

2015

Kinesiology and Exercise Sciences Abstracts

Eleventh Annual International
Conference on Kinesiology and
Exercise Sciences, 13-16 July
2015, Athens, Greece

Edited by Gregory T. Papanikos

THE ATHENS INSTITUTE FOR EDUCATION AND RESEARCH



Kinesiology and Exercise
Sciences Abstracts

11th Annual International
Conference on Kinesiology
and Exercise Sciences, 13-16
July 2015, Athens, Greece

Edited by Gregory T. Papanikos

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Preface

This abstract book includes all the abstracts of the papers presented at the *11th Annual International Conference on Kinesiology and Exercise Sciences, 13-16 July 2015, Athens, Greece*, organized by the Athens Institute for Education and Research. In total there were 19 papers and 20 presenters, coming from 9 different countries (Brazil, Canada, Croatia, Hungary, Poland, South Africa, Taiwan, Turkey and USA). The conference was organized into seven sessions that included areas such as Nutrition, Exercise and Physical Activity, Physiology, Kinestherapy, Kinesiology, Biomechanics and other related fields. As it is the publication policy of the Institute, the papers presented in this conference will be considered for publication in one of the books and/or journals of ATINER.

The Institute was established in 1995 as an independent academic organization with the mission to become a forum where academics and researchers from all over the world could meet in Athens and exchange ideas on their research and consider the future developments of their fields of study. Our mission is to make ATHENS a place where academics and researchers from all over the world meet to discuss the developments of their discipline and present their work. To serve this purpose, conferences are organized along the lines of well established and well defined scientific disciplines. In addition, interdisciplinary conferences are also organized because they serve the mission statement of the Institute. Since 1995, ATINER has organized more than 150 international conferences and has published over 100 books. Academically, the Institute is organized into four research divisions and nineteen research units. Each research unit organizes at least one annual conference and undertakes various small and large research projects.

I would like to thank all the participants, the members of the organizing and academic committee and most importantly the administration staff of ATINER for putting this conference together.

Gregory T. Papanikos
President

FINAL CONFERENCE PROGRAM
**11th Annual International Conference on Kinesiology and Exercise
Sciences, 13-16 July 2015 Athens, Greece**

**Conference Venue: Titania Hotel, 52 Panepistimiou Avenue, Athens,
Greece**

Organization and Scientific Committee

1. Dr. Gregory T. Papanikos, President, ATINER & Honorary Professor, University of Stirling, UK.
2. Dr. George Poulos, Vice-President of Research, ATINER & Emeritus Professor, University of South Africa, South Africa.
3. Mr. Vagelis Kritikos, President, PASEM.
4. Dr. Maria Konstantaki, Academic Member, ATINER & Lecturer, Buckinghamshire New University, U.K.
5. Dr. Mert Uydaci, Director, Human Development Research Division, Atiner & Professor, Marmara University, Turkey.
6. Dr. Christos Anagnostopoulos, Head, Sports Research Unit, ATINER, Associate Professor, Molde University College, Norway, & Associate Lecturer, University of Central Lancashire, Cyprus.
7. Dr. Panagiotis Petratos, Vice President of ICT, ATINER, Fellow, Institution of Engineering and Technology & Professor, Department of Computer Information Systems, California State University, Stanislaus, USA.
8. Dr. Nicholas Pappas, Vice-President of Academics, ATINER, Greece & Professor, Sam Houston University, USA.
9. Dr. Chris Sakellariou, Vice President of Financial Affairs, ATINER, Greece & Associate Professor, Nanyang Technological University, Singapore.
10. Ms. Olga Gkounta, Researcher, ATINER.

Administration

Stavroula Kyritsi, Konstantinos Manolidis, Katerina Maraki & Kostas Spiropoulos

Monday 13 July 2015

(all sessions include 10 minutes break)

09:30-10:00 Registration and Refreshments

10:00-10:30 (ROOM D) Welcome & Opening Remarks

- Dr. Gregory T. Papanikos, President, ATINER & Honorary Professor, University of Stirling, UK.
- Dr. Maria Konstantaki, Academic Member, ATINER & Lecturer, Buckinghamshire New University, U.K.

10:30-12:00 Session I (ROOM D): Nutrition, Exercise and Physical Activity

Chair: Maria Konstantaki, Academic Member, ATINER & Lecturer, Buckinghamshire New University, U.K.

1. Earl Noble, Professor and Director, The University of Western Ontario, Canada & Mehrbod Estaki, University of British Columbia, Canada. North American Ginseng (*Panax quinquefolius*) Reduces Muscle Damage Associated with Eccentric Exercise.
2. Millie Naquin, Professor, Southeastern Louisiana University, USA, Marie Zannis, Health Education Consultant, Nicholls State University, USA, Wynn Gillan, Southeastern Louisiana University, USA & Ephraim Massawe, Southeastern Louisiana University, USA. Perceptions and Behaviors Regarding Seafood Consumption Following Deepwater Horizon Oil Spill.
3. Juliana Phillips, Associate Professor, University of the Western Cape, South Africa & Alina Kabanda, Postgraduate Student, University of the Western Cape, South Africa. Physical Inactivity among Adults with Diabetes Mellitus in Rwanda.

12:00-13:30 Session II (ROOM D): Exercise Training and Physiology I

Chair: Earl Noble, Professor and Director, The University of Western Ontario, Canada.

1. Maja Horvatin-Fuckar, Assistant Professor, University of Zagreb, Croatia & Iva Blazevic, Assistant Professor, Juraj Dobrila University of Pula, Croatia. Grf Analysis of Aerobic Steps with Partial Transfer of Body Weight.
2. Damian Skrypnik, Ph.D. Student, University of Medical Sciences, Poznan, Poland, Paweł Bogdanski, University of Medical Sciences, Poznan, Poland, Edyta Mądry, Lecturer, University of Medical Sciences, Poznan, Poland, Joanna Karolkiewicz, Professor, University School of Physical Education, Poznan, Poland, Marzena Ratajczak, Ph.D. Student, University School of Physical Education, Poznan, Poland, Jakub Krysiak, Lecturer, University School of Physical Education, Poznan, Poland, Danuta Pupek-Musialik, Professor, University of Medical Sciences, Poznan, Poland & Jarosław Walkowiak, Professor, University of Medical Sciences, Poznan, Poland. The Influence of Endurance and Endurance-Strength Training on Renal and Liver Function.

13:30-14:30 Lunch

14:30-16:00 Session III (ROOM D): Kinestherapy & Learning

Chair: Millie Naquin, Professor, Southeastern Louisiana University, USA.

1. Shao-Hsia Chang, Associate Professor, I-Shou University, Taiwan & Nan-Ying Yu, Associate Professor, I-Shou University, Taiwan. The Therapeutic Effects of Concentrative Coordination Exercise on Handwriting Problems of Children with ADHD.
2. Nan-Ying Yu, Associate Professor, I-Shou University, Taiwan & Shao-Hsia Chang, Associate Professor, I-Shou University, Taiwan. The Effect of Concentrative Video Game Training on the Executive and Fine Motor Functions of Children with ADHD.
3. Karen Smail, Associate Professor, College of Charleston, USA. The Effects of Kinesthetic Learning Tables on 5th Grade Math.

16:00-17:30 Session IV (ROOM D): Biomechanics

Chair: Juliana Phillips, Associate Professor, University of the Western Cape, South Africa.

1. Kuo-Chuan Lin, Graduate Student, National Taiwan Sport University, Taiwan & Chin-Shan Ho, National Taiwan Sport University, Taiwan. System Design and Application for Evaluation of 110 Meter Hurdling.
2. Gergely Nagymate, Ph.D. Student, Budapest University of Technology and Economics, Hungary, Akos Pethes, Surgeon, Szent János Hospital, Hungary, Greta Szabo, BSc Student, Budapest University of Technology and Economics, Hungary, Zoltan Bejek, Assistant Professor, Semmelweis University, Hungary & Rita M. Kiss, Professor, Budapest University of Technology and Economics, Hungary. Comparison of Postural Stability between Patients with Unilateral and Bilateral Knee Osteoarthritis.

21:00-23:00 Greek Night and Dinner (Details during registration)

Tuesday 14 July 2015

09:00-10:30 Session V (ROOM D): Kinesiology and Rehabilitation

Chair: Tania Steyl, Senior Lecturer, University of the Western Cape, South Africa.

1. Angela Stagliano, Assistant Professor, University of South Florida, USA. Is Training in Balance or Strength More Effective in Improving Gait Speed s/p CVA? An Evidential Synthesis.
2. Vedat Kurt, Research Assistant, Dumlupinar University, Turkey, Ozgen Aras, Dumlupinar University, Turkey & Bahar Aras, Dumlupinar University, Turkey. The Immediate Effects of Nerve Mobilisation on Gait in Subjects with Low Back Pain.
3. Lindsey Jamplis, Ph.D. Student, Pepperdine University, USA. Stretching One's Limits: The Development of Self-efficacy in a Senior Yoga Community.

10:30-12:00 Session VI (ROOM D): Exercise Training and Physiology II

Chair: Angela Stagliano, Assistant Professor, University of South Florida, USA.

1. Eduardo Hippolyto Latsch Cherem, Assistant Professor, Universidade Estacio de Sa, Brazil. Chronic Cortisol and Leukocyte Alteration by Three Different Strength Training Protocols.
2. Chi-Yao Chang, Graduate Student, National Taiwan Sport University, Taiwan & Chin-Shan Ho, National Taiwan Sport University, Taiwan. The Effects of Different Agility Training on the Total Response Time for Back Row Defense of Junior Female Volleyball Players.

12:00-13:30 Session VII (ROOM D): Behavioural and Socio-cultural

Chair: Eduardo Hippolyto Latsch Cherem, Assistant Professor, Universidade Estacio de Sa, Brazil.

1. Tatiana Freitas, Professor, Nove de Julho University, Brazil. Physical Education Teachers' Autonomy and Identity towards the Curriculum of the State of Sao Paulo.
2. Tania Steyl, Senior Lecturer, University of the Western Cape, South Africa & Juliana Phillips, Associate Professor, University of the Western Cape, South Africa Physical Activity among Urban Community Dwellers with Diabetes Mellitus: An Exploration of Experiences.
3. Indhumathi Gopal, Associate Professor, Johnson C. Smith University, USA. Physiological and Psychological Effects of two Modalities of Exercise, Hatha Yoga and Rhythm and Dance among Students: A Pilot Study.
4. Marie Zannis, Health Education Consultant, Nicholls State University, USA, Millie Naquin, Professor, Southeastern Louisiana University, USA, Chardon V. McCoy, Southeastern Louisiana University, USA, Ephraim Massawe, Southeastern Louisiana University, USA, Wynn Gillian, Southeastern Louisiana University, USA & Caitlyn Haynes, Southeastern Louisiana University, USA. Characteristics of Community Members who Recycle Household Hazardous Waste.

13:30-14:30 Lunch

17:30-20:00 Urban Walk (Details during registration)

20:30- 22:00 Dinner (Details during registration)

Wednesday 15 July 2015
Cruise: (Details during registration)

Thursday 16 July 2015
Delphi Visit: (Details during registration)

Chi-Yao Chang

Graduate Student, National Taiwan Sport University, Taiwan

&

Chin-Shan Ho

National Taiwan Sport University, Taiwan

The Effects of Different Agility Training on the Total Response Time for Back Row Defense of Junior Female Volleyball Players

The agility is one of the most important elements of volleyball games. In the competitions, the players were required to move fast and quickness to volley or attack the volleyball. To improve agility and speed, agility training might be an ideal training protocol that has been applied in sports widely. **Purpose:** The purpose of this study was to investigate the agility training on the total response time (TRT) of 10 meters sprint and agility T-test of junior female volleyball players. **Methods:** Twenty-seven volleyball players (junior high student, female) were recruited and separated into agility ladder training group (ATG, n=9), shuttle training group (STG, n=9), and control group (CG, n=9) in this study. The ATG, STG and CG participated in 6 weeks of agility training using the shuttle run training. The TRTs, 10meters sprint and agility T-test (AT) were tested before and after 6 weeks training program to examine the influences of agility training among the groups. The subjects were required to react to the target as quick as possible to measure the TRTs which was recorded by a self-designed agility evaluation system. During the experiment, the system activated a light cue randomly; subjects faced the light cue and moved toward the goal. To measure the total time of AT, the subjects were asked to perform 36.56 meters shuttle run which was calculated by timing gates. The subjects were asked to perform 10 meters sprint run that were measured by timing gates. An analysis of covariance was applied to obtain the variables for the three groups. The significant level was set at $\alpha = .05$. **Results:** There were significant differences between ATG, STG and CG in TRTs, 10 meters sprint and AT. Regarding to the TRTs, the STG improved their total times by 6.1% ($1.4 \pm 0.09s$), the ATG improved their total times by 0.68% ($1.47 \pm 0.07s$), while the times of the CG improved by only 0.68% ($1.47 \pm 0.06s$). Regarding to the 10meters sprint, the average time improvement of the STG group was 6.13% ($1.99 \pm 0.19s$), the ATG improved their total times by 3.3% ($2.07 \pm 0.06s$), whereas that for the CG was 0.47% ($2.13 \pm 0.11s$). Regarding to the AT, the average time improvement of the STG group was 2.64% ($11.43 \pm 0.29s$), the ATG improved their total times by 3.28% ($11.81 \pm 0.37s$), whereas that for the CG was 0.25% ($11.81 \pm 0.37s$). **Conclusion:** The results of the present study revealed that agility

training could facilitate the development for agility of junior female volleyball players. In addition, the players were required to response the target from a dead stop position in the experiment. By using the self-designed apparatus, the athlete might perform in a game like situation and demonstrate the real physical capability. Therefore, the system design and application is important for evaluating sport-specific patterns or performances.

Shao-Hsia Chang

Associate Professor, I-Shou University, Taiwan

&

Nan-Ying Yu

Associate Professor, I-Shou University, Taiwan

The Therapeutic Effects of Concentrative Coordination Exercise on Handwriting Problems of Children with ADHD

Children with attention deficit and hyperactivity disorder (ADHD) have been found to display greater difficulties in motor coordination, especially in the planning and execution of complex, lengthy, and novel chains of motor task. With slower motor-response and perceptual speed, these deficits may result in difficulties within the classroom which may include poor penmanship and sloppy work. It is important to develop interventions to decrease distractions and reduce the amount of competing, non-relevant stimuli, while providing an optimal level of relevant stimulation to hold attention on the current task.

This study employed table tennis as a concentrative coordination training, since successful performance in such interceptive tasks depends upon the acquisition of visual information about the approaching object. The aim of this study was to determine does this concentrative coordination training of head, eye and arm movements and the necessary concentration of visual information in table tennis task improve executive function and handwriting performance in school?

For a randomized controlled trial, 32 Grade 1 to Grade 6 students were recruited and assigned to either Intervention (n=16) or Control (n=16) groups. The intervention was a 12-week table tennis training (two one-hour sessions per week). A self-developed computerized handwriting evaluation was employed to test the improvement on handwriting performance. The Stroop test was administered to test the intervention effect on the executive function.

The handwriting performance test showed improvements in handwriting performance (speed), response time, and the speed to become automation in the intervention group. In the Stroop Color-Word test, the intervention group also showed significant difference between pre- and post tests. With a view of training in volitional shifts of attention, this study showed concentrative coordination exercise training can effectively improve the executive function and handwriting performance in children with ADHD.

Tatiana Freitas

Professor, Nove de Julho University, Brazil

Physical Education Teachers' Autonomy and Identity towards the Curriculum of the State of Sao Paulo

This research aims to analyze the processes that Physical Education teachers use in order to integrate their knowledge and acting autonomously considering the Curriculo of the state of São Paulo for the Physical Education subject. We aim to focus on the autonomy of the subject teachers from the perspectives of the study of the epistemology of the teaching practice and professional identity. The choice of the "*teacher's autonomy*" theme has emerged from the observation of the impact of the Curriculo of the state of São Paulo, from 2008 on the school routine and the difficulties faced by the teachers concerning the learning situations elucidated in the Curriculo, as well as the strategies to be used. The autonomy the teachers reveal concerning the Curriculo depends on one hand, on their personal path and professional formation and on the other hand, on the objective conditions of the pedagogic practice, which are linked to their professional identity. The teachers joined to the document as a consequence of the valorization of the Physical Education by the different subjects of the school community, after its implementation. The teachers' pedagogic practices were, in an extent, changed by the Curriculo, because they're considered necessary to the proposition of new principles to their work, but kept marked by traditional conceptions of the Physical Education and the preference for the field of sports training, which still remains with the requirements of the new proposal, influencing their teaching practice.

Indhumathi Gopal

Associate Professor, Johnson C. Smith University, USA

Physiological and Psychological Effects of two Modalities of Exercise, Hatha Yoga and Rhythm and Dance among Students: A Pilot Study

Objective: Dance and yoga are forms of physical exercise which can have beneficial effects on stress responses. This study compared the physiological and psychological responses to dance and hatha yoga among students.

Methods: Twenty seven Black/African American students, 19 - 26 years old were recruited randomly from the 110-min classes: Rhythm & Dance (n = 12), Hatha Yoga (n= 15) which met once weekly at a Historically Black university in S. Eastern United States. Participants completed a demographic questionnaire including: gender, age, classification (freshman to seniors), work status, marital status and number of children before class. Before and after each condition, physiological measures like heart rate (HR) and blood pressure (BP) were recorded and participants completed the modified pre-post Perceived Stress Scale (PSS-10) to assess their psychological state. Independent-samples t-test and Levine test of Homogeneity of Variance was conducted to compared mean pre-post change scores of PSS, HR and BP (systolic and diastolic) in Yoga and Dance using SPSS.

Results: The largest number of students aged 22 (37%) and the greatest number of students was seniors (59%). None of the students were married and 2 students (7%) had children. Seventeen (63%) were working at the time and 10 (37%) did not work. The mean PSS pre to post change score for Yoga compared to Dance was significant ($P = .006$). There were no significant mean pre-post score change seen in HR ($P = .1$), systolic pressure ($P = .1$) and diastolic pressure ($P = .09$) in Yoga and Dance.

Conclusion: Since college students are under constant pressure, the information from this study could be used to offer interventions to reduce stress among students, by way of yoga workshops just before exams and to athletes just before the matches. Mental state before students take an exam or prior to the start of a match plays a crucial role in overall success or failure.

Maja Horvatin-Fuckar

Assistant Professor, University of Zagreb, Croatia

&

Iva Blazevic

Assistant Professor, Juraj Dobrila University of Pula, Croatia

Grf Analysis of Aerobic Steps with Partial Transfer of Body Weight

In the signal of ground reaction force due to the correlation of the morphology of the waveform signals contains information about the specific method of performing motion within the defined techniques. The aim of this study was based on the kinetic parameters of ground reaction force (GRF) to determine the predictive biomechanical parameters that characterize the level of bone and joint loads when performing an optimal technique of the two of basic aerobics steps - *step touch* and *step up knee* at different altitudes step bench (6, 8, 10 inches). This study involved long-time aerobics instructors, who are performing the movement at each altitude of step bench, three sets of eight repetitions, and the signal ground reaction force components are measured in reflection on and step down from the bench. Based on the values of ground reaction forces were calculated basic statistical parameters of the components F_x , F_y and F_z , and the determination of significance was done with Wilcoxon test for equivalent pairs. Expected statistically significant differences were observed in the anterior-posterior and vertical ground reaction force components at different heights step bench because of amplitude of movement and increasing the intensity on the higher step bench.

Lindsey Jamplis

Ph.D. Student, Pepperdine University, USA

**Stretching One's Limits:
The Development of Self-efficacy in a Senior Yoga
Community**

Yoga is widely recognized as a holistic treatment for many health related issues. Older adults practice yoga as a complementary alternative to medicine to traditional health care practices. Adults face a variety of physical limitations that prevent them from engaging in regular physical activity. Physical activity improves functional performance and inhibits the development of chronic illness (American College of Sports Medicine et al. 2009). As adults age, they experience physical, social and mental changes that are often difficult to accept and overcome. Due to the physiological changes that occur in the aging process, older adults experience functional limitations that prevent them from being able to rely solely on themselves. Implications of losing independency and the ability to make decisions, deeply impact Senior's self-efficacy beliefs. Psychologists identify self-efficacy, the belief in an individual's ability to succeed in a specific situation (Bandura 1997), as a key determinant in behavior change. Participation in community-based yoga may contribute in the development of self-efficacy beliefs.

Vedat Kurt

Research Assistant, Dumlupinar University, Turkey

Ozgen Aras

Assistant Professor, Dumlupinar University, Turkey

&

Bahar Aras

Assistant Professor, Dumlupinar University, Turkey

The Immediate Effects of Nerve Mobilisation on Gait in Subjects with Low Back Pain

Aim: The aim of the study was to investigate the instant effects of sciatic nerve mobilisation on standing and gait parameters of patients with low back pain (LBP).

Methods: The subjects with low back pain who had positive Straight Leg Rise Test were included in the study. Sciatic glide exercises which were described by Shacklock M. (2005) in slump test position were performed along one minute for 10 times. Static standing (COP length, ellipse area, velocity and average forces (%)) and gait evaluation (stride length, length of gait line, cadence and velocity etc.) were done with Zebris FDM 1.0 before and after exercise.

Results: Nine men and eight women with the mean age of $38,41 \pm 8,63$ years joined the study. No statistically significant difference was found in standing and gait parameters evaluated before and after sciatic glide exercise ($p > 0.05$).

Conclusion: Lower extremity neural gliding exercise was found beneficial for improving short-term disability and pain in literature. Further studies should be performed in larger samples in order to take more objective results about the effect of neural gliding exercises on low back pain.

Eduardo Hippolyto Latsch Cherem
Assistant Professor, Universidade Estacio de Sa, Brazil

Chronic Cortisol and Leukocyte Alteration by Three Different Strength Training Protocols

INTRODUCTION: Endurance and strength training are well known methodologies to improve immune response. Nevertheless, volume, intensity, rest, and others training variables in strength training, can induce to better immune and endocrine response. **PURPOSE:** This study examined the response of cortisol and total leukocyte after three different strength training methodologies. **METHODS:** 30 volunteered men, age 23 ± 2 years-old, with 6 month of strength training experience was screened randomly to one of three groups with the same 10 exercise: High and low back pull down; chest press, inclined chest press; shoulder press, barbell upright row; leg press; knee extension; sitting and standing heel raising; where: Conventional Group (CON) made this routine in the same order as above, within 10 maximum repetition in a 3 sets and 90 seconds of rest; Circuit Group (CIR) executed the same way exercise, in a following order, back-chest-shoulder-leg exercises, but the rest only in the end of each sequence; Bi-Set Group (B-S) did the both exercise for the same muscular group without rest. The cortisol and leukocyte was measured in fasted at the day after of start in program and at 48h after the 10^a and 20^a week of training. The data are show as the mean and stand error. It was made a Person correlation (r) for a cortisol and total leukocytes, with the Student's "t" test with significant level was set at $p \leq 0,05$ (*Statistical Package for the Social Sciences* (SPSS), versão 15.0). **RESULTS:** After start training program the groups shown the following data (cortisol and total leukocytes): CON: 13,26(3,17) and 6.167(744,48); CIR: 11,71(1,75) and 8.167(1.566,93); B-S: 11,76(2,85) and 6.443(1.225,9). At 10^a week the groups shown; CON: 15,13(3,9) and 6.633(185,33); CIR: 15,45(2,32) and 7.033(393,18); B-S: 17,4(1,15) and 5.472(693,12). Before the last week of training, the groups demonstrated the ensuing data: CON: 18(3,46) and 9.033(1.733,21); CIR: 13,9(2,93) and 7.900(873,53); B-S: 16,45(1,08) and 5.842(759,27). The correlations (r) and its significant levels (p) for cortisol and total leukocytes exhibited the following results: CON: $r=0,969$, $p=0,015$; CIR: $r=-0,923$, $p=0,002$; B-S: $r=-0,988$, $p=0,009$. **CONCLUSION:** The B-S group showed the better correlation between cortisol and total leukocytes, followed by CON group and CIR group, suggesting that the B-S group could imply the greatest immune response than others group examined here.

Kuo-Chuan Lin

Graduate Student, National Taiwan Sport University, Taiwan

&

Chin-Shan Ho

National Taiwan Sport University, Taiwan

System Design and Application for Evaluation of 110 Meter Hurdling

The 110 meter hurdling is a track competition that require many fundamental elements (e.g., speed, dynamic strength and anaerobic endurance). In recent years, the hurdles world record had been broken that imply a breakthrough of training or technique on hurdles. The biomechanical analysis is a method that can effectively evaluate the performance of the athletes and the inertial measurement unit (IMU) devices are widely used in analysis of various sports recently. **Purpose:** In present study, a pair of six-axis wireless inertial measurement unit was designed and applied it to analyze the temporal-spatial parameters on 110 meters hurdle run. **Methods:** Six male college 110-meter hurdles athletes were recruited in this study. The subjects were required to perform three times 110-meter hurdling and the best record was selected to analyze which were recorded by timing gates. The IMU were attached at both forefoot and the sampling rate was set at 200Hz. To calculate the flight time, time between hurdles, and the hurdle cycle velocity of each hurdle during 110-meter hurdle run, a self-designed MATLAB program (Version 7.6.0.324, The MathWorks Inc., USA) was used to locate the time events. To confirm the criterion-related validity and reliability, the IMUs were examined with the motion analysis system. The reliability of the repeated tests was evaluated using interclass correlation coefficients (ICC) and the validity was tested by Pearson correlation coefficient. A trend analysis and Pearson correlation coefficient were applied to obtain the variables for hurdling. The significant level was set at $\alpha = .05$. **Results:** The ICC analysis indicated that the tests possessed great reliability, with high ICC values (0.991). The Person's analysis revealed high-positive correlation between IMUs and motion analysis system ($r = 0.955 \sim 0.975$). The average time of 110-meter hurdle run was 14.44 ± 0.26 s. The means and standard deviations of the flight time, time between hurdles, and the hurdle cycle velocity were $0.36 \pm 0.01 \sim 0.41 \pm 0.01$ s, $0.69 \pm 0.01 \sim 0.73 \pm 0.01$ s, and $8.02 \pm 0.11 \sim 8.68 \pm 0.9$ m/s, respectively. According to the results, statistically significant trend were revealed in the flight time, time between hurdles, and the hurdle cycle velocity. The time of hurdling dropped from the first hurdle to the 5th hurdle and increased continually until the 10th hurdle. Significant correlations were found between variables; the flight time was positively correlated with the

time between hurdles ($r=0.732$); the hurdle cycle velocity was negatively correlated with the flight time and the time between hurdles ($r=-0.923$; $r=-0.937$). **Conclusions:** The results of present study shown that the runners reach the maximum velocity and spend the minimum time on hurdling at the 5th hurdle. Moreover, the runner who spends less flight time on hurdling could not only shorten the time between hurdles but also improve the hurdle cycle velocity simultaneously. In addition, this study demonstrated that the IMUs apparatus could be used on outdoor experiments without constraints that allow the participants perform at game like situation.

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Comparison of Postural Stability between Patients with Unilateral and Bilateral Knee Osteoarthritis

Introduction: Biomechanical researchers focus mainly on patients with unilateral knee osteoarthritis, although on majority of patients bilateral involvement can be observed. A few researches study the effect of bilateral knee osteoarthritis on the gait parameters. The purpose of our research is to examine the effect of bilateral osteoarthritis compared to unilateral involvement on the postural stability during bipedal standing.

Materials and method: Eight severe bilateral (KL IV)(74,6±4,6 years, 159,4±14,5cm, 78,9±14,6kg) and eleven severe unilateral (KL III or IV)(69,5±12,3 years, 162,3±8,9cm, 75,4±10,2kg) osteoarthritis patient were involved in this research. The postural stability characterized during 30 second long bipedal standing measured by stabilometry. The most important parameters (confidence ellipse width, confidence ellipse height, confidence ellipse area, Center of Force (COF) total track length, COF horizontal deviation, COF vertical deviation, average force distribution on the two foot) were calculated with WinPDMS processing software (Zebris GmbH, Isny, Germany) from foot force distribution measured by a Zebris FDM-S Multifunctional Force-measuring Plate (320mm x 470mm measuring surface with 1504 pcs. load cells). The statistical comparison of the data belonging to the two patient groups was performed with F-test followed by Student's t-test.

Results: The performed F-test clearly provided that significance testing with t-test can be carried out. In patients suffering from unilateral knee osteoarthritis burden percentage between the affected and non-affected side a significant difference ($p=0.0067$) can be observed. In patients with bilateral knee osteoarthritis, the significant difference ($p=0.0039$) between the two sides can be observed as well, generally the burden percentage of the more compliant leg is smaller. In

most parameters between the two group significant differences can be observed, but in case of the COF total length the deviation is not significant ($p=0.9923$).

Discussion: The results unambiguously proved that the balancing capability deteriorates due to bilateral knee osteoarthritis. Interesting results: It is numerically detectable that the patient puts less of a burden on the more worn thus more painful leg. Furthermore, in COF total length there is no significant deviation between the two patient groups, thus its length is not influenced by unilateral or bilateral involvement.

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Perceptions and Behaviors Regarding Seafood Consumption Following Deepwater Horizon Oil Spill

Background: The Deepwater Horizon oil explosion occurred in the Gulf of Mexico in the United States of America (USA) on April 20, 2010. It had a significant impact on individuals living in southern states. In the state of Louisiana, some were affected by loss of income and jobs, changes in health status and in seafood consumption.

Purpose: Given one year after the spill, this study examined perceptions related to seafood consumption and associated behaviors of students and staff at a southeastern Louisiana university in the USA.

Methods: After survey pilot testing and university internal review board approval, 1436 individuals were randomly selected. Subjects received an explanatory email with a link to a survey with demographic, behavior and perception items. Non-responders received second and third requests at three-week intervals, resulting in 239 participants.

Results: Nearly all respondents (97%) had ever consumed Gulf of Mexico seafood. Concern about the safety of seafood consumption varied before the spill (17%), during the six months after the spill (80-82%) and one year later (57%). One year after the spill, 52% of the students (n=74) had concern about the safety of seafood compared to 69% of the faculty/staff (n=55). Nearly two-thirds (61%) indicated no change in seafood consumption after the spill, with 35% stating a decrease and only 4% reporting an increase. Before the spill, 43% of respondents asked about the source of seafood before consumption, while 64% asked after the spill.

Conclusions: Respondents indicated varying levels of concern about seafood consumption and changes in consumption patterns, during and after the spill. Most (80-88%) expressed concern regarding oil and dispersants both on and in the water, and on the floor of the Gulf of Mexico. TV and newspapers were primary sources of information after the spill, and may continue to influence individuals regarding seafood consumption choices.

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North American Ginseng (*Panax quinquefolius*) Reduces Muscle Damage Associated with Eccentric Exercise

Ginseng, including the North American variety (*Panax quinquefolius* L.), has long been thought to act as an ergogenic aid. However, there is limited evidence that factors such as time to exhaustion, exercise heart rate, production of lactic acid or changes in aerobic capacity are influenced by ginseng supplementation. Ginseng does possess antioxidant and immune-stimulatory properties that may influence recovery from exercise, though. Vigorous muscle contractions, particularly eccentric contractions, are often associated with inflammation, muscle damage and soreness and diminished contractile function. Overactive immune responses coupled with the production of reactive oxygen species may be partially responsible for these effects. Therefore, in the present study, the effect of ginseng on muscle damage and inflammation following a single bout of downhill running was examined. For fourteen days prior to the exercise, male Sprague-Dawley rats (n=5) were supplemented with an aqueous extract of North American ginseng (300mg/kg/day) or a water placebo (n=5). Twenty-four hours following downhill running, the ginseng treated group (G) demonstrated reduced evidence of muscle damage in the soleus, compared to the placebo treated controls (P), as assessed by circulating creatine kinase (P=227±13; G=168±15 U/L; p<0.002) and muscle morphology (P=3.8±1; G= 2.1±0.5 arbitrary units; p<0.001). Ginseng supplementation was also associated with reduced levels of infiltrating neutrophils, as assessed by His48, in the muscle (P=448±176; G=122±80 His48+cells/1000 fibers; p<0.001). In summary, North American ginseng may protect muscle against injury and inflammation following eccentric exercise. It is uncertain, however, whether ginseng limits the initial damage caused by exercise, the post-exercise damage resulting from the inflammatory response, or both.

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Physical Inactivity among Adults with Diabetes Mellitus in Rwanda

Diabetes mellitus is one of the most common non-communicable diseases, and is the fifth leading cause of death in most developing countries. Regular physical activity is strongly recommended for individuals with diabetes for its beneficial effects in the improvement of blood glucose control and insulin sensitivity, prevention and reduction of morbidities and complications, as well as for its cardiovascular benefits. Using a cross-sectional design, this study examined the demographic, social and health-related factors associated with physical activity participation among adults with diabetes mellitus in Kigali, Rwanda. One hundred-and-fifty six (156) adults with diabetes mellitus participated in the study. More than a third (39%) of the participants was categorized as inactive. Active participants were significantly younger than those categorized as inactive. Age, marital status, level of education and self-efficacy for diabetes were all significantly associated with levels of physical activity. Common barriers to participation in physical activity were cited as poor health status, lack of motivation and lack of awareness about the importance of physical activity. It is thus clear that efforts should be made to educate adults with diabetes mellitus about the benefits of integrating regular physical activity in their daily routine.

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The Effects of Kinesthetic Learning Tables on 5th Grade Math

The reduction of physical activity in the lives of children has created an obesity epidemic in the United States. An imbalance between nutrition and exercise has allowed children's body mass indexes (BMI) to rise to alarming numbers. Researchers suggest that adolescents participate in 60 minutes of moderate to vigorous exercise daily, which can be accomplished through multiple sessions (Rabbia F 2002). Yet many children sit still in school for up to seven hours a day, causing students to become unfocused and unmotivated to learn. With many students only having approximately 60 minutes of physical education a week and few other outlets of energy throughout the day, teachers have to find other opportunities to get their students engaged in activity. This study's main purpose was to investigate the effect of exercise on academic learning in a 5th grade classroom. Kinesthetic learning desks allow students to engage in physical activity while simultaneously participating in classroom academics.

Three areas of investigation included:

1. Systematic observation investigated student's time on task.
2. Heart rate monitors investigated the impact an active learning environment had on heart rates throughout learning.
3. Balance investigated the impact embedded physical activity during the school day had on equilibrium.

Twenty-nine male and female 5th grade students in a classroom with kinesthetic tables participated in active learning for 12 weeks.

Time on task was assessed using the BOSS system

- ✓ While students showed to be either actively or passively engaged only 30% of boys were actively engaged using the tables while 51.4% of girls were actively engaged using the tables. 18% of the class did not actively use the tables throughout the study.
- ✓ Boys were more passively engaged while girls were more actively engaged.

Heart rate data was collected using the MIO heart rate monitors.

- ✓ Heart rate fluctuations seen in students showed that kinesthetic desks elevated heart rates when engaged in learning.
- ✓ No significant changes were found in resting heart rates.
- ✓ Balance was measured using the modified stork stand test

- ✓ Improvements were found in both eyes closed conditions, however results were not statistically significant.
- ✓ Significant improvements ($p=0.04$) were observed in the eyes open condition with left leg standing.
- ✓ 86% of participants were self-reported to be right leg dominant.

Based on our research findings, the use of kinesthetic desks in an academic learning environment can be beneficial to time on task. The increase in heart rates demonstrates the effectiveness of this exercise equipment with increase blood flow to the brain. There was no significant increase in balance, therefore it can not be concluded that the desks increased overall physical fitness. Further research should include a longer study with the utilization of these desks in the classroom. Major limitations of the current research were the inability to control the use of the machines by the student, the intensity at which they exercised throughout the day, and time restraints to conduct pre- and post-balance tests.

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The Influence of Endurance and Endurance-Strength Training on Renal and Liver Function

Background/Aims. Obesity significantly affects the function of kidney and liver causing obesity-related glomerulopathy, hepatosteatosis and hepatofibrosis. The aim of study was to compare the effect of endurance and endurance-strength training on kidneys and liver function in obese women. **Method.** 44 women with abdominal obesity were randomized into groups A and B, and performed endurance (A) and endurance-strength (B) training for 3 months, 3 times/week, for 60 minutes. Before and after intervention the kidney and liver function were estimated. **Results.** Both interventions resulted in significant decreases in body mass, BMI (Body Mass Index), waist circumference, hip circumference and WHR (Waist-Hip Ratio). Before intervention renal hyperperfusion was observed in both groups. Both trainings led to significant decrease of glomerular filtration rate to the normal range. Endurance training led to nonsignificant tendency to increase of blood ALAT (alanine aminotransaminase) and ASPAT (aspartate aminotransferase) concentration, while endurance-strength training resulted in nonsignificant tendency to decrease of these variables. **Conclusions.** Three months of both endurance and endurance-strength training have favorable and comparable effect on renal function in obese women with renal hyperfiltration. Both trainings do not influence significantly the function of liver.

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Is Training in Balance or Strength More Effective in Improving Gait Speed s/p CVA? An Evidential Synthesis

For the clinician tasked with determining a post-stroke rehabilitation regimen, questions can arise as to the relative benefits of balance training and strength training for patients presenting both lower extremity weakness and diminished gait speed. Physical and occupational therapists—with overlapping areas of expertise—are called upon to collaborate on a plan that will assist the patient in effectively regaining and relearning physical skills needed for a return to everyday living. What will work best for one who has suffered a cerebrovascular accident (CVA)? While every case is unique, there is sufficient available evidence to assist clinicians in formulating their rehabilitation plan. The purpose of this research is to provide a compact synthesis of the literature that is finely focused on determining the most useful rehabilitative techniques for patients who seek to overcome stroke-induced lower extremity weakness and, collaterally, diminished gait speed.

A keyword search allowed development of a protocol to explore on-line literature so that a simplified synthesis of the current body of knowledge could be made available to clinicians. The optimized search solution is through the collection of EBSCO Industries, Inc. databases, e-books, and e-journals. In all, more than one million sources could be considered in this digital search routine. Pre-testing to tightly focus the search led to just three key words/phrases: *stroke, balance training, strength training*. Research identified with this first-level inspection then was filtered with additional inclusion criteria. Screens were used so that non-CVA studies (e.g., neurological diseases), those that included post-surgery cases, and research presenting evidence on subjects below the age of 55 were not included in the final analysis. More than 100 studies were identified for evaluation. PEDro and NHS scales from Portney and Watkins, and Law and MacDermid were applied as qualitative and quantitative critiques of the identified literature to rate study design.

The results of this extensive literature review provide a compact synthesis of clinical evidence to demonstrate that collaborative balance and strength functional interventions can be beneficial in gait speed improvement. This outcome provides an evidence-based practical tool for use by physical and occupational therapists as they formulate rehabilitation plans for stroke patients. Synthesizing the literature shows that utilization of well-designed balance and strength training protocols are effective in motivating an increase in gait speed—and an

increase in gait speed is highly correlated with patient confidence in balance, enhanced functional abilities, more rapid discharge from facilities, and a decline in comorbidities.

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Physical Activity among Urban Community Dwellers with Diabetes Mellitus: An Exploration of Experiences

The prevalence of diabetes mellitus in South Africa has increased drastically over the last two decades and ranks third in terms of mortality and morbidity for the general population. Urbanisation plays an important role in the emergence and high prevalence rates of type 2 diabetes mellitus and is associated with more availability of food, eating of unhealthy fast foods and a less physically active lifestyle. Physical activity has gained much attention for its role in preventing premature disease and disability and has become widely recognised as a key health behaviour, associated with reduced morbidity and mortality of chronic diseases of lifestyle such as hypertension and type 2 diabetes, diabetic complications, improved glucose tolerance and insulin sensitivity. This study explored urban community dwellers with diabetes mellitus experiences and or challenges with regards to the inclusion of physical activity in their management of their disease. Focus group discussions were conducted with 26 individuals with diabetes mellitus from 6 randomly selected community health care centres in the Cape Metropolitan Region, Western Cape. The discussions yielded five (5) main themes: safety/fear; lack of time/conflicting responsibilities; co-morbidities; lack of motivation/enjoyment and involvement of others. It is clear that individuals with diabetes mellitus in urban communities experience several environmental and social facilitators and/or barriers to incorporating physical activity in their daily routines. Therefore when designing or promoting physical activity interventions for individuals with diabetes mellitus in urban communities it is important to create safe and supportive environments to enhance participation.

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The Effect of Concentrative Video Game Training on the Executive and Fine Motor Functions of Children with ADHD

Prior studies point out that although video games appear to offer a variety of possible benefits for learning, there is as yet little empirical evidence to suggest that such media is effective intervention for attention deficit and hyperactivity disorder (ADHD). There are limited evidences on the potential for video game exercise to improve ADHD behavioral symptoms and motor performance. The aim of this study was to determine the effect of table tennis video game on executive and motor skills in children with ADHD.

A randomized matched-pair study was performed to test group effect on executive function and fine motor control. The participants include 32 children who were 7 years to 12 years of age and diagnosed as having ADHD. The participants were pretested and randomly assigned to one of matched groups. A group of participants receiving 12 weeks of Wii table tennis training exercises were compared with a group receiving no intervention instead. Before and after training, the Test of Variables of Attention (TOVA), a 21.6 minute computerized continuous performance test was employed in the monitoring of attention deficit disorder. A self-developed graphomotor apparatus was employed to evaluate the movement coordination and fine motor control in relation to the intervention.

In the executive function test, the intervention group showed significant difference in the TOVA scores between pre- and post-tests. The intervention of table tennis video game resulted in significant improvement of fine motor functions for the children with ADHD. The results of this study can contribute to a systematic training and evaluative protocol for the behavior and motor control problems in children with ADHD.

This study demonstrated that video game exercise employed within the clinical setting can benefit the inhibitory control and motor performance in children with ADHD.

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Characteristics of Community Members who Recycle Household Hazardous Waste

Background: Correctly disposing of substances that can potentially become hazardous waste is important when guarding human health and the environment. Recycling items that are capable of becoming hazardous has many benefits including reducing contact with hazardous pollutants.

Objective: The purpose of this study was to describe who participates in a household hazardous waste recycling program and to reveal their influences. Household Hazardous Waste Recycling Day is a recycling program that collects (potentially) harmful substances from citizens in efforts to reduce household hazardous waste.

Methods: A 28 item questionnaire was completed by 145 participants.

Results: The top three hazardous items brought in were paint, electronic waste, and batteries. Significant findings indicated that individuals who were retired were more likely to recycle and felt more confident about properly managing hazardous household waste. This study also suggested that men were more likely to recycle than women. Also, participants who had a college degree were more likely to recycle household hazardous waste.

Conclusion: Household hazardous waste continues to be a growing problem in the United States of America, as well as globally. Becoming educated and educating the public regarding hazardous waste disposal are essential. Funding such programs may increase community responsibility and awareness.