayat .................................................................. 374

Effect of strength, flexibility, balance and confidence of successful wall climbing athletes in South Sumatra

Bayu Hardiyono ............................................................... 377

The effect of moderate intensity continuous training (MICT) and high intensity interval training (HIIT) on erythrocytes, leukocytes, and platelets level

Andryes Yuniarto, Panggung Suwopa .................................. 383

The motion analysis technique of flat tennis services

Abhinet Bagus Ajiz, Ria Lumintuarsa .................................... 386

An evaluation of the implementation of special sport class program of junior high schools in Sleman Regency

Dana Frasetya, Gunur ................................................................ 390

Sports management implementation of Indonesian sports committee in optimizing sports achievement

Andes Permadhi, Sugeng Purwanto .................................................... 393

Recovery does not prevent myocardial damage due to overtraining (Biomolecular and pathobiology studies)

Made Kurnia Widiasatwi Giri, Muchsin Doewes, Ketut Indra Purnomo, Herka Maya Jatmika .................................................. 397

The effect of listening music on reaction time of badminton players

Adnyana Putra, Ni Made Sri Dewi Lestari, Putu Adi Saputra ........................................... 401

Physical fitness profile of Indonesian female rugby athletes for Asian Games 2018

Junaidi ........................................................................ 405

Holding bow digital test for strength and endurance arm muscles of archery

Heru Prasetyo, Siswantoyo ....................................................... 409

Rhythmic gymnastics of the early childhood

Endang Murti Salistyowati, Endang Rini Sukamti .................................................. 412

The development of the kick Abhorigi Chagi instruments of Kyorugi taekwondo athletes

Ayub Taty Admaja, F.X. Sugiyanto ................................................ 416

Can mental skills intervention improve resilience of adolescent badminton athletes?

Gita Widya Laksmini Soerjoatmodjo, Clara Moningko .................................................. 420
The development of the forearm passing training model in volleyball for beginner athletes
Syamsuryadin, Mansur ......................................................... 423

The influence of plyometric exercise on the long pass results of football players in one football club in Magelang Indonesia
Yusuf Sanggantara, Subarjana ........................................... 426

Sports development index of Berau District East Kalimantan Province
Oktofanus Matheus Molu Wato, Hari Amirullah Rachman ........................................ 429

The effect of training method and motivation to increase VO2Max of Basketball players
Deden Ardiansyah, F.X. Sugiyanto ........................................ 432

Contributing factors to the lack of parental involvement in Sepak Takraw
I Ketut Semarayasa, Setya Rohayu, Soegiyanto KS, Taufiq Hidayat .......................... 428

The effects of plyometric training and age on the agility of Silat fighters
Rodhi R. Hidayat, Tomoliyus ................................................. 441

Developing core stability exercise model of playing approach for children aged 10-12 years to improve accuracy in 15 meters archery
Oktita Indoh Pratiwi, Mansur ............................................. 447

The role of parenting style in youth sport talent
Adhim Rahtawa, Agus Kristiyanto, Saptta Kunta Purnama ........................................ 451

Using the prototype of table tennis software in managing table tennis tournament
Deny Budi Hertanto, Sigit Nugroho, Hadwi Prihatana ............................................ 456

The enlivening system of basketball in South Sumatera
Ryian Pratama ................................................................. 461

Influence of training method and concentration to the accuracy of short service backhand in badminton
Oloan Victory Manturung, Dimyati ................................ 464

The effects of exercise method and arm strength on 200 meters freestyle swimming achievements
Evan Billy Andrianto, Dimyati ............................................. 468

The effect of circuit training on aerobic fitness and body fat percentage
Presto Tri Sambodo, Subarjana, Galih Yoga Santriko ............................................. 472

The analysis of diving resistance by using dry static method for freediving beginners
Syamsul Bakri, Subarjana ..................................................... 476

Contribution of leg muscle explosive power and flexibility on lay-up shoot in basketball
Oki Candra ............................................................... 479

Analysis of the implementation of elementary school sport club management
Hendra Jaya Pratama, Lismadiana ..................................... 483
Characteristics analysis of badminton in female single player
Nugroho Agung Supriyanto, Ainur Rasyid ................................................... 486

A comparison study of running on sand and tartan track to increase cardiovascular endurance of
Universitas Negeri Jakarta students
Kuswahyudi, Ramdan Pelana ................................................................. 489

Shooting training models with the playing approach for futsal extracurricular of junior high school
students
Anggel Hardi Yanto, Panggung Sutopo ..................................................... 493

The potential of sport tourism in the Southern Coastal Area of Yogyakarta
Arданyах Pradipта Kurnа Suluiсta, Ilya Rosida Perdana, B.M. Warа Kushartantи .............. 498

Comparing the effects of plyometric depth jump and rim jump training on the explosive power of leg
muscle and the level of creatine phosphokinase of basketball players
Eko Juli Fitrianto, Del Asri, Josphany Lalub .............................................. 503

The effectiveness of circuit training with constant break and decreased intervals on Vo2max, power, and
recovery
Sigit Nugroho, Riki Dwihandika .............................................................. 510

The relationship between blood glucose level and stamina of Sepak Takraw athletes
Arfandhi Akasce, B.M. Wara Kushartantи .................................................. 515

The differences of psychological characteristics between male and female tennis players
Abdul Alim ................................................................................................. 517

An evaluation of swimming coaching programs
Indra Gunawan, Sugeпг Purwanto ............................................................. 519

The phenomenological study of fanaticism of football PSS Sleman supporters
Ricki Agusman, Calй Setiawan ................................................................. 523

The effect of training method and speed on VO2max of futsal players
Benny Criya Permanta, F.X. Sugiyanto ...................................................... 526

The effectiveness of post-workout fitness and sports massage in changing blood pressure, pulse rate, and
breathing frequency
Bambang Priyonoadi, Ali Satia Graha, Rachmah Laksmi Ambardini, B.M. Woro Kushartantи .... 529

Mood state profile as overtraining predictors: Considering gender and two different class types
Eka Novita Indra, Yustinus Sukarmin, Eka Swasta Budayati, Widiyanto .............................. 534

The effect of weight training method and aerobic endurance on the improvement of anaerobic endurance
Rian Dio Julindri, Yustinus Sukarmin ......................................................... 538

The development of football basic skill learning model
Slamet Riyadi, Rumi Iqbal Dowes, Fadillah Umаr ...................................... 541
Adjustment of teen-aged athletes in badminton boarding school
Veronica Anastasia Melany Kairhatu, Adriatik Isti, Supriyanto .................................. 345

The promise of a holistic ecological approach to study badminton talent development in Indonesia
Hysa Ardiyanto, Caly Seriawan ................................................................. 550

Bodyweight circuit training for basketball beginner athletes’ aerobic endurance
Risa Herdiyana Bastian, Tonoliyas ............................................................ 554

Physical education sport and health national curriculum and elite sport development: Policy, synergy, or conflict?
Sulisriyono, Wawan S. Suherman, Dwi Kurnianto ............................................. 558

Ethical issues in researching immigrant youth physical activity: A New Zealand perspective
Muhammad Hamid Anwar, Caly Setiawan, Herka Maya Jumiko .............................. 562

Sports achievement issues: Professionalism, policy, racism, cheating, abuse, doping, gender
Suwarro, Suharjana, Hari Amirullah Rachman .................................................. 569

The effects of training method and aerobic capacity on the anaerobic endurance of taekwondo athletes in Dojang Lampung Barat
Guntur Yuli Satria, Hari Amirullah Rachman .................................................. 573

Dive sports career opportunities in Indonesian professional sports
Satria Sakti Rumpoko, Vera Sepri Sistisith, Ratna Kumalasari ................................ 579

Implementation of sport science coaching: Improving strength and conditioning performance of tennis junior athletes
Rina Ambar Dewanti, Bettasar Tarigan, Dian Budiana ...................................... 582

Measurement of the muscle fitness level of 9-12 years old badminton players with the Kraus Weber method
Dinan Mitalina, Widianto .................................................................................. 586

The analysis of volleyball coaching achievement obstacles in Lampung Province Indonesia
Kusbani, Soegiyanto KS, Hari Setijono, Sulaiman .............................................. 589

The effects of training methods and eye-hand coordination on groundstroke accuracy
Rekyan Woro Mulaksito Mulyadi, Suharjana .................................................... 592

Stem cell therapy in anterior cruciate ligament (ACL) injury
Ukhii Jamil Rustiasari, Muhammad Ikhwan Zein ............................................... 597

Developing FIVE® neuromuscular warm-up as futsal injury prevention program
Saryono, Muhammad Ikhwan Zein, Ahmad Rithaadin ...................................... 601

Profile of pre-practice hydration status of Indonesian junior sub elite karate athletes: Pilot study
Djojo Pekik Irianto, Danardono, Muhammad Ikhwan Zein .................................. 604
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparative study of explosive strength among boxers and taekwondo</td>
<td>607</td>
</tr>
<tr>
<td>players of Osmania University Hyderabad India</td>
<td></td>
</tr>
<tr>
<td>Janagama Prabhakar R. Yerraguntla Emmanuel Shashi Kumar</td>
<td></td>
</tr>
<tr>
<td>Effect of weighttraining exercises to develop speed and shoulder</td>
<td>609</td>
</tr>
<tr>
<td>strength among javelin throwers of Acharya Nagarjuna University Guntur</td>
<td></td>
</tr>
<tr>
<td>P.P. Satya Paul Kumar</td>
<td></td>
</tr>
<tr>
<td>Body responses to combination of endurance and strength training for</td>
<td>611</td>
</tr>
<tr>
<td>kids aged 13-14 years old</td>
<td></td>
</tr>
<tr>
<td>Danang Wicaksno</td>
<td></td>
</tr>
<tr>
<td>The development of a hitting practice tool model on woodball</td>
<td>614</td>
</tr>
<tr>
<td>S.M. Fernando Iraragaha. Sugiharto, Soegiyanto K.S., Hari Serijono</td>
<td></td>
</tr>
<tr>
<td>The development of smart flexibility tools to measure the digital-</td>
<td>618</td>
</tr>
<tr>
<td>based abilities</td>
<td></td>
</tr>
<tr>
<td>Ardhana Purnama Putra, Siswantoyo</td>
<td></td>
</tr>
<tr>
<td>Ergocycle test for the disabled children</td>
<td>622</td>
</tr>
<tr>
<td>Sri Ayu Wahyuti, Siswantoyo</td>
<td></td>
</tr>
<tr>
<td>Need assessment for development of digital-based learning media for</td>
<td>624</td>
</tr>
<tr>
<td>Jurus Regu Pencak Silat</td>
<td></td>
</tr>
<tr>
<td>Noor ika Rifky Svarif Hidayat, Siswantoyo</td>
<td></td>
</tr>
<tr>
<td>Need assessment of software preparation for Pencak Silat physical</td>
<td>627</td>
</tr>
<tr>
<td>test in early age</td>
<td></td>
</tr>
<tr>
<td>Dewi Nurhidayah, Siswantoyo</td>
<td></td>
</tr>
<tr>
<td>A study of individual and team game players with respect to visual</td>
<td>630</td>
</tr>
<tr>
<td>and auditory reaction time</td>
<td></td>
</tr>
<tr>
<td>Haricharan Gajbhiye</td>
<td></td>
</tr>
<tr>
<td>Effect of plyometric training for development of speed among high</td>
<td>632</td>
</tr>
<tr>
<td>jumpers of Indn</td>
<td></td>
</tr>
<tr>
<td>Hiremath Rajashekhar Mellikarjunayya</td>
<td></td>
</tr>
<tr>
<td>Valuation of 2-minute, 4-minute, 6-minute and 8-minute run - walk</td>
<td>634</td>
</tr>
<tr>
<td>tests for male physical education students</td>
<td></td>
</tr>
<tr>
<td>Uday N. Manjre</td>
<td></td>
</tr>
<tr>
<td>Comparative study of agility among korfball and netball players in</td>
<td>636</td>
</tr>
<tr>
<td>Hyderabad India</td>
<td></td>
</tr>
<tr>
<td>Loka Bavoji Laxmikant Rathod</td>
<td></td>
</tr>
<tr>
<td>A study on the aerobic fitness among hockey and football players of</td>
<td>638</td>
</tr>
<tr>
<td>Gulbarga University India</td>
<td></td>
</tr>
<tr>
<td>Pasodi Mallappa Sharanappa</td>
<td></td>
</tr>
<tr>
<td>Effect of plyometric training for development of speed among high</td>
<td>640</td>
</tr>
<tr>
<td>jumpers of Indn</td>
<td></td>
</tr>
<tr>
<td>Hiremath Rajashekhar Mellikarjunayya</td>
<td></td>
</tr>
<tr>
<td>Valuation of 2-minute, 4-minute, 6-minute and 8-minute run - walk</td>
<td></td>
</tr>
<tr>
<td>tests for male physical education students</td>
<td></td>
</tr>
<tr>
<td>Uday N. Manjre</td>
<td></td>
</tr>
<tr>
<td>Comparative study of agility among korfball and netball players in</td>
<td>647</td>
</tr>
<tr>
<td>Hyderabad India</td>
<td></td>
</tr>
<tr>
<td>Loka Bavoji Laxmikant Rathod</td>
<td></td>
</tr>
<tr>
<td>A study on the aerobic fitness among hockey and football players of</td>
<td></td>
</tr>
<tr>
<td>Gulbarga University India</td>
<td></td>
</tr>
<tr>
<td>Pasodi Mallappa Sharanappa</td>
<td></td>
</tr>
<tr>
<td>The periodization of 4 and 6 weeks circuit training and age to</td>
<td></td>
</tr>
<tr>
<td>improve the aerobic endurance of basketball beginner athletes</td>
<td></td>
</tr>
<tr>
<td>M. Rachmat Darmo Umara, Tomolijus</td>
<td></td>
</tr>
<tr>
<td>Construct validity for talent identification test athletic with</td>
<td></td>
</tr>
<tr>
<td>Aiken's V</td>
<td></td>
</tr>
<tr>
<td>Budi Aryanto, Awan Hariono, Cukup Pahalawidi</td>
<td></td>
</tr>
</tbody>
</table>
The Effect of Plyometric Training to Speed of Volleyball Athletes

Mr Mansur, Subagyo Irianto, Faidillah Kurniawan


Proceedings

Part of series
Advances in Social Science, Education and Humanities Research

Publication date
2018/12/18

ISBN
978-94-6252-634-1

ISSN
2352-5398

DOI
The Effect of Plyometric Training to Speed of Volleyball Athletes

Mansur Subagyo Irianto Faidillah Kurniawan
Faculty of Sport Sciences Faculty of Sport Sciences Faculty of Sport Sciences
Universitas Negeri Yogyakarta Universitas Negeri Yogyakarta Universitas Negeri Yogyakarta
Yogyakarta, Indonesia Yogyakarta, Indonesia Yogyakarta, Indonesia
mansur@uny.ac.id subagyo_irianto@uny.ac.id faidillah_fencing@uny.ac.id

Abstract—the purpose of this study was to determine the effects of plyometric training (dynamic and static plyometric training) on the speed of YUSO Sleman athletes. The sample of 18 volleyball athletes divided into two group (dynamic plyometric group and static plyometric group). In addition, speed performance was assessed by a 35-meter speed run test. This study is considered an experimental research design. A paired test was used to define the effects of plyometric training (dynamic and static plyometric training) on a speed of YUSO Sleman athletes. Independent t-test was used to evaluate the different effect of dynamic and static plyometric training. The analysis data result showed that no significant effect of dynamic plyometric training on speed (p=0.134); no significant effect of statistic plyometric training on speed (p=0.176), and no significantly different effect of dynamic and statistic plyometric training on speed (p=0.214). The data result suggests that plyometric training did not effective to improve speed.

Keywords—plyometric, speed, volleyball athletes

I. INTRODUCTION

Volleyball is a sport with complex movements. Good coordination between eyes, hands, and feet is needed during the practice of this sports. The ability of volleyball players is influenced by various factors such as 1) talent, 2) physical ability, including: (a) strength, (b) endurance, (c) speed, (d) agility, (e) flexibility, (f) coordination, (g) power, (h) stamina, 3) intelligence, 4) motivation [1]. The success of achieving training targets is based on several aspects including physical exercise, technique, tactics, and mental training.[2]

Physical conditions are one of the most important factors in achievement. An excellent physical condition is needed in order to achieve high performance in competitive sports. The prime physical condition should be determined by the needs of every athlete, especially for sports that demand long-term heavy performance. To reduce the risk of injury, maintain physical performance, master complex skills, accelerate recovery after exercise and increase self-confidence are some benefits obtained from the prime physical condition.

Physical conditions are a basis for developing techniques, tactics, strategies and mental development. Different studies[3], have been stated that the goal of training physical conditions is to optimize the performance of athletes and minimize the risk of injury and disease. Physical condition status can reach the optimal point if it starts training from an early age, carried out continuously throughout the year, tiered and guided by the principles of training correctly. In addition, the development of physical conditions must be planned periodically based on the stages of exercise, the status of the athlete's physical condition, the needs of each number/class/sport, the balanced nutrition, adequate facilities and equipment, a healthy environment and the level of training of athletes. These conditions apply to all sports, including the volleyball. Therefore, the training with the aim to improve physical conditions needs to be implemented properly.

There are several types of physical training methods. Plyometric training is one type of exercise that can be used to improve physical condition. It is carried out by the current trainer, especially to sports that require the ability of the explosive muscles like the leg muscles or arm muscles [4]. It is quite popular because it can increase muscle power. Plyometric training is a form of exercise characterized by the development of maximum strength in a shortest possible time (Donald A. Chu, 1992: 1). It is considered very important to improve a person's physical condition. The effect of this type of training on power, agility, speed, and strength need to be further study.

II. METHODS

This research used an experimental method, with the aims to investigate the interconnected cause and effect by wearing one or more treatment conditions to one experimental group.

The sampling technique is based on purposive sampling, chosen specifically based on research objectives [6]. The population in this study were Yuso Sleman volleyball athletes. The data collection techniques were used by testing and measurement techniques. The data was taken directly through tests and measurements with speed test. Data analysis techniques applied in this study were the quantitative analysis. Paired t-test and independent t-test are used in this study.

The plyometric training program in this study used a variation and constant plyometric program. The subject warmed up for 15 minutes then directly plyometric exercise was performed for 20 minutes before technical and tactic exercise.

III. RESULT AND DISCUSSION

The results of paired t-test have been showed that the constant (front) plyometric training was not significant (0.199) generating an effect on speed. Plyometric variation exercises (front, back, right side left) are not significant
(0.172) and they don’t have an effect on increasing speed. The independent results of the t-test showed that there was a significant difference between the plyometric constant and the variation with a significance of (0.043).

**TABLE I. THE PERCENTAGE OF LARGE-SCALE TEST**

<table>
<thead>
<tr>
<th>Variables</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant Plyometric</td>
<td>1.419</td>
<td>0.199</td>
</tr>
<tr>
<td>Varies Plyometric</td>
<td>-1.549</td>
<td>0.172</td>
</tr>
<tr>
<td>Constant Plyometric*</td>
<td>-2.93</td>
<td>0.043</td>
</tr>
<tr>
<td>Varies Plyometric</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Plyometric variation exercises have a better effect on increasing speed than constant plyometric. The variation and constant plyometric have not improved significantly the speed. This result was consistent with Hosseini et al [5] but was not relevant to Mokhtari P[6]. Plyometrics, also known as "jump training" or "plyos", are exercises based around having muscles exert maximum force in short intervals of time, with the goal of increasing power. This training focuses on learning to move from a muscle extension to a contraction in a rapid or "explosive" manner, for example with specialized repeated jumping. The aim of the practice of plyometric training is to develop power. It could be the reason why plyometric training does not significantly improve speed. The athletes' speed can be improved using a variation plyometric training.

**IV. CONCLUSION**

The plyometric training is not considered effective in the improvement of the speed. The variation plyometric training is considered better than a constant plyometric training improving athletes speed.

**REFERENCES**