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INTERNATIONAL CONFERENCE

HARMONIZING MOVEMENT-INTEGRATING YOGA
WITH SPORTS SCIENCE FOR PEAK PERFORMANCE

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Sports Research

July-October, 2023

Vol. 12, No. 3 & 4

Special Issue: Conference Proceeding
International Conference on Harmonizing Movement- Integrating
Yoga with Sports Science for Peak performance

CONTENTS

Abstract	Page
Integrating Pilates, Plyometric Training, And Yoga For Enhancing Biomechanical Efficiency And Skill Performance In Elite Volleyball Athletes Vikas Vijayrao Taywade, Dr. Shambhaji Shivajirao Bhonsale, Prof. Madhavi A. Mardikar, Shri. Kashi Nath Yadav	1
Scientific Approach Of Designed Yogic Protocol In Sprinting & Jumping Performance Acceleration Of Kabaddi & Kho-Kho Players Chandrakanta Barik, Prof. Kalapini Agasti	2
The Impact of Yoga on Fencing Performance: Enhancing Agility, Balance, and Mental Focus Mohit Gupta, Ashok Kumar, Dr. Deepak Singh Patial	3
Effect of Six Weeks Add-on Hatha-Yoga Based Cool-Down Training on Fitness of Youth Football Players Dr. Manohar Kumar Pahan, Gopinath Bhowmik Bhunia	5
Effect of Short-term Prone-line Hatha Yoga and Functional Body Circuit Training on Physical Fitness Parameters: A Case Study Tiyash Biswas, Dr. Manohar Kumar Pahan	7

Abstract	Page
<p>Effect of Cultural and Meditative Asana on Physiological and Physical Variables of Home-Maker Women</p> <p>Dr Suneeta Devi, Mr. Lakhveer Singh</p>	9
<p>Biomechanical Analysis of Yogic Postures: A Scientific Approach to Flexibility and Stability</p> <p>Dr. Narendra Kumar</p>	10
<p>Biomechanical Analysis of Varying Heel Heights: Implications for Gait, Posture, and Musculoskeletal Health</p> <p>Shivani Singh, Mohd Arshad Bari, Fazal ur Rehman, Junaid Ahmad Parrey, Arish Azhar Khan</p>	11
<p>Integrating Yoga and Biomechanics</p> <p>Prachi Bhargawa</p>	12
<p>Integration Of Strength And Conditioning For Yogasana Practitioners: Insights And Applications</p> <p>Baneet Sharma</p>	13
<p>Impact of Melatonin Supplementation on Exercise-Induced Alterations in Haematological Variables and Liver Function Parameters in Sedentary Young Men of Kolkata, India</p> <p>Sohini Basu, Amit Bandyopadhyay, Debasish Bandyopadhyay, Anindita Mandal Majeed</p>	14
<p>Effect of Pranayama on Pulmonary Functions of Urban Women of Delhi-NCR</p> <p>Ankit Kumar^{1*}, Dr. Gaurav Sanotra², Dr. Vijay Singh Gusain³</p>	16
<p>Effect Of Selected Yogic Practices And Aerobic Dance On Health Related Physical Fitness Variables Among Nicobari Woman Football Players</p> <p>Dr. S. Usha Rani</p>	17
<p>Comparison of Thoracic & Abdominal Breathing Technique on Selected Physiological Variables during Post-Exercise Recovery Followed-by Explosive Anaerobic Workout</p> <p>Surojit Sarkar, Soubhory Ganguly, Tambi Medabala</p>	18

Abstract	Page
<p>Effect of Various Caffeine Dosage on Endurance Capacity, Fat-Utilization, and Selected Physical Fitness Variables in Endurance-Trained Male Athletes</p> <p>Saranya K, Surojit Sarkar, Aparna Singh, Nilima Deshpande, Aswiny Mohandas, Pooja Gaur</p>	20
<p>Knowledge, Attitude, and Practices of Herbal Supplement among Training Coaches in India</p> <p>Aswiny Mohandas, Pooja Gaur, Saranya K, Surojit Sarkar</p>	22
<p>Study On Breath Holding Capacity In Relation To Different Phases In Shooting Match Performance Of National Pistol Shooters</p> <p>Kaur Sandeep, Dr. Ajit Singh</p>	24
<p>Harnessing Yogic Practices to regulate Aggression in Adolescent Sportspersons</p> <p>Khyati Goswami, Dr. Arun Kumar Sao</p>	25
<p>Coping with Pressure in Hockey: Exploring yogic practices, leisure-time activities and motivational strategies to Manage Sports Competitive Anxiety and the Desire to Succeed</p> <p>Gagandeep Singh, Harmanpreet Kaur, Prof. Jimmy Singla, Arpit Kulshreshtha, Tanya Gandhi</p>	27
<p>Effect of Symmetric and Asymmetric Breathing Techniques on Attention Level in Competitive Athletes: A Case Study</p> <p>Mr. Wangket Wangsa, Dr. Manohar Kumar Pahan</p>	28
<p>The Impact of Conspicuous Yogic Techniques on Managing in Psychological Aspect: Sports Competitions Anxiety</p> <p>Dr. Sumit Kumar, Dr. Subodh Saurabh Singh</p>	29
<p>Trataka Kriya Meditation for Injury Recovery: Enhancing Confidence and Reducing Pain Perception</p> <p>Dr. Guneet Inder Jit Kaur, Rahmath Nishada. K</p>	30

Abstract	Page
A comparative study on impact of yoga on resilience and general health Pooja Tiwari, Meenal Gupta, Deveshi Khanna	31
Body Image Across Yoga Practitioners, Boxers And Non-Exercisers Fathimath Muamina M	32
Exploring Yoga's Impact on Stress and Cognition in Female Students: A Randomized Controlled Trial Juhi Kumawat, Dr. Kashinath G Metri	33

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Editorial

It gives me immense pleasure to present this special issue of the Sports Research Journal, featuring selected proceedings from the International Conference on *Harmonizing Movement - Integrating Yoga with Sports Science for Peak Performance*.

This issue brings together a unique collection of interdisciplinary research exploring how traditional yogic practices can be effectively integrated with modern sports science to enhance athletic performance, recovery, and mental well-being. The contributions span a wide range of themes—from biomechanical analysis of yogic postures and integration of Pilates and plyometrics with yoga, to the psychological and physiological impacts of breathwork, meditation, and postural practices.

Key studies include yoga's role in improving agility and focus in fencing, sprint performance in kabaddi and kho-kho, fitness among football players, and stress management in adolescent athletes. Several papers also examine underrepresented groups, such as homemakers and tribal women footballers, expanding the inclusive potential of yoga-based interventions.

I extend my sincere gratitude to all authors, reviewers, and conference organizers for their valuable contributions. This special issue aims to serve as a meaningful resource for researchers, coaches, and practitioners interested in harmonizing movement for holistic sports excellence.

**Vineet Kumar**

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Integrating Pilates, Plyometric Training, And Yoga For Enhancing Biomechanical Efficiency And Skill Performance In Elite Volleyball Athletes

Vikas Vijayrao Taywade^{1*}, Dr. Shambhaji Shivajirao Bhonsale²,
Prof. Madhavi A. Mardikar³, Shri. Kashi Nath Yadav⁴

ABSTRACT

The enhancement of biomechanical efficiency and skill performance in elite volleyball athletes is a multifaceted process that demands a comprehensive approach to physical conditioning. This research explores the synergistic effects of Pilates, plyometric training, and yoga on volleyball performance. Pilates, known for improving core strength, flexibility, and posture, was combined with plyometric training to enhance explosive power and agility. Yoga, focusing on flexibility, balance, and mental focus, was integrated to optimize movement patterns and promote injury prevention. This integrated training model aims to optimize muscular endurance, coordination, and body alignment, critical for volleyball athletes during high-intensity competition. A group of elite volleyball players participated in a 12-week training regimen incorporating these three methodologies. Pre- and post-training assessments were conducted, measuring vertical jump height, agility, core stability, and flexibility. The results indicated significant improvements in biomechanical efficiency and overall skill performance. This study suggests that an integrated approach of Pilates, plyometric training, and yoga can be an effective strategy for enhancing athletic performance, reducing injury risk, and improving long-term athletic development in elite volleyball players.

Keywords: Pilates, Plyometric Training, Yoga, Biomechanical Efficiency, Volleyball, Athletic Performance, Explosive Power, Core Stability, Injury Prevention.

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Scientific Approach Of Designed Yogic Protocol In Sprinting & Jumping Performance Acceleration Of Kabaddi & Kho-Kho Players

Chandrakanta Barik^{1*}, Prof. Kalapini Agasti²

ABSTRACT

In today's fast-paced, materialistic society, Yogasana practices are a transformative pathway to fitness and a disciplined lifestyle. These yogic activities significantly enhance the jumping and sprinting skills that are essential for excelling in traditional games like Kho-Kho and Kabaddi. Our research decisively examines the impact of a scientifically designed yogic protocol on the performance of Kabaddi and Kho-Kho players. We are committed to demonstrating how specific yogic practices—including asanas (postures), pranayama (breathing techniques), Satkarma (cleansing methods), Sukshma & Stula Vayam, and meditation—can elevate athletes' explosive power, speed, flexibility, and endurance. Yoga is not merely about physical strength; it also accelerates recovery from injuries, sharpens concentration, and fosters mental clarity and calmness. In this study, 34 participants of each game engaged in an 11-week program, utilizing a random group design. Through rigorous pre- and post-training data collection and analysis, we found a significant improvement in the physical efficiency of both Kho-Kho and Kabaddi players. These results firmly establish the substantial benefits of incorporating yoga into athletic training.

Keywords: Yogic Protocol, Sprinting, Jumping Performance, Kabaddi, Kho-Kho, Athletic Performance, 5 Motor Ability, Wholesome Development, Satkarma, Sukshma Vayam, Stula Vayam, Asana, Pranayam.

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The Impact of Yoga on Fencing Performance: Enhancing Agility, Balance, and Mental Focus

Mohit Gupta^{1*}, Ashok Kumar², Dr. Deepak Singh Patial³

ABSTRACT

Fencing is a sport that demands agility, balance, flexibility, reaction speed, and mental focus, requiring athletes to maintain control under pressure and execute precise movements. Yoga, a practice incorporating physical postures, breath control, and mindfulness, has been recognized for its potential to enhance athletic performance. This study investigates the impact of yoga on fencers' physical and psychological attributes, focusing on flexibility, balance, reaction time, endurance, and stress management. Using an experimental research design, participants are divided into two groups: an experimental group integrating yoga into their fencing training and a control group following conventional training methods. Over eight weeks, key performance indicators such as agility, lunging depth, reaction speed, heart rate variability, and psychological readiness are assessed through standardized tests and surveys. The hypothesis suggests that incorporating yoga will improve fencers' mobility, reduce injury risk, enhance decision-making under pressure, and facilitate quicker recovery. The study examines yoga practices relevant to fencing performance, including flexibility-enhancing poses like- Downward Dog and Warrior Pose, balance-improving asanas such as Tree Pose and Eagle Pose, breath control techniques like-Pranayama for endurance, and mindfulness exercises for stress regulation. By comparing the experimental and control groups, the research aims to provide empirical evidence on the effectiveness of yoga as a supplementary training method. The findings could significantly impact fencing training methodologies by offering a holistic approach to performance optimization. If proven effective, yoga could be systematically integrated into fencing programs to enhance athletic performance, injury prevention, and overall well-being. This research contributes to sports science by bridging traditional mind-body techniques with modern performance analysis.

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providing valuable insights into the role of yoga in high-performance sports.

Keywords: Yoga, Fencing, Sports Performance, Flexibility, Balance, Mental Focus, Injury Prevention, Breath Control.

Effect of Six Weeks Add-on Hatha-Yoga Based Cool-Down Training on Fitness of Youth Football Players

Dr. Manohar Kumar Pahan^{1*}, Gopinath Bhowmik Bhunia²

ABSTRACT

*A low-intensity workout during the cool-down phase serves as an effective recovery strategy for the body. Certain Hatha Yoga asanas share a similar intensity level and have been scientifically proven to provide various health benefits. **Study's purpose:** The study aimed to investigate the effect of six weeks add-on hatha-yoga cool-down training on fitness parameters of youth football players. **Methodology:** N=30 male football players of age 19.4 ± 0.62 years were selected from Bengal Football Academy, Khardaha, West Bengal and were equally divided into active control and experimental groups by using simple random sampling method. In this pre-post experimental design the hatha-yoga training was considered as an independent variable in the cooling down part of training session in which fitness parameters like VO₂max, balance, hip flexibility, change of direction, and explosive jump height were selected as dependent variables. Paired T-test was employed to assess within group differences of pre and post data among both groups separately. The difference of pre to post data were done to understand inter-group differences using independent T-test. The level of significance was set at $p \leq 0.05$ Effect sizes were also calculated using Cohen's d to assess magnitude of changes in performance within and between group(s). **Results:** Paired t-test result revealed significant change in both group performance after six weeks by computing p-value < 0.01 whereas, the results of independent t-test indicated significant difference between both groups in balance, hip flexibility and change of direction by computing p-value < 0.01 respectively. **Discussion:** Findings of both intra-group comparison indicated football training plan employed effectively improved the physical fitness parameters whereas, the findings of inter-group comparison indicates the add-on hatha-yoga training in cooling down more effective in boosting the balance, hip flexibility and change of direction as compared to normal*

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*cooling down practice. **Conclusion:** From the findings it can be said to boost main training gains, hatha-yoga training can be added as an add-on mean in the cooling down phase of a training session.*

Keywords: Hatha-yoga, Cool-down training, Fitness parameters, Youth football players.

Effect of Short-term Prone-line Hatha Yoga and Functional Body Circuit Training on Physical Fitness Parameters: A Case Study

Tiyash Biswas^{1*}, Dr. Manohar Kumar Pahan²

ABSTRACT

*Haṭhābhyāsapaddhati, a text of pre-modern Haṭhayoga of pre-nineteenth century, mentions dynamic āsanās with strenuous positions and continuous movements, seemingly a combination of animal poses and martial arts, with a view to cultivate strength and fitness, and this is very different from the classical Haṭhayoga having static and stable postures. **Study's purpose:** The aim of this pilot case study was to investigate effect of two circuit training programs namely (i) functional body and (ii) Nyubjāsana (prone-line postures mentioned in Haṭhābhyāsapaddhati) on physical fitness parameters. **Methods:** Two trained subjects of age 23 ± 4.08 years, were purposively selected for the study and were randomly allocated either functional body or Nyubjāsana circuit training. The fitness parameters were measured as follows, body composition: (BMI), cardio respiratory endurance: BRUCE protocol (VO_{2max}), muscular strength: back strength (kg.), muscular endurance: plank (sec.), partial curl-up (max rep. in 30 sec.), and push-up (max. rep.), flexibility: sit & reach (cms), dynamic balance: Y-balance test (cm), HRV parameters: SDNN and mean RR interval. The number of asanas and exercises in both groups were seven, and were performed in a circuit of sets between three to four, with 3 minutes of set recovery. Training constituted 5 minutes warming-up, 20-28 minutes main part, and 5 minutes cooling down. Wellness and exhaustion were monitored for understanding the internal load of the participants during training. **Results:** The inter-individual comparison shows more percentage change (improvement) in VO_{2max} , dynamic muscular endurance, muscular strength, mean RR interval and SDNN after performing functional body circuit training whereas, Nyubjāsana circuit training showed more percentage change (improvement) in static muscular strength, hip flexibility, reduced*

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*body weight and BMI. **Conclusion:** The findings revealed performing Nyubāasana in the form of circuit with the prescribed manner can improve fitness in the same way the functional body circuit training does.*

Keywords: Dynamic Yoga, Hatha Abhyasa Paddhati, Nyubjasana, Circuit Training, Physical Fitness, Functional Body Exercise, Muscular Endurance, Mean Heart Rate.

Effect of Cultural and Meditative Asana on Physiological and Physical Variables of Home-Maker Women

Dr Suneeta Devi¹, Lakhveer Singh^{2*}

ABSTRACT

*The objective of the study was to find the effect of cultural and meditative asanas on home maker women of Mansa district of Punjab. For that 60 women ranging from 30- +40 years were selected for the study and divided in to two groups Group A for cultural asanas and group B for Meditative asana. One selected variable of physical fitness and physiological parameters were tested. 2*2 experimental design was used for the study Pretest was taken before starting yogic asanas and after six weeks posttest was taken. ANCOVA was used for analysis of data and results of study shown significant effect on physiological and physical variables of home maker women.*

Keywords: Physical Variables, physiological variables, home maker women

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Biomechanical Analysis of Yogic Postures: A Scientific Approach to Flexibility and Stability

Dr. Narendra Kumar

ABSTRACT

Yoga, an ancient practice, has gained global recognition for its physical, mental, and therapeutic benefits. A scientific understanding of yogic postures (asanas) through biomechanical analysis can provide valuable insights into their impact on flexibility, stability, and musculoskeletal health. This study, based on secondary data, explores the role of biomechanics in optimizing yoga practices by examining key parameters such as joint angles, muscle activation, center of mass distribution, and ground reaction forces. By analyzing existing research, this paper highlights how proper alignment and controlled movements in asanas enhance balance, prevent injuries, and improve overall functional mobility. The study also discusses the biomechanical principles governing different categories of postures, including standing, seated, backbends, and inversions. Findings suggest that understanding biomechanics can help practitioners refine their techniques, reduce strain on joints, and maximize the benefits of each pose. Additionally, this paper reviews the implications of biomechanical research in therapeutic yoga, particularly for individuals with musculoskeletal disorders. By bridging traditional yogic wisdom with scientific inquiry, this study aims to enhance the effectiveness of yoga practice and its applications in rehabilitation, sports training, and general well-being.

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Biomechanical Analysis of Varying Heel Heights: Implications for Gait, Posture, and Musculoskeletal Health

Shivani Singh*, Mohd Arshad Bari, Fazal ur Rehman, Junaid Ahmad Parrey, Arish Azhar Khan

ABSTRACT

High-heeled footwear is commonly linked to fashion, elegance, and professionalism; nonetheless, its biomechanical impact on gait, posture, and musculoskeletal health presents considerable problems. This study examines the impact of varying heel heights on gait parameters, joint kinematics, and postural stability. Ninety healthy female university students were categorized into three groups based on heel height: low (0-3 cm), medium (3-5 cm), and high (>5 cm). Using synchronized high-speed video cameras, participants recorded their gait as they walked trials down a predetermined 7-meter walkway. Silicon Coach Pro 8 software was utilized to assess gait metrics, including stride length, cadence, joint angles, and velocity. Significant differences ($p < 0.05$) in joint kinematics were found by statistical analysis using a one-way ANOVA. Higher heel height was linked to greater plantar flexion, knee flexion, and dorsiflexion, as well as shorter strides and slower gait speeds. High heels also produced postural changes including increased lumbar lordosis and anterior pelvic tilt, which can cause musculoskeletal pain and instability. The results draw attention to the biomechanical trade-offs that come with wearing high-heeled shoes, emphasizing the necessity of ergonomic footwear design and usage guidelines to reduce negative health impacts. This study advances our knowledge of the long-term effects of high-heeled shoes on posture and lower limb mechanics.

Keywords: High heels, gait analysis, biomechanics, range of motion, posture, joint mobility, plantar flexion, dorsiflexion, cadence, stride length, musculoskeletal health.

Integrating Yoga and Biomechanics

Prachi Bhargawa

ABSTRACT

This research explores the intersection of yoga and biomechanics, aiming to provide a deeper understanding of the physical forces at play during yoga practice. By integrating biomechanical principles with traditional yoga postures (asanas), we can gain insights into the therapeutic benefits and potential risks associated with various movements.

The study examines how forces like gravity, compression, and tension affect the body during asanas. It analyzes joint movements, muscle activation, and spinal alignment to determine the biomechanical demands of different poses. This analysis helps identify postures that promote joint stability, flexibility, and strength, while also highlighting those that may pose risks for individuals with specific musculoskeletal conditions.

The findings of this research can be valuable for yoga practitioners, instructors, and healthcare professionals. By understanding the biomechanics of yoga, practitioners can refine their technique, optimize benefits, and minimize injury risk. Instructors can utilize this knowledge to design classes that cater to diverse needs and abilities. Healthcare professionals can incorporate yoga asanas into rehabilitation programs, leveraging their therapeutic potential for various musculoskeletal issues.

This integration of yoga and biomechanics not only enhances our understanding of this ancient practice but also promotes its safe and effective application for overall well-being.

Integration Of Strength And Conditioning For Yogasana Practitioners: Insights And Applications

Baneet Sharma

ABSTRACT

Purpose: This study explores the integration of strength and conditioning (S&C) into Yogasana coaching, emphasizing its role in improving physical performance, core stability, and injury prevention. With physical fitness increasingly recognized as a vital component of Yogasana, the research highlights the need for structured S&C training to improve performance outcomes and optimize physical and mental well-being. **Methodology:** A comprehensive survey was conducted among Yogasana coaches to gather insights into their perspectives, coaching practices, and the extent of S&C implementation. The study analyzed the types of strength exercises used, the frequency of training, and the duration. Challenges such as time constraints, limited knowledge, and resistance of the practitioner were documented. Data were collected through structured questionnaires that provided both quantitative and qualitative insights. **Findings:** The results revealed that although most coaches recognize the value of S&C for improving stability, endurance, and injury prevention, its practical application remains limited due to knowledge gaps and resources. Tailored S&C programs were found to complement Yogasana effectively, but the lack of expert guidance and educational resources hindered widespread adoption. The coaches expressed a need for structured programs and workshops to improve their knowledge and confidence in integrating S&C. **Conclusion:** Integrating S&C into Yogasana coaching can significantly improve performance and reduce injury risks. Addressing knowledge gaps through workshops, expert collaborations, and educational resources can empower coaches to implement S&C effectively. Future research should focus on developing standardized guidelines for integrating S&C into Yogasana practice.

Keywords: Yoga; Strength & Conditioning Training; Core Stability; Balance; Injury Prevention; Flexibility.

Impact of Melatonin Supplementation on Exercise-Induced Alterations in Haematological Variables and Liver Function Parameters in Sedentary Young Men of Kolkata, India

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Anindita Mandal Majee³

ABSTRACT

The study assessed impact of melatonin supplementation for four weeks on exercise-induced haematological alterations and liver function variables in sedentary young men. A single-blinded randomized controlled trial was performed with 28 sedentary, healthy, young men (aged 21–26 years) after randomly allocating them into melatonin group (MG) (n = 14) and placebo group (PG) (n = 14). Melatonin was administered nocturnally to the MG for four weeks nocturnally, 30–60 min before bedtime at a daily oral dose of 3 mg while PG received placebo. On a weekly basis, measurements were performed in the morning with a six day's interval between two consecutive sessions. Subjects completed a treadmill running exercise following a pre-designed trial protocol and blood was drawn in both before and after exercise conditions. Alanine transaminase (ALT) and Aspartate aminotransferase (AST), two liver enzymes were measured in the serum while haematological reporting comprised measuring differential count (DC), total haemoglobin (Hb) concentration, total RBC, total leucocyte count (TLC), erythrocytic sedimentation rate (ESR) in whole blood. Mixed model repeated measures ANOVA for independent samples was conducted for repeated measures of two factors i.e., time and exercise with the level of significance set at $p < 0.05$. A significant treatment effect due to melatonin was detected in case of enzymatic activity of ALT; while a significant time effect was observed for reduction in ALT, AST, improved Hb concentration, reduced ESR, elevated total RBC and diminished TLC alongside eosinophil, monocyte in response to exercise-induced oxidative damage in the MG. Melatonin accounted for

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ameliorating exercise-induced haematological alterations, liver function changes.

Keywords: melatonin, sedentary, haemoglobin, liver function, differential count.

Effect of Pranayama on Pulmonary Functions of Urban Women of Delhi-NCR

Ankit Kumar^{1*}, Dr. Gaurav Sanotra², Dr. Vijay Singh Gusain³

ABSTRACT

Introduction: Pranayama is the act of stopping the breathing and exhalation movement. The expiratory and inspiratory muscles become stronger with regular pranayama practice. The muscles in the lungs and respiratory tract are used when we regulate our breath, and as a result, they become stronger. **Aim:** The present study is planned to find the effect of Pranayama on Pulmonary Functions of Urban Women of Delhi-NCR. **Materials and Methods:** Thirty female participants were recruited and randomly divided into two groups: Control Group (n = 15) or Experimental Group (n = 15) and the participant's ages ranged from 21 to 30 years (group age mean \pm standard deviation, 25.3 ± 2.66 years). Thirty participants did Surya Bhedana, Sitkari, and Bhramari pranayama for thirty minutes, six days a week, over a period of 2 months. The participants were assessed for (i) Vital Capacity (VC), (ii) Tidal Volume (TV), (iii) Inspiratory Reserve Volume (IRV), and (iv) Expiratory Reserve Volume (ERV) functions of lungs. The results were compared using student's paired t test. Software SPSS were used for all statistical analysis. **Results:** For experimental group VC has increased from 2726 ± 95.9 to 3119 ± 104.5 . TV has increased from 438 ± 37.5 to 521 ± 61.3 . IRV also shows increase in values from 1351 ± 53.8 to 1537 ± 54.3 . ERV also shows increase in values from 800 ± 41.0 to 998 ± 48.3 . For control Group VC has increased from 2703 ± 112.6 to 2675 ± 113.7 . TV has increased from 444 ± 37.1 to 420 ± 35.5 . IRV also shows increase in values from 1355 ± 44.4 to 1325 ± 54.5 . ERV also shows increase in values from 802 ± 39.8 to 772 ± 45.8 . **Conclusions:** The present study's findings allow for the following conclusions to be made within the parameters: TV, VC, IRV and ERV increased significantly in experimental groups following Pranayama training programme of eighteen-weeks. However, the magnitude of increment was less in control groups.

Keywords: TV, VC, IRV, ERV, Pulmonary Functions, Pranayama

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Effect Of Selected Yogic Practices And Aerobic Dance On Health Related Physical Fitness Variables Among Nicobari Woman Football Players

Dr. S. Usha Rani

ABSTRACT

The purpose of the study was to find out the effect of selected yogic practices and Aerobic dance on health related physical fitness variables among Nicobari women Football players. Seventy-five players were selected from Netaji stadium, Sri Vijayapuram, Andaman & Nicobar Island. The age of the subjects ranged from 18 to 22 years. The selected subjects were divided into two experimental groups and one control group by random. Group I underwent Yogic practices in selected asanas, pranayama and Surya Namaskar; Group II underwent Aerobic dance and Group III acted as Control Group for three alternate days in a week for a period of six weeks. The dependent variables selected for this study were Cardio vascular endurance, Muscular strength/endurance, Flexibility and Body composition. The dependent variables namely Cardio Vascular Endurance measured by Cooper 1-mile run/walk test, Flexibility measured by Sit and Reach Test, Muscular Strength/ Endurance measured by Bent Knee Sit ups and Body Composition measured by Skin fold caliper. The data were collected from each subject before and after the training period and statistically analyzed by using dependent “t” test and analysis of covariance (ANCOVA). It was found that Aerobic dance group was found to be better in improving cardio vascular endurance and muscular strength/endurance when compared to the yogic practices group. Yogic practices group was found to be better in improving flexibility when compared to the aerobic training group. Both yogic practices and aerobic dance groups were developed the body composition equally.

Keywords: Yogic practices, Aerobic Dance, Muscular Endurance, Cardiovascular Endurance, Body composition.

Comparison of Thoracic & Abdominal Breathing Technique on Selected Physiological Variables during Post-Exercise Recovery Followed-by Explosive Anaerobic Workout

Surojit Sarkar^{1*}, Soubhory Ganguly¹, Tambi Medabala¹

ABSTRACT

Introduction: Both the breathing techniques Thoracic breathing pattern (TBP) and Abdominal breathing pattern (ABP) are closely connected and important for Excess Post-exercise Oxygen Consumption (EPOC). The present study aims to compare the effect of TBP and ABP on Intense-Anaerobic Explosive Exercise induced post-exercise recovery.

Methods: Twelve collegiate students were selected as subject for the study. Wingate all-out exercise (30s) was done by subjects followed by TBP and ABP respectively on two-different days for 10min post-exercise. Data were collected for the phases at the end of – peak, 5min and 10min post-exercise to track the recovery pattern. Physiological monitoring system (Equival), Metabolic Gas Analyzer (COSMED K5), Blood pressure monitor was used for the study. Blood pressure (SBP, DBP), SpO₂, heart rate (HR), VO₂, breathing rate (BR), respiratory quotient (RQ) was selected as variables.

Result: Blood pressure drops significantly in ABP group, especially in DBP with 5.6% (5min) and 6.5% (10min) respectively. SpO₂ and HR markers along with the Wingate power profile doesn't show any major difference when compared among TBP and ABP. But interestingly, BR is majorly and significantly higher in ABP group 15.6% (5min) and 24.7% (10min) respectively. On the other hand, ABP has higher oxygen cost (? VO₂ consumption) in comparison to TBP. Both RMSSD and pRR50% were higher in Thoracic group for 5min: 52.2% and 53.8% respectively and 10min: 47.1% and 31.9% respectively. Also, the 10min LF/HF ratio showed higher sympathetic drive in TBP which suggest the ABP to be more suitable for Parasympathetic relaxant at 10th min of EPOC.

Conclusion: Thoracic breathing (TBP) stimulates better autonomic flexibility and adaptability by having higher RMSSD and pRR50% which (both 5min and 10min post-exercise) indicating enhanced parasympathetic drive in comparison to

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Abdominal breathing (ABP). Overall, the forced TBP-induced deep respiration (low-frequency & high-magnitude) is more beneficial for 1st – 5th min of post-exercise recovery and ABP-induced fast respiration (high-frequency & low-volume) is more effective for the 6-10th min to improve EPOC (with: ↓SBP, DBP with same HR, RQ and ↑BR, O2 cost) in better way.

Keywords: Thoracic breathing, Abdominal breathing, EPOC, Explosive anaerobic workout, post-exercise recovery.

Effect of Various Caffeine Dosage on Endurance Capacity, Fat-Utilization, and Selected Physical Fitness Variables in Endurance-Trained Male Athletes

Saranya K^{1*}, Surojit Sarkar², Aparna Singh³, Nilima Deshpande⁴,
Aswiny Mohandas¹, Pooja Gaur¹

ABSTRACT

Introduction: Caffeine is commonly used among athletes as a stimulant specifically in the anaerobic sports but some studies predicted the metabolic shifting towards more fat utilization during pure endurance-based activities. The present study aims to compare the effect of various caffeine dosage (3mg/kg and 6mg/kg) on Fat utilization and metabolic dominancy along with some physical fitness variables in endurance trained male athletes.

Methods: Eleven endurance trained male long-distance (1500m, 3000m) runners were selected as subject for the study. Two groups assigned as per caffeine-dosage i.e., 3mg/kg (low dosage) and 6mg/kg (high dosage) body weight. Graded incremental treadmill (GxT) test was done to check the effect through anaerobic threshold (AT) point and VO₂max level. The GxT was done with a progressive increase of 1 km/hr speed and 1° inclination, alternatively in every 1-min of time. Metabolic Gas Analyzer (COSMED K5) was used for the study. Oxygen consumption (VO₂), ventilatory equivalent (VE), respiratory quotient (RQ), heart rate (HR), fat utilization, carb. utilization, and energy consumption was selected and recorded as variables. Caffeine consumption side-effect scale and RPE scale were also considered during the study.

Result: Overall, the Fat utilization was increased from 1.46% to 2.39% (during the threshold point) when compared among 3mg and 6mg supplementation. Whereas, VO₂ at AT and VO₂max were increased by 6.2% and 1.4% respectively but not in a statistically significant manner. Energy

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consumption was 8.9% higher and HR was 1.7% lower in the 6mg group. Whereas, the RPE scale was not significantly differed but the caffeine consumption side-effect scale showed little significance for 6mg in comparison to 3mg. Conclusion: 8 athletes among 11 were shown significant increase in Fat utilization during anaerobic threshold (AT) specifically for 6mg caffeine ingestion. Although no further improvement in VO₂max was found after caffeine ingestion. Therefore, caffeine ingestion might consider to improve the fat utilization and recommended during training to improve athletes' fat metabolic dominancy at threshold point. Although the individual caffeine-ingestion side-effect should be considered before formulate the caffeine dosage during training.

Keywords: Fat utilization, Caffeine supplementation, Anaerobic threshold, Endurance capacity.

Knowledge, Attitude, and Practices of Herbal Supplement among Training Coaches in India

Aswiny Mohandas^{1*}, Pooja Gaur¹, Saranya K¹, Surojit Sarkar²

ABSTRACT

Introduction: Herbal products (HS) are extracted from seeds, gums, roots, leaves, bark, berries, or flowers and contain numbers of photochemicals such as carotenoids and polyphenols, including phenolic acids, alkaloids, flavonoids, glycosides, saponins, and lignans, which are thought to provide health benefits. However, emerging scientific evidence shows that there are some herbs that improve muscle strength and body mass. Evidence also shows the lack of HS effects among athletes and performance enhancement, and there is no guarantee in the safe dosage. The present study aims to analyze the knowledge, attitude, and practices (KAP) of herbal supplements among Indian training coaches.

Methods: The Knowledge, Attitude, Practices (KAP) questionnaires were formulated in Google

Form among all the training coaches and circulated among various academic centers of the Sports Authority of India (SAI). Out of 700, 286 coaches gave consent to participate in the survey.

Result: Among 286 coaches, 79.6% were male and 20.4% were female and participated in the survey. The three-fourths of them participate at the National Level (73%), whereas others participate at the international level (13.3%) and state level (13.3%). 60% of the participants took Herbal Supplements in some or other point of their athletic career. The most consumed or used herbal supplements were Ashwagandha (68.2%), Shilajit (68%), Caffeine (32.2%), Ginseng (26.2%), Safed Musli (23.1%), Ginger Root (22.3%), Swarna Bhasma (18.5%), and Shatavari (17.7%). 86% of the population consults a sports medicine or nutritionist before taking Herbal supplements. 39% of the coaches purchase directly from pharma shops. 50% of them are unaware of the risk associated with Herbal supplements.

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Conclusion: *The study reveals that herbal supplement use is prevalent among Indian training coaches, with 60% reporting consumption during their athletic careers. Ashwagandha (68.2%) and Shilajit (68%) are the most commonly used supplements. Although 86% consult sports medicine professionals or nutritionists before use, 50% remain unaware of the associated risks. This highlights a critical need for improved education on the efficacy, safety, and potential side effects of herbal supplements to ensure informed decision-making and safer practices among coaches.*

Keywords: Herbal Supplement (HS), Knowledge, Attitude, Practices, Training Coaches

Study On Breath Holding Capacity In Relation To Different Phases In Shooting Match Performance Of National Pistol Shooters

Kaur Sandeep^{1*}, Dr. Ajit Singh²

ABSTRACT

The present study was conducted to assess the relationship between different phases of Shooting match performance in relation to Breath Holding capacity. Match performance of 60 shots had divided into three phases (20shots each). The study was conducted on 50 female shooters and their age ranged 18 to 25 years. All subjects, who have been selected for sampling, participated in National or International level competitions. Data collection had completed during 67th national games held at Dr. Karni Singh Shooting Range Tughlakabad, New Delhi. Breath holding capacity of female pistol shooters investigated by nose clip method. For the purpose of Statistical analysis Correlation test was used to assess the relationship of Breath holding capacity and 10 meter Air Pistol Shooting performance of female National pistol shooters. The results had showed that the variables have significant relationship on the shooting match performance of Female Shooting players.

Keywords: Pistol shooting, Breath holding capacity, Shooting Series, Shooting performance.

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Harnessing Yogic Practices to regulate Aggression in Adolescent Sportspersons

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ABSTRACT

Adolescence is a critical developmental phase marked by heightened emotional responses, including aggression, which can influence an athlete's performance and overall well-being. Managing aggression effectively is crucial for maintaining emotional balance and optimizing athletic potential. This study investigates the effect of selected yogic practices on aggression levels in adolescent sportspersons. A total of 60 adolescent athletes (aged 13-19 years) from the Sports Training Center of the Sports Authority of India, Sangrur, Punjab participated in the study.

The intervention involved a structured yoga training program for three months, consisting of asanas, pranayama, meditation and relaxation techniques designed to promote mental calmness and emotional stability. To assess the impact of selected yogic practices on aggression, pre-test and post-test measurements were taken before the intervention and after conducting intervention for three months.

A paired t-test was applied to analyze the data, and the results revealed a statistically significant reduction in aggression levels among the participants. The findings indicate that the incorporation of yogic practices into the training regimen had an efficacious effect on controlling aggression and promoting a more focused and composed athletic mindset.

The results provide strong empirical evidence supporting the role of yoga in fostering emotional stability, self-regulation, and a more composed athletic mindset. These findings emphasize the integration of yoga into training regimens as a valuable tool for aggression management, contributing to improved psychological resilience and sports performance. This study reinforces the necessity of incorporating yogic practices into sports training to transform aggression into controlled energy, fostering emotional balance, and enhancing self-regulation among adolescent sportspersons. These yogic

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practices will also enhance emotional well- being, optimize performance, and promote overall mental equilibrium in adolescent athletes.

Keywords: Yogic Practices, Psychological Variables, Aggression, Sports, Psychology, Mental Health, Sportspersons, Athletes

Coping with Pressure in Hockey: Exploring yogic practices, leisure-time activities and motivational strategies to Manage Sports Competitive Anxiety and the Desire to Succeed

Gagandeep Singh¹, Harmanpreet Kaur², Prof. Jimmy Singla³,
Arpit Kulshreshtha⁴, Tanya Gandhi⁵

ABSTRACT

This study examines the management of competitive anxiety and desire to succeed through yogic practices, leisure-time activities and motivational strategies among hockey players. A descriptive statistical approach was employed to ensure precise analysis. A purposive random sampling technique used, 30 male hockey players were selected from Jarkhar Hockey Academy, Ludhiana. The study aimed to evaluate the impact of management strategies on sports competitive anxiety and the will to win, standardized questionnaires were used to measure these variables during the pre-test and post-test. The intervention, conducted over eight weeks, included yogic practices, leisure-time activities and motivational strategies, followed by a post-test. The level of significance was set at 0.05, and the t-test was used for statistical analysis. Results indicated a significant reduction in sports competitive anxiety (pre-test mean = 20, post-test mean = 14.1, $t = 9.54$, $p < 0.01$) and a notable improvement in the will to win (pre-test mean = 5.37, post-test mean = 7, $t = 2.80$, $p < 0.01$). These findings conclude that structured management strategies can effectively reduce competitive anxiety and enhance players motivation to succeed in hockey performances.

Keywords: Sports competitive anxiety, Will to win, Strategies to Manage, Hockey players

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Effect of Symmetric and Asymmetric Breathing Techniques on Attention Level in Competitive Athletes: A Case Study

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ABSTRACT

Theme: Change in arousal and anxiety influences athletic performance through fluctuation in level of attention. **Study's purpose:** The purpose of this pilot case study was to investigate the effect of four different breathing techniques (2 Symmetric and 2 Asymmetric) on attention level in competitive athletes. **Methods:** Four male subjects (18-23ys) purposely selected agreed to volunteer in this case study. The independent variables were four different breathing techniques namely; long inhale - long exhale (8 sec each), long inhale - short exhale (6 sec - 5 sec) mentioned in Yogachudamani Upanishad, short inhale - long exhale (4 sec- 8 sec) mentioned in Gherand Samhita, and short inhale - short exhale (4 sec each). The dependent variables were, attention levels obtained from Neurosky's Mindwave mobile 2 single channel dry EEG device. The crossover study design was employed in the study where all subjects had to perform all breathing techniques in the interval of one day. The observation protocol followed for test administration was O₁: pre-cognitive task (5 min), O₂: pre-observation relaxed (3 min), O₃: intervention (5 min), O₄: post-observation relaxed (3 min), and O₅: post-cognitive task (5 min). The change in dependent variable throughout the observation were reported by observing the descriptive statistics like mean, median and IQR. **Results:** Attention level was observed to decrease from baseline to intervention phase and elevated attention from baseline to post intervention in all breathing techniques except in long inhale - long exhale where the results were opposite. The change in attention level from intervention to post cognitive stage improved in asymmetric breathing more than symmetric ones. **Conclusion:** Asymmetric breathing ratio of 6:5 and 1:2 drawn from Yogic texts show promising results in elevating attention level of purposively selected competitive athletes post training.

Keywords: Yogic breathing, neurofeedback, brain waves, attention, meditation, stress, relax.

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The Impact of Conspicuous Yogic Techniques on Managing in Psychological Aspect: Sports Competitions Anxiety

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ABSTRACT

In today's highly competitive sports environment, the thin line between winning and losing is progressively thinner, creating massive pressure on sportspersons to perform under high tension. A study by the Sports Authority of India revealed that a one-week yoga training camp significantly improved concentration and relaxation among Indian hockey players, highlighting the benefits of integrating mental conditioning into sportspersons training. This study evaluated the effects of Conspicuous Yogic Techniques (CYT) on psychological among sportspersons reducing Sports Competition Anxiety. By examining these outcomes, the study seeks to demonstrate the potential benefits of integrating CYT into Sportsperson's training programs to enhance overall sportspersons' performance and well-being. Participants were randomly assigned to both the control group and the Experimental group. The experimental group followed a 12-week yoga protocol (detoxification, asanas, pranayama, mudra, 45 minutes daily, five days a week). This study used a comprehensive experimental design to assess CYT's effects on various parameters. 314 subjects were divided into experimental and control groups. Pre- and post-test assessments, including a sports competition anxiety questionnaire, were conducted over 12 weeks. Statistical analysis included mean, standard deviation, chi-square, and two-way ANOVA. Results showed significant reductions in sports competition anxiety ($p = .000$), decreasing from 2.21 to 1.43 in the experimental group and from 2.22 to 1.80 in the control group. These findings highlight CYT's efficacy in reducing sports competition anxiety. Integrating CYT into sports training programs shows promises for enhancing sportspersons' efficiency and athleticism, demonstrating significant psychological improvements. Therefore, incorporating CYT is recommended to optimize performance and promote mental health. Future studies should validate and expand these findings to enhance CYT's understanding and integration in sports science and training.

Keywords: Conspicuous Yogic Techniques (CYT), Sportspersons Performance, Sports Psychology, Well-Being, Yoga and Sports.

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Trataka Kriya Meditation for Injury Recovery: Enhancing Confidence and Reducing Pain Perception

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ABSTRACT

Trataka Kriya, a yogic meditation technique involving focused gazing, is known for enhancing concentration and inner stillness. Injured athletes often experience psychological distress, including anxiety, frustration, and decreased confidence, which can hinder their recovery process. This study will examine the impact of Trataka Kriya on psychological well-being, pain perception, and confidence among injured athletes. A pre-post experimental design will be employed with 20 injured athletes, who will be divided into control and experimental groups. The experimental group will practice Trataka Kriya for 15 days, while the control group will receive standard rehabilitation care. Pain perception and confidence levels will be assessed using the Pain Catastrophizing Scale (PCS) and the Trait Sport-Confidence Inventory (TSCI). Data will be analyzed using paired and independent t-tests. It is expected that the results will indicate a significant reduction in pain catastrophizing, along with an increase in sports confidence in the experimental group compared to the control group. These findings may suggest that integrating Trataka Kriya into rehabilitation programs could support the psychological recovery of injured athletes, enhancing their confidence and pain management during rehabilitation.

Keywords: Trataka Kriya Meditation, Injury Recovery, Confidence, Reducing Pain Perception

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A comparative study on impact of yoga on resilience and general health

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ABSTRACT

The practice of yoga has long been recognized for its potential to improve physical and mental well-being. Yoga, through its combination of physical postures (asanas), breath control (pranayama), and meditation techniques, fosters improved emotional regulation, stress reduction, and mindfulness. The aim of present research is to examine the impact of yoga on resilience and overall health among yoga practitioners, general population, and athletes. The study included a total sample size of 120, consisting of three groups: yoga practitioners, non-yoga practitioners, and athletes, with 40 participants in each group. A standardized questionnaire was utilized to collect data. Resilience was measured using the Brief Resilience Scale developed by B.W. Smith (2008), while general health was assessed using the General Health Questionnaire by Goldberg (1972). T-test, chi-square, and ANOVA were used to determine significant differences. The study indicated that yoga practitioners exhibit higher resilience and better overall general health compared to the other two groups.

Keywords: Yoga, Resilience, General Health, Social Dysfunction, Anxiety

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Body Image Across Yoga Practitioners, Boxers And Non-Exercisers

Fathimath Muamina M

ABSTRACT

An essential aspect of mental health, body image satisfaction affects confidence, self-worth, and general quality of life. Yoga promotes self-acceptance, mindfulness, and overall wellness as a mind-body activity, which may improve body image satisfaction. In order to determine whether yoga's focused practices lead to more favourable body image views, this study compares the body image satisfaction of three groups: boxers, yoga practitioners, and non-exercisers. Ninety participants, 30 of whom were yoga practitioners, 30 of whom were boxers, and 30 of whom were non-exercisers, between the ages of 20 and 40, participated in the cross-sectional quantitative study. A validated self-report technique, the Body Appreciation Scale-2 (BAS-2), was used to measure body image satisfaction. The three groups' levels of body image satisfaction were compared using one-way ANOVA. Due to the attention and self-acceptance that yoga practices promote, it is predicted that yoga practitioners will show noticeably higher body image satisfaction than the other groups. This study will bring awareness to how various physical activities—yoga in particular—may affect how people perceive their bodies and support mental health. Secure data processing, confidentiality, and voluntary participation are all ethical factors.

Keywords: Body Image Satisfaction, Body Image Comparison, Yoga practitioners, Boxers, Non-exercisers, Self-acceptance, Mental Health

Exploring Yoga's Impact on Stress and Cognition in Female Students: A Randomized Controlled Trial

Juhi Kumawat^{1*}, Dr. Kashinath G Metri¹

ABSTRACT

Background: Stress among University students particularly female students is highly prevalent. Cognitive consequences of stress include impairment in memory, planning and executive processing. This study examined the effects of 8-week yoga intervention on visuospatial memory, planning and perceived stress among female students elevated stress levels. **Methods:** Forty female students aged 18-25 years with elevated stress levels were randomly allocated to the yoga (n=20) and control group (n=20). Yoga group students were engaged in weekly four sessions of 60-minute yoga for 8 weeks and the control group followed daily activities. Visuospatial memory and planning and perceived stress were assessed at baseline and 8-week. **Results:** Compared to baseline significant decreased in perceived stress was noted in the yoga group. No significant change was observed in the control group. Visuospatial memory and planning were also improved significantly in the yoga group at 8-week compared to baseline. At 8-week, Yoga group had significantly lower PSS scores compared to the control group ($t = -2.242$, $p = 0.031$, 95% CI: -6.280 to -0.320, Cohen's $d = -0.709$). **Conclusion:** Stress often leads compromised cognitive abilities affecting academic performance of the student. This study reports yoga to be an effective intervention in reducing stress and improving cognitive function such as visuospatial memory and planning among female University students. Future studies with larger sample size and biological marker of stress and cognitive function are warranted.

Keywords: Yoga, Stress, Cognitive functions, Randomized Controlled Trial, Female university students

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to be typed on the left hand in upper lower type, in case there are no subheads like purpose of the study, review of literature, hypotheses, and limitations of the study and its implications. When there are sub-heads, the heads are to be typed, in 11 pt. size, all bold capitals, and the sub-heads in upper- lower type bold letters. Abbreviations must be spelt when they first appear in the text.

Abstract

The abstract should be self-explanatory, of about 150 words: suitable for use by the abstracting journals, without rewording and should state what aimed, what was done, what was found and what was concluded. For the review article, the abstract should be a concise summary.

Key Words

Following the abstract, the author should list not more than six key words that do not appear in the title, that represent the content of the manuscript.

Introduction

This describe the present state of knowledge of the subject on the review of the literature, the concise statement of the problem. the aim of the research, and the development of the research hypotheses. It should include the practical and applied questions around which they study was developed.

Methodology

This section should include a complete description of subjects. materials, equipments, procedures and experimental, techniques. It should also include the description of the statistical methods used to analyse the data. The methods and the statistical procedures published in detail before hand should be cited. Units of measurement, symbols and abbreviations must conform to the international standards. Metric system is preferred. Results & Discussion

This section should include a concise presentation of the data, figures, tables and photographs may be used to show the results of the study. Tables and figures should not be used for the presentation of the same data. The subjects must not be identified by name or any other recognizable label.

The discussion should contain the interpretation of the results with possible comparisons with other relevant studies. The discussion must be rigorous and correspond to the data and they hypothesis. New-hypothesis, if any may be stated. Recommendations, if any, question of practical application, consistent with the limitations of the study, may be included.

Conclusion

This should briefly state the conclusions drawn from the study. Conclusions should not be drawn without any supporting data.

References

All sources, cited in the text, must be also cited in the reference list. Conversely, all entries in the reference list must be cited in the text. The reference list includes

circulated materials. i.e., books, journals, proceedings, films, etc.

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Sources cited in the text are referenced with the author-date system. The surname of the author and the year of the publication are inserted in the text at the appropriate place.

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Wilmoth (1984) compared reaction time.....

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When the year and the author are given as part of the textual discussion, do not add the parentheses.

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Within a paragraph, it is not necessary to include the year in subsequent references to study as long as the study cannot be confused with other studies cited in the articles.

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Wilmoth also found that.....

If a work has two authors, always cite both names every time the reference occurs in the text.

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Darby, Pahiman, and Lemon (1983) found.....

Second citation

Darby et al (1983) found.....

When a work has more than six authors, cite only the surname of the first author followed by et al, and the year for the first and subsequent citation. (In the reference list, the surnames of references with six or more authors are spelled out.)

Join the names of the last authors in a text citation by using the word 'and'. In parenthetical material, in tables, and in the reference list join the names with an ampersand (&).

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As found by (Darby & Pohlman, 1984)....

Also for three or more names use a comma before each, even with an ampersand (Smith, Jones & Earls).

Preparing the Reference list

Authors are responsible for making certain that the sources appearing in the text citation and the reference list are identical. Each entry to the reference list should contain the following elements (a) Author, (b) Year of publication, (c) Title, (d) Publishing data, and (e) all of the necessary information for unique identification and

library search.

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Reference Examples:

1. Journal, 3 authors

Wingate, S.L.; Gray, D.J. & Davis, H.C. (1984). The prototype as a construct in abnormal psychology. *Journal of Abnormal Psychology*, 90, 575-589.

2. Journal supplement

Murphy, M.M.; Winningham, M.L. & Kirby, P.A. Pilot study of the effect of zimelidine on phobic anxiety. *Acta Psychiatrica Scandinavica*, 63, (Suppl 290), 320-329.

3. Book: 1 author

Schifano, B. (1984). The master play director New York: Athenum

4. Edited book

Letherman, L. & Carron, C. (Eds), (1983). Bilingual education: Teaching English as a second language. New York Praeger.

5. Article in a book

Gruman, A.S. & Knowly, D. (1982). Family therapy outcome research. In A.S. Gruman & D. Knowly (Eds.) *Handbook of family therapy* (pp. 700-710). New York: Mazel.

6. Book in press

Hewett, F.M. & Fortner, S.R. (in press). Education of exceptional learners. Boston: Springer.

7. unpublished doctoral dissertation

Rohlman, R.S. (1983). The effects of cybex training on untrained females. Unpublished doctoral dissertation. The Ohio State University.

8. Several volumes in multivolume edited work

Wilson, J.A. & Fratty, F.C. (Eds), (1978-1981). Handbook to teratology (Vols. (1-4). New York: Plenum Press.

9. Proceedings article

Smart, L.K. & Burns, L.A. (1982). An examination of the practical importance of the Von Marx effect. *Proceedings of the 81st Annual Convention of the American Psychological Association*, 8620-645.

Tables

Each table should be typed on separate sheets, numbered consecutively in Roman numerals at the top centre, and given collectively after the references. Each table should have a brief but meaningful title which should start next to the Table Number after colon. Explanatory matter and non-standard abbreviations should be given in the footnote, and not below the title. Tables should be referred to in the text.

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