ABADIMAS PRESS

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"

Conference Secretariat:

Faculty of Sport Sciences
Universitas Negeri Yogyakarta

Address : Jl. Colombo No. 1 Yogyakarta, Indonesia
Phone : +62274 550826
E-mail : yishpess@uny.ac.id | cois@uny.ac.id
Website : yishpess.uny.ac.id | cois.uny.ac.id

YISHPESS CoIS 2018

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 Nopembri, Ph.D.
Dr. Muhammad Ikhwan Zein, Sp.K.O.

ATLANTIS PRESS

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.

http://www.atlantis-press.com/publications/proceedings/aer/

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.

www.atlantis-press.com

ISBN: 978-94-6252-634-1

This book is published by Atlantis Press, scientific publishing, Paris, France.

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

Organizing Committees:

Steering Committee:

- Prof. Dr. Sutrisna Wibawa, M.Pd., Universitas Negeri Yogyakarta, Indonesia
- Prof. Dr. Margana, M.Hum., M.A., Universitas Negeri Yogyakarta, Indonesia
- Prof. Dr. Edi Purwanta, 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. Yoshio 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., Proffesor 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. Umeifekwem, Ph.D., University of Nigeria, Nigeria
- José Vicente García-Jiménez, 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, PGDPC., Osmania University, Hyderabad, India

Organizing Committee:

- Prof. Dr. Siswantoyo, 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. Ikhwan 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 Sriwahyuniati, M.Or., Universitas Negeri Yogyakarta, Indonesia
- Faidillah Kurniawan, M.Or., Universitas Negeri Yogyakarta, Indonesia
- Nawan 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 optional 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 (CoIS) 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
Dzihan Khilmi Ayu Firdausi, Muhammad Eka Mardyansyah Simbolon 1

The correlation between body mass index, abdominal circumference, and hip circumference on cardiorespiratory endurance using the Rockport Method
Prijo Sudibjo, Cerika Rismayanthi, Krisnanda Dwi Apriyanto 4

Reduction of LDL Cholesterol through MICT and HIIT in rats
Yanuar Dhuma Ardhiyanto, Widiyanto, Samsul Mu'arif 8

The effects of health educational lessons using learning activities that make students apply the knowledge
Hideaki Tanimoto 12

The effect of sport and circulo massage on the improvement of work productivity of the physically disabled
Sumarjo, 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 Brintik 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 Sudiana 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
Iiham Eryk Pratitis Robinson, Sri Winarni 37

Developing basketball using TGfU approach in elementary schools
Muhammad Nasihul Waffak, Pamuji Sukoco 45

The design of sports club of Pencak Silat in elementary school
Suratmin, Adnyana Putra, I Putu Darmayasa 49

Analysis implementation learning adapted physical education in state high school
Pasca Tri Kaloka, 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, Yudanto, Sujarwo, 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
Muhamad Sigid, Caly Setiawan 76

Gobak Sodor games and cardiovascular endurance of elementary school children
Bayu Insanistyo, Diar Pujianto 82

The implementation of learning big ball game in high school
Nurhadi Santoso, Suhadi, Sri Mawarti, Riky Dwihandaka 85

Analysis for the development of a physical education learning model for children with special needs
Sumaryanti, Margono, Bernadeta 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 Amirulah Rachman 94

Goenrich basic technique model with playing approach for a beginner tennis player
Nurkadri 96

The difference in physical fitness levels of Indonesian male and female junior high school students
Aprida Agung Priambadha, Fitria 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, Norkhalid Salimin, Shaharudin 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, Jamal Nordin Yunus, Napisah Kepol, Mohd Uzi Dollah, Azliza Mohammad, Razmawaty Mohamad, Laily Fazlin Khairil, Salzuriawani Ridzwan 109

Bowling modification to increase the basic movement of throwing in the learning of physical education
Kartini, Eddy Purnomo 113

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

The development of atiletic games model to develop character in fourth-grade students
Dita Ayuning Tyas, Ria Lumintuarso 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
Mohamad Asnadi Bin Samdin, Mohd Izwan Bin Shahril, Norkhalid Bin Salimin 128

Nation character building through physical education: Lesson learned from 2013 Indonesian national curriculum
Wawan Sundawan Suherman 133

Spiritual development through elementary physical education classes
Soni Nopembri, Ahmad Rithaudin, Saryono, Yoshio Sugiyama 137

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

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

Motion-and-song-based warm-up model for children with visual impairment
Hendrik Kusworo, 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 Adrina, 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 Susworo Dwi Marhaendro 160

Students reasoning achievement using games performance assessment instrument in physical education
Norkhalid Salimin, Abdul Razak Noruzzaman, Mohd Izwan Shahril, Md Amin Md Taff, Syed Kamaruzaman Syed Ali 166

Differences of influence of playing Playdough and puzzles on fine motor skills and logical-mathematical intelligence in early childhood
Panggung Sutapa, Yudik Prasetyo, Fatkhurahman Arjuna, Hadwi Prihatanta 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 5t-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 Nurlatifa Romadhoni, Djoko Pekik Irianto 186

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

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

The effect of exercise methods and coordination towards students' extracurricular basketball skills
Muhammad Syaifullah Irwan, Lismadiana 198

Learning activity to develop physical literacy in kindergarten
Uray Gustian, Eka Supriatna, Edi Purnomo 204

Development of authentic assessment model of learning outcomes in field tennis courses
Guntur, Sridadi, Ngatman, Danang Pujo Broto 208

Evaluation of the 2013 curriculum implemented by physical education teachers
Budi Setiadi, Soegiyanto, Setiyo 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
Caly Setiawan, Muhammad Hamid Anwar, Fathan Nurcahyo 224

A systematic review of teaching swimming based on constructivist approach
Subagyo, Moch. Slamet, Nur Sita 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 Sumhendartin Suryobroto, Tri Ani Hastuti, Herka Maya Jatmika 233

Perception of physical education teachers on the implementation and evaluation of curriculum 2013
Ermawan Susanto, Pamuji Sukoco 236

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 Fadhli 241

Evaluation program for special class of sport in senior high school level
Ridho Gata Wijaya, Nurhasan, Edy Mintarto 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 Indah Pangastuti 259

Martial art of Dayak Central Kalimantan (a study of history, philosophy, and techniques of traditional martial arts)
Eko Hernando, Siswantoyo 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
Ghansham K. Dhokrat 269

Comparative study on mental health among badminton players and table tennis players of the Kalaburagi District in India
H.S. Jange 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, Siswantoyo 284

Analysis of interpersonal communication in sports
Ika Novitaria 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 Nashrudin Naharudin 292

Evaluation of aeromodelling coaching system
Liesda Oktoviani Nugraha, Wara Kushartanti 298

Games to introduce basic motion of martial arts
Sulasikin Sahdi Kadir, Siswantoyo 301

Identification of basic agility movement skills on soccer students of KU between 11-13 years
Wahyu Wibowo Eko Yulianto, Siswantoyo, R. Agung Purwandono Shaleh 305

The effects of circuit and fartlek exercise method and peak expiratory flow on Vo_2max
Leo Pratama, Wara Kushartanti 310

Football skills: Training methods and motor educability
Yudha Rello Pambudi, Widiyanto 316

The effect of artistic gymnastics talent scouting application to artistic gymnastic basic skills
Endang Rini Sukamti, Sebastianus Pranatchadi 319

The effect of various passing exercise and ankle coordination on the accuracy of short passing in football
Ega Gian Vembiarto, Lismadiana 322

Influence of training method and leg power on running speed
Galih Dewanti, Ria Lumintuarso 327

Training model of badminton footwork for beginner
Ari Subarkah, Ika Novitaria 333

The contest validation of circuit training design to improve biomotor components in table tennis performance
Tomoliyus, Devi Tirtawirya, Rumpis Agus Sudarko, Hasman Alhafiz Arif, Hary Widodo 336

The combination of dribbling and shooting training models based on speed and agility in football
Yulianto Dwi Saputro, Sudarsono, Luthfie Lufthansa 339

The exercise method and eye-foot coordination in soccer playing skills for 14-15 years old players
Marzuki, Pamuji Sukoco 346

The effect of physical condition on the artistic gymnastic basic skills
Ratna Budiarti 351

Coaching achievements KKO in senior high school as an evaluation to sport achievements
Fajar Sriwahyuniati, Risti Nurfadhila 354

The effect of plyometric training to speed of volleyball athletes
Mansur, Subagyo Irianto, Faidillah Kurniawan 357

Relationship between flexibility with balance in the elderly based on clinical pathophysiology
Cerika Rismayanthi 359

The role of sports medicine in elite sports
Evert Verhagen 361

Long-term effect of marathon to cardiac health – potential myocardial fibrosis
Inarota Laily 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
Andryas Yuniarto, Panggung Sutapa 383

The motion analysis technique of flat tennis services
Akhmat Bagus Ajizi, Ria Lumintuarso 386

An evaluation of the implementation of special sport class program of junior high schools in Sleman Regency
Dana Frasetya, Guntur 390

Sports management implementation of Indonesian sports committee in optimizing sports achievement
Andes Permadi, Sugeng Purwanto 393

Recovery does not prevent myocardial damage due to overtraining (Biomolecular and pathobiology studies)
Made Kurnia Widiastuti 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 Suputra 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 Sulistyowati, Endang Rini Sukamti 412

The development of the kick *Abhorigi Chagi* instruments of *Kyorugi* taekwondo athletes
Ayub Tatya Admaja, F.X. Sugiyanto 416

Can mental skills intervention improve resilience of adolescent badminton athletes?
Gita Widya Laksmini Soerjoatmodjo, Clara Moningka 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, Suharjana 426

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

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

Contributing factors to the lack of parental involvement in Sepak Takraw
I Ketut Semarayasa, Setya Rahayu, Soegiyanto KS, Taufiq Hidayah 438

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 Indah Pratiwi, Mansur 447

The role of parenting style in youth sport talent
Adhim Rahtawu, Agus Kristiyanto, Sapta Kunta Purnama 451

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

The enlivening system of basketball in South Sumatera
Riyan Pratama 461

Influence of training method and concentration to the accuracy of short service backhand in badminton
Oloan Victory Manurung, 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, Suharjana, Galih Yoga Santiko 472

The analysis of diving resistance by using dry static method for freediving beginners
Syamsul Bakri, Suharjana 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 Sutapa 493

The potential of sport tourism in the Southern Coastal Area of Yogyakarta
Ardiansyah Pradipta Kurma Sulistya, Ilya Rosida Perdana, B.M. Wara Kushartanti 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, Johansyah Lubis 503

The effectiveness of circuit training with constant break and decreased intervals on Vo_2max, power, and recovery
Sigit Nugroho, Riky Dwibandaka 510

The relationship between blood glucose level and stamina of Sepak Takraw athletes
Arfandi Akkase, B.M. Wara Kushartanti 515

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

An evaluation of swimming coaching programs
Indra Gunawan, Sugeng Purwanto 519

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

The effect of training method and speed on VO_2max of futsal players
Benny Criya Permana, F.X. Sugiyanto 526

The effectiveness of post-workout fitness and sports massage in changing blood pressure, pulse rate, and breathing frequency
Bambang Priyonoadi, Aii Satia Graha, Rachmah Laksmi Ambardini, B.M. Woro Kushartanti 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 Juliandri, Yustinus Sukarmin 538

The development of football basic skill learning model
Slamet Riyadi, Rumi Iqbal Doewes, Fadilah Umar 541

Adjustment of teen-aged athletes in badminton boarding school
Veronica Anastasia Melany Kaihatu, Adriatik Ivanti, Supriyanto 545

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

Bodyweight circuit training for basketball beginner athletes' aerobic endurance
Risa Herdiyana Bastian, Tomoliyus 554

Physical education sport and health national curriculum and elite sport development: Policy, synergy, or conflict?
Sulistiyono, 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 Jatmika 563

Sports achievement issues: Professionalism, policy, racism, cheating, abuse, doping, gender
Sujarwo, 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
Satrio Sakti Rumpoko, Vera Septi Sistiasih, Ratna Kumalasari 579

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

Measurement of the muscle fitness level of 9-12 years old badminton players with the Kraus Weber method
Dinan Mitsalina, Widiyanto 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 Muiyadi, Suharjana 592

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

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

Profile of pre-practice hydration status of Indonesian junior sub elite karate athletes: Pilot study
Djoko Pekik Irianto, Danardono, Muhammad Ikhwan Zein 604

Comparative study of explosive strength among boxers and taekwondo players of Osmania University Hyderabad India
Janagama Prabhakar Rao, Yerraguntla Emmanuel Shashi Kumar 607

Effect of weighttraining exercises to develop speed and shoulder strength among javelin throwers of Acharya Nagarjuna University Guntur
P.P. Satya Paul Kumar 609

Body responses to combination of endurance and strength training for kids aged 13-14 years old
Danang Wicaksono 611

The development of a hitting practice tool model on woodball
S.M. Fernanda Iragraha, Sugiharto, Soegiyanto K.S., Hari Setijono 614

The development of smart flexibility tools to measure the digital-based abilities
Ardhana Purnama Putra, Siswantoyo 618

Ergocycle test for the disabled children
Sri Ayu Wahyuti, Siswantoyo 622

Need assessment for development of digital-based learning media for Jurus Regu Pencak Silat
Noor ika Rifky Syarif Hidayat, Siswantoyo 624

Need assessment of software preparation for Pencak Silat physical test in early age
Dewi Nurhidayah, Siswantoyo 627

A study of individual and team game players with respect to visual and auditory reaction time
Haricharan Gajbhiye 630

Effect of plyometric training for development of speed among high jumpers of India
Hiremath Rajashekhar Mallikarjunayya 632

Valuation of 2-minute, 4-minute, 6-minute and 8-minute run - walk tests for male physical education students
Uday N. Manjre 634

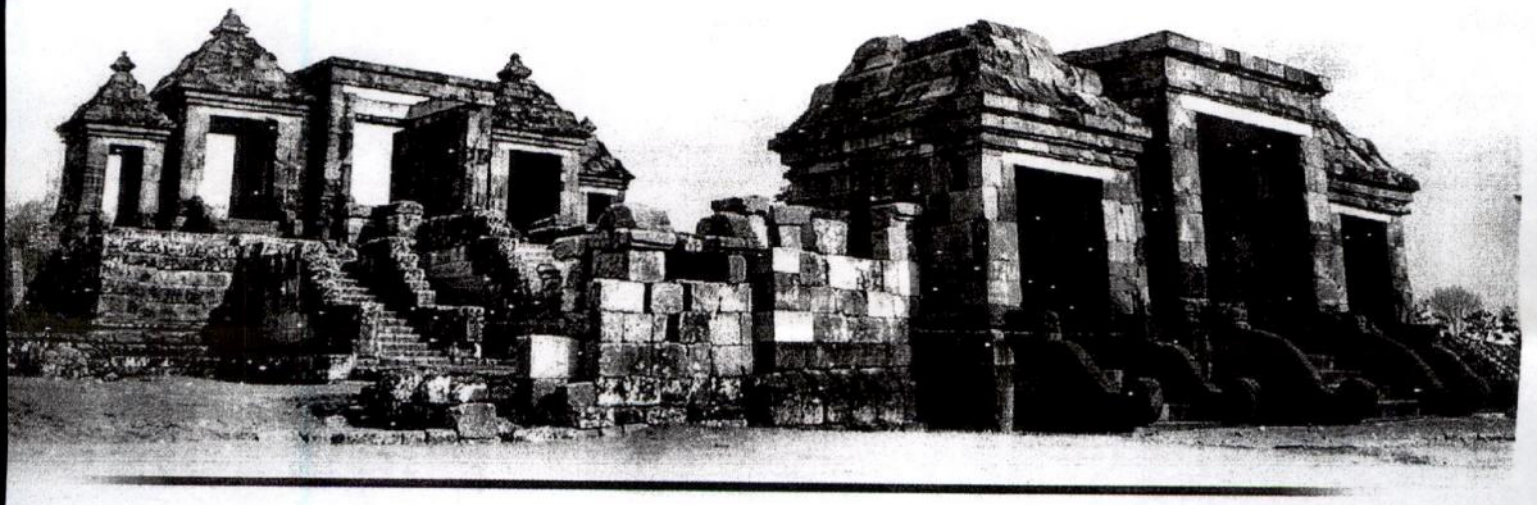
Comparative study of agility among korfball and netball players in Hyderabad India
Loka Bavoji Laxmikanth Rathod 636

A study on the aerobic fitness among hockey and football players of Gulbarga University India
Pasodi Mallappa Sharanappa 638

The periodization of 4 and 6 weeks circuit training and age to improve the aerobic endurance of basketball beginner athletes
M. Rachmat Darmo Umar, Tomoliyus 640

Construct validity for talent identification test athletic with Aiken's V
Budi Aryanto, Awan Hariono, Cukup Pahalawidi 647

ATLANTIS PRESS



Conference Secretariat:

Faculty of Sport Sciences
Universitas Negeri Yogyakarta

Address : Jl. Colombo No. 1 Yogyakarta, Indonesia
Phone : +62274 550826
E-mail : yishpess@uny.ac.id | cois@uny.ac.id
Website : yishpess.uny.ac.id | cois.uny.ac.id

The Effect of Plyometric Training to Speed of Volleyball Athletes

Mr Mansur, Subagyo Irianto, Faidillah Kurniawan

https://www.atlantis-press.com/proceedings/yishpess-cois-18/55909330

Proceedings
2nd Yogyakarta International Seminar on Health, Physical Education, and Sport Science (YISHPESS 2018) and 1st Conference on Interdisciplinary Approach in Sports (CoIS 2018)

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
doi:10.2991/yishpess-cois-18.2018.88

ATLANTIS PRESS

Advances in Social Science, Education and Humanities Research, volume 278
2nd Yogyakarta International Seminar on Health, Physical Education, and Sport Science (YISHPESS 2018)
1st Conference on Interdisciplinary Approach in Sports (CoIS 2018)

The Effect of Plyometric Training to Speed of Volleyball Athletes

Mansur
Faculty of Sport Sciences
Universitas Negeri Yogyakarta
Yoyakarta, Indonesia
mansur@uny.ac.id

Subagyo Irianto
Faculty of Sport Sciences
Universitas Negeri Yogyakarta
Yoyakarta, Indonesia
subagyo_irianto@uny.ac.id

Faidillah Kurniawan
Faculty of Sport Sciences
Universitas Negeri Yogyakarta
Yoyakarta, Indonesia
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 is 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 atheletes

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 abiiity 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 used were 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

Variables	t	Sig
Constant Plyometric	1,419	0.199
Varies Plyometric	-1.549	0.172
Constant Plyometric* Varies Plyometric	-2,93	0.043

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

[1] D. Anderson, T. Tharp, C. Elsberry, A. Best, R. Barr, and B. Legg, High School Strength Training. IOWA High School Athletic Association. (515) 432. 2011.

[2] T. O. Bompa, and G. G. Haff, *Periodization: Theory and Methodology of Training*. Champaign, IL: Human Kinetics Publishers. 2009.

[3] T. O. Bompa, *Total Training for Young Champions*. United States of America: Human Kinetics. 2000.

[4] J. Lubis, Plyometric Training. 24 februari 2016. 2005.

[5] S. S. Hosseini Rostamkhany H, Panahi M, Ann Biol Res, 2011, 2, 281.

[6] P. Mokhtari Rostami R, J motion, 24, 57. 2003.