



Abstract Book

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Welcome Message

Every loss of life is a tragedy. Now we are at the second years of pandemic and we lost several peoples during previous months. We would like to respect to all people whom lost their family in this tragedy.

On behalf of Asian Exercise and Sport Science Association and conference organization, it is my great pleasure and honor to welcome all of researcher and scientists to this event at this moment. Also, a worm welcome to all our participants from everywhere, hoping the most benefits from this online conference.

Nowadays sport science is developing and growing faster than previous. Improving healthy lifestyle, developing ability of work, preventing several chronic diseases and improving athlete's performance at the highest level of competition all are resulted by developing all aspects of sport science. Because of these we need to share researches result at any time. This event is the place for knowledge sharing at area of sport science.

Much thanks are endorsed to our valuable teams, and colleagues in our Association and from outside who spend much time and efforts and are dedicated to the success of this conference.

Dr. Ali Reza Amani
President of Conference



Organized by: Asian Exercise and Sport Science association

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How has COVID-19 modified training and mood in professional and non-professional football players?

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<https://doi.org/10.1016/j.physbeh.2020.113148>

ABSTRACT:

Background: Coronavirus disease 2019 (COVID-19) has restricted freedom of movement with several countries ‘locked down’ worldwide. During this isolation period or quarantine, habits have been modified. This might have had negative effects on physiological variables but also influenced numerous emotional aspects, especially in elite athletes, which can have a negative impact on training and sleep quality, affecting their performance.

Methods: 175 Spanish professional and non-professional association football players answered an online survey about demographic and training habits, as well as two validated questionnaires to assess psychological variables (POMS and WLEIS-S).

Results: The results showed that the confinement period reduced the load of training ($p < 0.01$), and modified the sleeping behaviour (both, sleep time ($p < 0.05$) and quality ($p < 0.001$)) across soccer players. Higher emotional intelligence (EI) values were positively related to training variables and strongly correlated with the mood. Interestingly, athletes’ mood was affected differently depending on gender.

Conclusion: We found that confinement period affects both, training load and recovery process and that mood states and EI could predict the training variables and performance of top-level football players.

KEY WORDS SOCCER; BEHAVIOUR; POMS; EMOTIONAL INTELLIGENCE ,PERFORMANCE

Reference: Mon-López, D., García-Aliaga, A., Ginés Bartolomé, A., and Muriarte Solana, D. (2020). How has COVID-19 modified training and mood in professional and non-professional football players? *Physiol. Behav.* 227, 113148–113148. doi: 10.1016/j.physbeh.2020.113148

The Effect of Aromatherapy Yoga on Sleep Quality Improvement in Female College Students

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<https://doi.org/10.30472/aesa-conf.v5i2>

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ABSTRACT:

Sleep disturbances are common among college students, sleep deprivation and further endanger their wellbeing. Sleep disturbances are more prevalent among China females compared to males, and these sleep problems negatively affect their daytime functioning and physical and psychological wellbeing. The aims of this study were to examine the effect of aromatherapy yoga on female college students with sleep quality. This quasi-experimental study comprised two groups: Intervention group (n=44), and control group (n=49). To collect data, the Pittsburgh Sleep Quality Index (PSQI) was used. The intervention group performed aromatherapy yoga 1 times every week for 90 minutes each time. The control group did not participate in aromatherapy yoga. To examine the efficiency of aromatherapy yoga, PSQI scores at baseline and week 12 were compared between study groups by the non-parametric Mann-Whitney test, and within-groups using the non-parametric Wilcoxon test. The mean age of the participants was 19.88 ± 1.13 years. There was a significant improvement in PSQI following intervention in intervention group compared to control group ($p < 0.01$). Interventions to improve sleep are critically needed in college education, Aromatherapy yoga is an effective method for the improve of sleep quality in female college students.

KEY WORDS Aromatherapy yoga, sleep quality, female college students

Reference:

Lee, S. Y., Wuertz, C., Rogers, R., & Chen, Y. P. (2013). Stress and sleep disturbances in female college students. *American journal of health behavior*, 37(6), 851-858.

The effect of plyometric training on the performance of power, agility, jump and sprint of amateur volleyball players

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Abstract

Introduction: Today, volleyball is more developed in terms of speed and power. Volleyball is a team game, in which muscle work is characterized by speed, power and precise coordination(1). Volleyball is a dynamic and fast game in which a player's use of explosive power in vertical, horizontal and lateral movements is very important. The relationship between explosive power and the technical and tactical level of the player is especially evident when observing the player's activities on the net such as spikes and jump service. The goal of strength training for volleyball is not to build big muscles, but to build the physical features needed to improve a player's performance(2). One of the most widely used training methods in volleyball is plyometric training. Research shows that when these exercises are used in a periodic manner, they can improve vertical jump performance, acceleration, leg strength, muscle strength, joint awareness and perception, awareness of body position in space and speed..

The aim of this study was to investigate the effects of plyometric training on agility, jumping, 30 m speed and lower limb strength of amateur male volleyball players.

Methods: The present study is a quasi-experimental method with pre-test and post-test. 16 volleyball players participated in this study voluntarily. Players were randomly divided into two groups of volleyball training (VTG = 7) and plyometric training (PTG = 9). The first group practiced volleyball and the second group, in addition to volleyball exercises, performed plyometric exercises for 5 weeks, 3 sessions per week for 40 minutes, which included 8 exercises in 2-3 sets, 15-20 repetitions. And there was a 60-90 second break between sets. Wingate anaerobic power tests, Sargent jump, 1rm Scott, t-agility and 30 m speed tests were applied to the groups at the beginning and end of the five-week period. The results of statistical research were performed by one-way analysis of variance with a significant level ($p = <0.05$).

Results: The results of the present study showed that there was a significant difference between the two groups only in lower trunk strength ($p = <0.034$). But in other variables of agility ($p => 0.907$), speed of 30 meters ($p => 0.070$), sergeant jump ($p => 0.423$) and anaerobic power of Wingite test ($p => 0.764$) the difference There was no significance between the two groups.

Discussion: Findings of the present study show that performing 5 weeks of plyometric exercises develops muscle strength, agility, jumping, anaerobic power and speed in volleyball

players. This is due to the process of stretch-shortening cycle in plyometrics, which increases the output power, coordination and performance performance in athletes.

Key word: plyometric training, stretch-shortening cycle, agility, sprint

1. Kozina, Z., Goloborodko, Y., Boichuk, Y., Sobko, I., Repko, O., Bazilyuk, T., Prokopenko, I., Prokopenko, I., Prokopenko, A., Tararak, N., Osiptov, A., Kostiukevych, V., Guba, A., Trubchaninov, M., Polianskyi, A., Rostovska, V., Drachuk, A., Stsiuk, I.: The influence of special techniques for developing coordination abilities on the level of technical preparedness and development of psychophysiological functions of young volleyball players 14-16 years of age. *Journal of Physical Education and Sport*, 2018, 18(3), Art. 214, pp. 1445-1454

2. Lehnert, M., Lamrova, I., Elfmark, M.: Changes in speed and strength in female volleyball players during and after a plyometric training program. *Acta Univ. Palacki, Olomuc, Gymn.*, 2009, Vol. 39, No. 1, pp. 59-66

The Coping Skills of Thai National Youth Athletes with Disabilities

<https://doi.org/10.30472/aesa-conf.v5i2>

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ABSTRACT:

Purpose: The purpose of this survey study was to measure the coping skills in Thai national youth athletes with disabilities. Forty Thai national youth athletes with disabilities (25 males and 15 females) from 5 sport types include para-table tennis (n = 10), wheelchair tennis (n = 6), para-shooting (n = 10), para-athletics (n = 6), and para-swimming (n = 8) who participated in Young Plant of Disabled Sports Training Camps, 1 April - 30 June 2021 at His Majesty the King's 80th Birthday Anniversary Stadium, Nakhon Ratchasima, Thailand. **Methods:** The instruments of the study have used the athletics coping skills inventory (ACSI - 28) was developed by Smith et al in 1995 and translated into a Thai version by Kemarat, Theanthon, and Vongjaturapat in 2014, rating scale from 0 - 3 scale (0 - almost always, 1 - often, 2 - sometimes, and 3 - almost never, total 28 items, and consist of 7 factors (coping with adversity, coachability, concentration, confidence and achievement motivation, goal-setting and mental preparation, peaking under pressure, and freedom from worry), and reliability at 0.79. After data collection, data were analyzed by using descriptive statistics, independent samples t-test, and Two-way ANOVA. **Results:** This finding showed that coping skills in Thai national youth athletes with disabilities were at 1.83 ± 0.54 , and can be divided as follows coping with adversity was at 1.91 ± 0.47 , coachability was at 2.16 ± 0.67 , concentration was at 1.68 ± 0.48 , confidence and achievement motivation were at 1.87 ± 0.54 , goal-setting and mental preparation were at 1.76 ± 0.52 , peaking under pressure were at 1.67 ± 0.55 , and freedom from worry were at 1.71 ± 0.58 . A significant difference between males and females is following coping with adversity, concentration, confidence and achievement motivation, goal-setting and mental preparation, peaking under pressure, and freedom from worry factor ($p < 0.05$). **Conclusions:** In conclusion, results of this study showed that the athletics coping skills inventory coping skills score of Thai national youth athletes with disabilities was sometimes can be divided as follows in coping with adversity, concentration, confidence and achievement motivation, goal-setting and mental preparation, peaking under pressure, and freedom from worry factors are sometimes, and coachability factor is often. Statistical analysis showed that the coping skill in males has higher than a female of Thai national youth athletes with disabilities in coping with adversity, concentration, confidence and achievement motivation, goal-setting and mental preparation, peaking under pressure, and freedom from worry factor. However, in coachability factor is not significantly different between sex.

KEY WORDS Mental skills, the coping skills, youth athletes, athletes with disabilities

Reference:

Smith, R. E., Schutz, R. W., Smoll, F. L., and Ptacek, J. T. (1995). Development and validity of a multidimensional measure of sport-specific psychological skills: the athletics coping skills inventory - 28. *Journal of Sport and Exercise Psychology*, 17, 379-398.

Kemarat, S., Theanthong, A. and Vongjaturapat, N. (2014). Development and validation of Thai version of the athletics coping skills inventory, *Journal of Sport and Exercise Science*, 1, 11(1), 7-20.

The Effect of Golf Swing on a Different Level of the Golfer's Feet on the Center of Pressure Patterns and Clubhead Speed

<https://doi.org/10.30472/aesa-conf.v5i2>

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ABSTRACT:

Purpose: The purpose of this study was to investigate the characteristics of the center of pressure (COP) trajectory and clubhead speed during both feet equal, a front foot higher than a back foot and a back foot higher than the front foot condition of the golf swing in amateur golfers. **Methods:** Five male single handicap golfers (right-hand golfer) hit nine shots with a seven-iron from the Both feet equal (BE), Front foot higher than a back foot (FH), and Back foot higher than front foot (BH) condition. A box with a height of 30 cm. was used to simulate different situations. To analyze the kinetics and kinematics of the golf swing, motion analysis systems (Qualysis) and two force plates (KISTLER) were used to analyze the clubhead speed and center of pressure (COP). **Results:** The result shows that the COP on the sagittal plane (X-axis) of both feet on the FH condition was higher than in other conditions. For the frontal plane (Y-axis) was found that the BE condition was the highest mean. The clubhead speed at the ball contact phase shows that the average clubhead speed when swing on the BE condition and BH conditions were similar, the mean on the FH conditions was less than other conditions. **Conclusions:** The center of pressure patterns between both feet can refer to the characteristics of the body movement and balance of the golf swing. The center of pressure (COP) patterns of the BE and BH condition move on the frontal plane better than FH. The center of pressure patterns between both feet can refer to the characteristics of the body movement and balance of the golf swing. The center of pressure (COP) patterns of the BE and BH condition move on the frontal plane better than FH. This movement pattern affects the weight transfer and improves more balance than move away from this plane. Finally, it will accelerate the clubhead speed, as shown in the result of clubhead speed of BE and BH condition higher than FH.

KEY WORDS golfer's feet, center of pressure, clubhead speed

Reference:

- Glen, M. B., Ying, L., Nicholas, J. G., and Michael, J. (2012). Centre of pressure patterns in the golf swing: individual-based analysis. *Sport Biomech*, 11(2), 175–189.
- James, G. R., Martin, F., James, K., and Robert, K. (2013). Weight transfer patterns during the golf swing. *Research Quarterly for Exercise and Sport*, 56(4), 361-365.

Influence of 12 Weeks of Taijiquan to Youth Groups in Catecholamine and Angiotensin-II

<https://doi.org/10.30472/aesa-conf.v5i2>

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Abstract:

To observe the effect of Taijiquan on epinephrine, norepinephrine and angiotensin-II to human body, discuss the regulation effect of Taijiquan to cardiovascular activity. The research in randomly extracting 24 subjects from the volunteers which were randomly divided into Taijiquan exercise intervention group and control group. Taijiquan group take exercise of 24 type simplified Taijiquan for 12 weeks, control group not exert taijiquan intervention. Respectively to detect the two groups' epinephrine and norepinephrine, angiotensin-II (Ang-II) and other indicators before and after the 12 weeks intervention both in quiet state, immediately after 80% VO_{2max} strength 6 min power bicycle, then take statistical analysis. The researches show that : Before the intervention, Taijiquan exercise group and control group have no significant difference ($P > 0.05$) in blood epinephrine and norepinephrine and angiotensin-II content. After 12 weeks of ($P > 0.05$) in blood epinephrine and norepinephrine and angiotensin-II content. After 12 weeks of Taijiquan exercise intervention, in quiet state, blood epinephrine and norepinephrine and angiotensin -II content lower with no significant ($P > 0.05$) , while the control group did not change ($P > 0.05$) , After 12 weeks of Taijiquan exercise intervention, in the condition of acute exercise stress, blood epinephrine, norepinephrine and angiotensin-II content lower with significant ($P < 0.05$) , while the control group did not change ($P > 0.05$) . The results showed that Taijiquan exercise can influence levels of catecholamine and angiotensin-II, regulate the body's sympathetic nervous activity.

Key words Taijiquan, epinephrine, norepinephrine, angiotensin-II, sympathetic nervous activity

Reference:

Han Lei, Li Ming-gao, Ma Gui-xi, et al. (2008). Effects of angiotensin-2 on concentration of intracellular free calcium in vascular endothelial cells and protection of herbesser. *Medical Journal of National Defending Forces in Southwest China*, 18 (3), 325-327.

Li Yi-min, He Sheng-hu. (2011). Research progress in the sympathetic nervous system and hypertension. *Chinese Journal of Hypertension*, 19(11), 1016-1019.

PREDICTION OF SPORT TALENTS AMONG ADOLESCENT FEMALE NETBALL PLAYERS IN THE WESTERN PROVINCE OF SRI LANKA

<https://doi.org/10.30472/aesa-conf.v5i2>

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ABSTRACT:

Netball is an exciting, fast and skillful game of fair contest. It has the power to change lives and inspire communities. Netball is one of the fastest growing participation games in Sri Lanka. This study was conducted to find out how the Physiological, Physical Fitness and Anthropometric characteristics were affecting the playing ability of the adolescent female Netball players in the Western province of Sri Lanka. To achieve this purpose, the study sample was twenty (n=20). Players were selected by using multistage sampling technique. The age of the players were ranged from years 13-19 (± 1). The Netball playing ability was selected as the dependent variable and it was assessed by ratings of a judge panel. Physiological variables taken were VO₂ max, Resting Heart Rate, Breath Hold Time. Physical fitness variables were Cardiorespiratory Endurance, Muscular Strength, Muscular Endurance, Speed, Agility, Flexibility and Leg Explosive Power. The anthropometric measurements used were Height, Weight, circumference and length of limbs, Girth of Chest, Waist, and Hip. To examine the relationship between performance ability and selected independent variables, a cluster analysis and Pearson correlation was calculated with SPSS 25 software. The findings of the research are mentioned below. Significant correlations were obtained for resting heart rate and footwork playing ability, Muscular endurance and footwork playing ability, speed and passing playing ability. The research concluded that there are significant correlations with the anthropometric variables namely, height, weight, thigh girth and calves circumference with the passing playing ability. This study concludes that there are impacts of Physiological, Physical Fitness and Anthropometric measurements for playing ability of adolescent female Netball players in the Western province of Sri Lanka.

Key words: Physiological, Physical Fitness, Anthropometric, Playing ability

SELECTION OF FREQUENCIES FOR SHOCK WAVES FOCUSED ELECTROHYDRAULIC LITHOTRIPTER (FESWT)

Raoul Saggini¹ and Livio Giuliani²

<https://doi.org/10.30472/aesa-conf.v5i2>

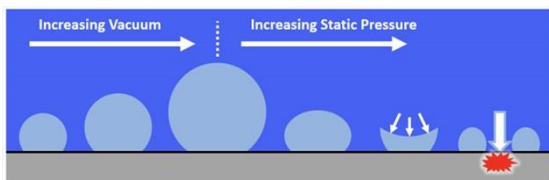
It's long time that FESWT are used in Rehabilitative and Sport Medicine.



(an industrial FESWT device).

The reason rests on the properties of:

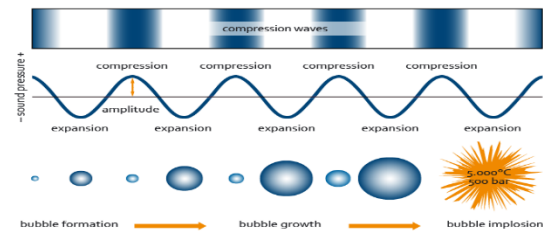
CAVITATION



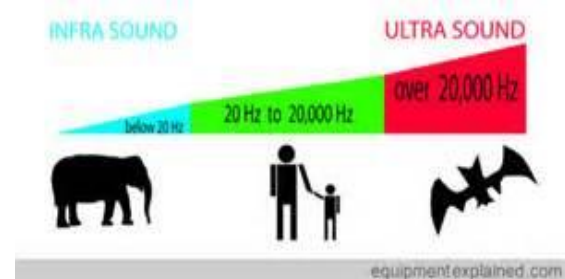
(Credits to Diener Precision Pumps Ltd, CH)

On the left side, the formation of a cavity filled with water in extracorporeal lithotripter, on the right, the shock on tissues, in bodies, causes break of cavity and production of a jet.

The jet induces a further pressure wave that causes cavities – like ultrasonic shock waves – in the tissue, that have anti-inflammatory effect (<https://ultrawaves.de/technology/>)



The aim is to transfer energy in a specific body area by sending infrasonic shock waves.

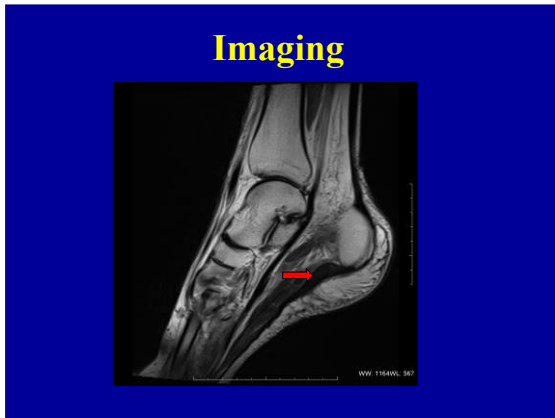


(credit to EquipmentExplained.com)

In the practice usual frequencies exploited are

- 2 Hz,
- 4 Hz,
- 6 Hz,
- 8 Hz.

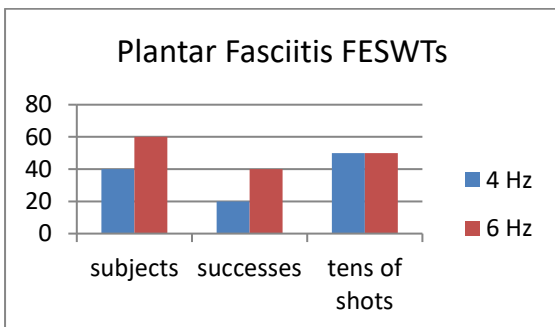
Main medical indications qualifies the frequency of 4 Hz as the most performing one. Despite this indication our practice deposes for a selection of 6 Hz, as the most performing in many treatments.



(A case of plantar fasciitis. Credit to Pr. R. Saggini)

We report our data related to Chronic Plantar Fasciitis treatments by means of FESWT.

Plantar fasciitis FESWT treatment frequency	4 Hz	6 Hz
subjects	40	60
pulses	500	500
successes	20	40
applied pressure (each pulse)	13	mJ/cm ²
4 session (one week)		



WHY?

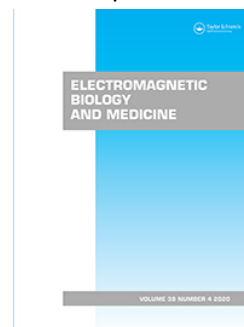
The reason of the differential performance of shock waves at 6 Hz with respect to 4 Hz can be related with an electrohydraulic effect induced by infrasonic waves, early observed in 2014. In the publication we read:

Our results indicate that hydronium resonance stimulation alters the structure of water...

Authors evidence that, once water is exposed to the main peak of Schumann Frequencies (SF), 7.83 Hz, its conductivity increases, its PH decreases, its refraction index changes (in EBM 36(1):55-62, 2017). Furthermore, from

reported experimental evidence, we can argue that water works as a negentropic engine, able to transform every form of energy it receives in the electromagnetic one, amplifying even weak signals in aqueous solution in the band 0-100 Hz. With reference to cytology, we should consider that cytoplasm can be seen as an aqueous solution, reach of inorganic and organic compounds.

In the experiment a mechanical vibration was transferred to a baker, filled with water, to which a pile was attached, providing 150 mV.



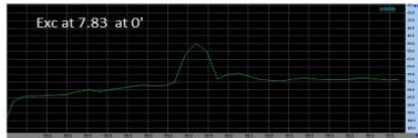
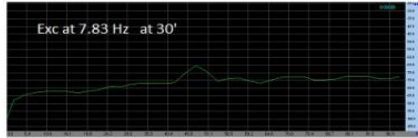
Lorentz force in water: evidence that hydronium cyclotron resonance enhances polymorphism

E. D'Emilia, L. Giuliani, A. Lisi, M. Ledda, S. Grimaldi, L. Montagnier & A. R. Liboff
Vol. 34(4):370-375 2015. Pub.online: 14 Jul 2014

The baker was placed in a detection coil in order to reveal a current induced by an emerging magnetic field. The set up was in the hypomagnetic room of the Italian National Council of Research, able to reduce the geomagnetic field by a factor 1/200. A mechanical vibration at 48,5 was induced by an engine outside the room, transferred to the room through the floor. The water in the baker, previously exposed to 7.83 Hz SF, produced an electromagnetic field at 48,5 Hz. The signal was memorized for more the 30'. Using a loudspeaker instead of the engine the effect was also detected, as well as using an electromagnetic signal (Fig.3). The experiment was successfully repeated at other

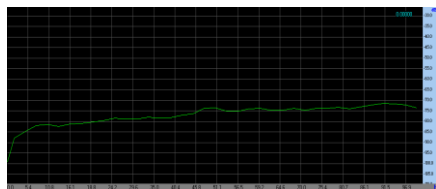


Fig. 3



frequencies lower than 100 Hz.

No effect was detected with water not previously exposed to 7,83 SF or without



water in

the coil. Under this perspective we argue that the lithotripter vibration induces into cells of the target tissue a double effect: the one due to cavitation and the one due to the induction of an electromagnetic signal within the cytoplasm like the electromagnetic signal detected in the quoted experiment.

Alternate frequency of 6 Hz matches, at our latitude, the Ion Cyclotron Resonance frequencies of hydrates of hydronium (the trimer and the tetramer) that the frequency of 4 Hz does not match: in such way 6 Hz sound waves induces the protonation of water in the cell so that every infra-cellular electromagnetic signal is enhanced. Such signals have a probiotic effect that couples with the anti-inflammatory one of cavitation.

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The Effect of Watermelon Juice Consumption on Performance of Road Cyclists

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²Cycling Science Researcher

ABSTRACT:

Road cycling is an endurance activity in which cyclists experience fatigue during long workouts and races, One of the causes of this fatigue is dehydration. During endurance training, fluids need to be consumed to prevent the effects of dehydration. Losing 2% of body weight fluids reduces exercise performance. Citrulline is an increasingly popular dietary supplement that is thought to increase exercise performance by increasing nitric oxide production. Consumption of watermelon juice, which contains citrulline. Our subjects were 11 young cyclists boys, in the age group of 20 to 21 years. In this study, our subjects were examined twice. First, urine samples were taken at rest from the examined and the dehydration protocol was performed with a cycle ergometer at 70% MHR (Maximum Heart Rate) to achieve dehydration. The second sample was taken from their urine in a dehydrated state. and the subjects consumed 500 ml of watermelon juice and in the other stage 500 ml of water and performed the 5 km cycling protocol with a cycle ergometer (Monarch 839), and after finishing, a third urine sample was taken. Examination of the research results showed that the analysis of the watermelon juice had no significant effect on maximal oxygen consumption (VO₂max) (p=0.663). and had a positive effect on the record time of 5 km cycling (p=0.001), and showed a positive effect on the amount of electrolyte (sodium) in comparison with the placebo phase(p=0.000). At maximal heart rate (MHR), a decrease in maximal heart rate was observed in the watermelon juice phase(p=0.0001); In the watermelon juice phase, the rating of perceived exertion effects (RPE) decreased compared to the placebo phase(p=0.000). We tested this study on endurance cyclists in low water conditions. In this study, we observed that consumption of 500 ml of watermelon juice compared to water consumption helps to improve cyclist performance, and performance improvement during a record 5 km of cycling can be mentioned, Consumption of watermelon juice can be a good alternative for Egypt in case of dehydration because it provides a better water supply and also helps to improve performance in cycling.

KEY WORDS: Road Cyclists, Performance, Watermelon Juice

Reference: 1. OMAR, J. S.; KHASATI, A.; QADOUMI, A. N.; QADOUMI, M.; JARADAT, N., Watermelon juice and aquatic exercises, their synergistic effect on some physical fitness and physiological variables in males and females volunteers. *Marmara Pharmaceutical Journal* **2019**, 23 (3).

2. Alireza, I.; Taher, A.; Mohammad, K., The effect of Sustamine supplementation on performance and hydration of endurance cyclists. *International Conference of Sport Science- AESA 2021*, (4).

Interaction of Muscle Strength and Endurance Domain (MSED) on Balance, Stability, and Coordination Domain (BSCD) in Whole-Body Anterior and Posterior Chain Muscles Test (WBAPT) of Knee Osteoarthritis (OA) and Knee Injuries Patients: A Preliminary Study

<https://doi.org/10.30472/aesa-conf.v5i2>

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ABSTRACT: Knee OA is the leading cause of death and physical dysfunction worldwide. With growing sports involvement, those with past knee injuries were found to be at risk in developing knee OA in 10 years (Ackerman et al., 2017). Pain and muscles weaknesses (quadriceps and hamstrings) being the major symptoms (Salli et al., 2010) that lead to reduce balance and altered gait during activities of daily living (ADL). With altered biomechanics, hence this will result in either under or overactivation of the whole kinetic chain. Therefore, the purpose of this study is to study the interaction of muscle strength and endurance domain and its effect on balance, stability, and coordination of knee OA and injuries patients. Thirteen volunteered participants with knee OA and past knee injury (42.62 ± 11.214 years) were included. MSED which consist of superman, squat with trunk rotation, and hinge with calves raised exercises while BSCD which comprised of standing hip flexion-extension with arm raised (left and right) and standing with hip and shoulder abduction (left and right) were performed for one minute each. Pearson correlation test was used to determine the association of MSED and BSCD. Multiple regression analyses were performed separately with each of variable involved in BSCD as dependent variable and MSED as independent variable. Pearson's correlation for superman showed a strong relationship, $r > 0.7$, moderate association with hinge with calves raised, $r > 0.4$, and weak correlation with squat with trunk rotation, $r < 0.3$ towards all the variables in BSCD. There is a strong effect of each of the exercises in MSED (superman, squat with trunk rotation, and hinge with calves raised) as predictor for BSCD (hip flexion-extension (left: $F(3,9) = 6.999$, $p = 0.010$, $R^2 = 0.700$; right: $F(3,9) = 4.250$, $p = 0.04$, $R^2 = 0.586$) and hip and shoulder abduction-adduction (left: $F(3,9) = 3.522$, $p = 0.062$, $R^2 = 0.540$; right: $F(3,9) = 2.163$, $p = 0.162$, $R^2 = 0.419$). The exercises included in MSED are suitable as predictors to BSCD in knee OA and injuries patients. Therefore, incorporation of exercises with anterior and posterior chain muscles in the rehab setting might result in better balance, stability, and coordination for the knee OA and injuries patients to improve their quality of life. By increasing the number of sample size, a more precise and definite numerical data could be obtained.

KEY WORDS Knee Osteoarthritis, Knee injuries, Anterior and Posterior Kinetic Chain, Muscle Strength and endurance, Balance, Stability, Coordination

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Effectiveness of Periodized Strength and Conditioning on Performance Outcomes among
Elite Short-Sprint Athletes

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Abstract

The aim of this study was to examine the longitudinal effects of a periodised strength and conditioning (PSC) programme for Sri Lankan short-sprint athletes. Twenty (n=20) resistance trained short sprinters were randomly assigned to one of two groups: PSC group (n = 10) and a active control group (n=10). Periodised strength and conditioning (PSC) was performed three times a week, over a 24-week period. The subjects were tested at baseline (4th wk) and after 9, 14, 19, and 24 weeks for 1 repetition maximum (1RM) resistance in the bench press and half squat, countermovement vertical jump (CMVJ), and sprint tests of 30m and 60m. The PSC training consisted of 3 sets using different training intensities for each of the training mesocycle. The total volume of the training programs was not significantly different. Both the PSC and NP groups exhibited a significant increase in the 1RM for the bench press and half squat, countermovement vertical jump (CMVJ) and sprint tests in the 30m and 60m posttraining compared with that pretraining, however the PSC group showed greater percentage of improvements and effect sizes ($p \leq 0.05$). Results indicated that participants who undertook PSC greatly improved in all the tests at mid- and post-testing ($p < 0.05$) when compared to NP. As a result, periodized strength and conditioning training appears to be beneficial for short-sprinters in order to maximise reserve capacity in sprint performances. Due to the greater difference between PSC and NP, the current findings suggest greater advantage in developing short-sprint athletes in Sri Lanka if a PSC protocol is included compared with a NP protocol. Therefore, a PSC program should be considered for athletes in Sri Lanka aiming to optimize short-sprint performance.

Keywords: *Periodized training, sprint athletes, Strength and Conditioning*

EVALUATION OF PICK AND ROLL IN ELITE BASKETBALL

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The aim of this paper is to conduct a descriptive analysis of the "pick and roll" to show the relative frequency and efficiency of its incorporation into offensive finishes in the game of basketball. Pick and roll, also known as screen and roll, is one of the most common tactical plays in the offense. The notational analysis was conducted on 14 basketball Euroleague games of the 2018-2019 playoff season, with 21 game-related statistics were examined in the analysis. The observed clubs who participating in Euroleague competition, play in the ACB League (Spain) n = 3, Super Division 1 (Russia) n = 1, Betsafe LKL League (Lithuania) n = 1, "TBL" The Basketball Super League (Turkey) n = 2, and Greek A1 Basketball League (Greece) n = 1. Accordingly, the P&R was found to have a majority participation (more than 59% of the total FG) in offensive set plays during the game. In the discussion, the results are compared with previous analyses and research, and the contribution of P&R to the success of the offence is interpreted.

Keywords: pick and roll, basketball, attack, Euroleague, notation analysis.

Comparison of calisthenics training and weight training on the body composition strength and anaerobic power among young women

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ABSTRACT: **Background:** calisthenics, is a form of resistance training that its popularity is increasing. It is the body weight training that is based on body weight and gymnastics. However, this method of training can be effective in maintaining and improving a person's health in certain situations. The aim of this study was to compare Calisthenics whole body system exercises with weight training during 5 weeks on body composition, strength, and anaerobic power in young, active women. **Methods:** To carry out this study, 24 active women with one year of sports experience and the mean age of 5.06 ± 30.15 years, average weight of 5.06 ± 30.15 kg, and an average height of 7.01 ± 164.9 cm were randomly selected and divided into three groups of 8 people: control, calisthenics, and weight training. The subjects in the training group performed the whole-body system training protocol for 5 weeks in 3 consecutive days. In both the pre-test and the post-test, the body composition, muscle strength, and anaerobic power of the subjects were measured. Data analysis was performed using SPSS 19 software with one-way ANOVA and T-pair tests at a significance level of 5%. **Results:** After 5 weeks of training protocol, there is no significant difference in body composition, anaerobic power, and fatigue index ($p > 0.05$), but there is a significant difference in some strength components such as deadlift, bench press, and Triceps extension ($p < 0/05$). **Conclusions:** The results of the present study show that Calisthenics whole body exercises seem to be as effective as weight training and this can be the effect of training the target muscles similar to weights. Although the statistical results of all research hypotheses were not significant, but the results showed that Calisthenics exercises cause changes like the one in weight training.

KEY WORDS: Calisthenics, weight training, whole body, strength, resistance