

Education Dynamics

A Biannual Journal of Education, Special Education, Physical Education, Skill Education, Lifelong Learning, and Yoga

Special Issue- Vol. IV, No. 1 & 2, 2021



ALAGAPPA UNIVERSITY

State University | A+ Grade by NAAC (CGPA: 3.64) in the 3rd Cycle
Category - I University by MHRD - UGC
Karaikudi - 630 003, Tamil Nadu, India

Title of the Journal : **Education Dynamics**
Volume – IV : **Special Issue- Vol. IV, No. 1 & 2, Jan & July 2021**
Periodicity : **Biannual**
Published on : **Alagappa University, Karaikudi**
Editor : **Dr. J. Sujathamalini**
No. of pages : **82**
Font Type : **Times New Roman**

The Registrar
Alagappa University
Karaikudi – 630003
Sivaganga District, Tamil Nadu, India
Email – educationdynamics@alagappauniversity.ac.in
Phone- 0091- 4565-230202

@ All Copy Rights Reversed

This views expressed by the authors in their articles, research papers etc, in this issue are their own. No responsibility is assumed by Education Dynamics and its Editorial board, Advisor board for any injury and / or damage to person or property. The Publisher / Editor / Printer do not take responsibility for issues related to intellectual property, copy right or other matters.

EDUCATION DYNAMICS

Editorial Board

Chief Patron
Vice-Chancellor Officiating
Committee
Alagappa University



Co-Patron
Prof. C. SEKAR
Registrar (i/c)



Editor
Prof. J. Sujathamalini
Dean, Faculty of Education

Associate Editors

- ❖ **Dr. G. Kalaiyaran**, Senior Professor and Head, Department of Education
- ❖ **Dr. K. Usha Rani**, Professor and Head, Department of Physical Education & Health Sciences
- ❖ **Dr. N. Johnson**, Associate Professor and Head (i/c), Department of Life Long Learning
- ❖ **Dr. P. Sivakumar**, Senior Professor and Principal (i/c), Alagappa University College of Education
- ❖ **Dr. C. K. Muthukumar**, Director (i/c), Alagappa Institute of Skill Development
- ❖ **Dr. K. Murali Rajan**, Professor and Principal (i/c), Alagappa University College of Physical Education
- ❖ **Dr. Saroja**, Professor and Head, Centre for Yoga
- ❖ **Dr. R. Senthil Kumaran**, Director of Physical Education

Editorial Board Member (From Outside of Alagappa University Faculty of Education)

- ❖ **Dr. Taposh Kumar Biswas**, Professor, Institute of Education and Research (IER), University of Dhaka, Bangladesh
- ❖ **Dr. Kannamah Mottan**, Professor, SGegi University, Malaysia
- ❖ **Dr. Bishnupada Nanda**, Professor, Department of Education, Jadavpur University, Kolkata, West Bengal, India

- ❖ **Dr. I. Muthuchamy**, Former Chair, School of Education, Professor & Head Department of Educational Technology, Bharathidasan University, Khajamalai Campus, Tiruchirappalli, Tamil Nadu, India
- ❖ **Dr. A. Edward William Benjamin**, Professor, Department of Education, CDOE, Chair, School of Education, Bharathidasan University, Tiruchirappalli, Tamil Nadu, India
- ❖ **Prof. S. Mani**, Retd. Professor, Department of Educational Planning and Administration, Tamil Nadu Teachers Education University, Karappakkam Chennai, TN, India
- ❖ **Dr. Tawhida Jahan**, Chairperson & Associate Professor, Department of Communication Disorders, University of Dhaka, Bangladesh
- ❖ **Dr. Mamun Ali Naji Qasem**, Chairman & Associate Professor, Psychological and Educational Studies Department, Ibb University, Yemen
- ❖ **Dr. Yogendra Pandey**, Associate Professor, Faculty of Education, Banaras Hindu University, Varanasi, India
- ❖ **Dr Alok Kumar Upadhyaya**, Associate Professor Department of Education IGNOU, India
- ❖ **Dr. P. Janardhana Kumar Reddy**, Associate Professor & Head, Department of Education, Bharathiar University, Coimbatore, TN, India
- ❖ **Dr. K. K. Rajendran**, Associate Professor, Department of Education, Bharathidasan University, Tiruchirappalli, Tamil Nadu, India
- ❖ **Dr. Sanjay Kumar Yadav**, Coordinator & Assistant Professor, Department of Disability Studies, Rabindra Bharati University, Kolkata, West Bengal, India
- ❖ **Dr. Abhedananda Panigrahi**, Coordinator & Assistant Professor, School of Education, Netaji Subhas Open University, Kolkata, West Bengal, India
- ❖ **Dr. Tameem Yahya Ali Mohammed Basha**, Assistant Professor, Special Education Department, Ibb University, Yemen

Peer Review Team Member

- ❖ **Dr. K. Gunasekaran**, Member of Syndicate & Assistant Professor, Alagappa University
- ❖ **Dr. Taposh Kumar Biswas**, Professor, Institute of Education and Research (IER), University of Dhaka, Bangladesh
- ❖ **Dr. A. Edward William Benjamin**, Professor, Department of Education, CDOE, Chair, School of Education, Bharathidasan University, Tiruchirappalli, Tamil Nadu, India
- ❖ **Dr. Sanjay Kumar Yadav**, Coordinator & Assistant Professor, Department of Disability Studies, Rabindra Bharati University, Kolkata, West Bengal, India
- ❖ **Dr. S. Rajaguru**, ICSSR Senior Research Fellow, Department of Special Education and Rehabilitation Science, Alagappa University and Former Principal, Ramakrishna Mission Vidyalaya College of Education, Coimbatore Periyanaickenpalayam, Tamil Nadu, India
- ❖ **Dr. J. Sujathamalini**, Dean Faculty of Education, Professor and Head, Department of Special Education and Rehabilitation Science, Alagappa University, Karaikudi, Tamil Nadu, India (**Coordinator**)

EDITOR'S NOTE

The combined issue of Education Dynamics marks another significant milestone in our ongoing commitment to scholarly excellence and the advancement of education. Within these pages, readers will find a compelling collection of research articles and insights contributed by esteemed researchers from diverse corners of India.

This edition underscores our journal's unwavering dedication to fostering dialogue, innovation, and collaboration in education and related fields. Through rigorous investigation and thoughtful analysis, our contributors have illuminated various facets of education including special education, physical education, lifelong learning, skill education, and yoga.

We extend our deepest gratitude to the authors, Associate Editors, Editorial Board Members, and Peer Review Team Members whose expertise and dedication have been instrumental in shaping this volume. Their contributions have not only elevated the scholarly discourse within our community but have also provided a platform for meaningful engagement with educators and society as a whole.

As readers explore the wealth of knowledge presented in this issue, we encourage them to engage critically and creatively with the diverse range of topics and perspectives offered herein. It is our sincere hope that the insights shared in these pages will inspire continued dialogue, innovation, and collaboration, ultimately contributing to the ongoing transformation of the educational landscape.

We express our heartfelt appreciation to our readers for their continued support and engagement with Education Dynamics. Together, let us embark on a journey of discovery, enlightenment, and transformation in the realm of education.

Editor

CONTENTS			
SL. NO.	TITLE	AUTHOR NAME	PAGE NO.
1	IT ENABLED LEARNING - TRENDS AND CHALLENGES	Dr. Av. Karthick Dr. A. Senthilrajan Dr. M. Karolin	7
2	EFFECT OF CIRCUIT TRAINING LADDER TRAINING AND COMBINED TRAINING ON SELECTED BIO CHEMICAL VARIABLES AMONG UNIVERSITY HOCKEY PLAYERS	K. Kaviyarasan Dr. K. Murali Rajan	17
3	AWARENESS OF LEARNING DISABILITIES AMONG TEACHERS OF PRIMARY SCHOOLS	Dr. J. E. Merlin Sasikala Dr. T. Ravichandran	23
4	COMPARATIVE STUDY OF ABDOMEN STRENGTH BETWEEN MEN CRICKET PLAYERS AND HOCKEY PLAYERS	D. Maruthanyagam Dr. S. Nagarajan S. Sangeetha Dr. K. Usha Rani	31
5	EFFICIENCY OF YOGIC PRACTICE AND NEUROMUSCULAR TRAINING ON PHYSICAL FITNESS PARAMETERS AMONG SCHOOL LEVEL FENCERS	A. Lincy Dr. A. Rube Jesintha	36
6	EFFECT OF RESISTED AND ASSISTED SPRINT TRAINING ON SELECTED PHYSICAL FITNESS VARIABLES AMONG INTER-COLLEGIATE ATHLETES	Jogi Prasad Dr. A. Rube Jesintha	42
7	THE EVOLVING LANDSCAPE: TECHNOLOGY IN SPORTS	Dr. A. Rube Jesintha	46
8	EFFECT OF PLYOMETRIC GROSS AND MUD TRAINING ON SELECTED KINANTHROPOMETRIC VARIABLES AMONG COLLEGE WOMEN FOOTBALL PLAYERS	M. Nelliyan Dr. S. Nagarajan	50
9	EFFECT OF SAQ DRILLS ON SELECTED PHYSICAL AND PHYSIOLOGICAL VARIABLES AMONG COLLEGE MEN STUDENTS	Ms. S. Jeya Sharmila Dr. R. Senthil Kumaran	55
10	NEED OF YOGA IN PHYSICAL EDUCATION AND SPORTS	S. Mahalakshmi Prof. S. Saroja	61
11	BENEFITS OF E-LEARNING FOR STUDENTS WITH DISABILITIES	Prabhu P Tarak Halder Dr. J. Sujathamalini	66
12	UNIVERSAL DESIGN FOR LEARNING – BENEFITS TOWARDS EDUCATION OF INTELLECTUALLY DISBALED STUDENTS	Yashvinder Kapil Prof. J. Sujathamalini Tarak Halder	74

IT ENABLED LEARNING - TRENDS AND CHALLENGES

Dr. Av. Karthick, Dr. A. Senthilrajan** & Dr. M.Karolin****

Abstract

Learning has been shown to enhance human performance on a range of visual perception tasks. Repetition, however, had no effect on the capacity to recognize minute variations in the contrast of straightforward visual stimuli. This paper illustrates that by highlighting the significance of information technology enabled learning as a subject of study. The conversation examines the impact of modern technological applications on pedagogy, including simulations, Massive Open Online Courses (MOOCs) and mobile learning. The examination of assessment practice takes into account how technology has given students and teachers new instruments for guaranteeing and verifying learning progress. This study highlights the trends and challenges of the It enabled learning.

Keywords- *Information Technology, MOOC, Learning, Trends, Challenges*

Introduction

In the modern world, lifelong learning is fast becoming essential. Electronic learning, often known as E-Learning or eLearning, is a sort of technology-supported learning (TSL) in which computers are used as the primary teaching tool. Despite the potential of e-learning in India, adoption has been slow and would require a significant marketing and awareness campaign. Globalization has improved India's vibration and given vitality to education. E-Learning technologies offer enormous potential to spread knowledge, but in order to avoid contributing to the Digital Divide, its advantages must be made available to India's rural population. This essay focuses on the current state of education, tools for creating and presenting eLearning content, ways to use eLearning to provide education to remote locations, and the benefits and drawbacks of eLearning.

E-learning is defined as the acquisition of knowledge and skills through the use of electronic technologies, such as local and wide area networks, computer and Internet-based courseware. The field of utilizing technology (Fatma Shaikh Farhat, 2013) to deliver learning and training programmes is broadly defined. To designate is a variety of media, including CD-ROM, Internet, Intranet, wireless and mobile learning. Some people classify knowledge

management as an e-learning technique. The phrase was first used in 1995 when it was all known as "Internet-based Training" (IBT). Later, it was shortened to "Web-based Training" (WBT) to emphasise that delivery might take place on the Internet or an intranet. The "e-" breakthrough allowed the sector to raise hundreds of millions from investors in venture capital.

In recent years, natural language processing (NLP) has drawn a lot of interest for its ability to computationally represent and analyze human language. It now has a wide range of uses, including machine translation, email spam detection, information extraction and summarization, as well as medical and question answering. The Malaysian Ministry of Higher Education (MOHE) has designated e-Learning as one of its Critical Agenda Projects (CAPs) and a National Key Result Area (NKRA). MOHE has financed a thorough study on the use of e-Learning in institutes (Embi Mohamed Amin, 2011) of higher learning (IHLs). This speech will highlight the most important results of a comprehensive study that examined the state, trends, and difficulties of e-Learning adoption in Malaysian IHLs.

Review of Literature

This article shows (Fatma Shaikh Farhat, 2013) the teaching learning process is centered on student learning. Theorists and practitioners have long worked cooperatively to improve the calibre of educational experiences for students in order to support learning. Learning theories have developed over time as a result of educators' interest in examining the conditions, causes, and processes that contribute to human learning. The methods of teaching and learning have always been changing and being modified as a result of the application of prevalent learning theories.

Many people are familiar with phrases like remote learning or distance education, but with the advent of e-learning, distance education took on a completely new meaning. The potential for delivering knowledge and information to the learner at her/his own pace through e-learning has opened up a completely new realm for knowledge transmission. Nowadays, knowledge and human talents have a shorter shelf life than ever before, which increases the pressure to keep learning and becoming trained during a career.

This article reveals that (Khurana Diksha et al., 2022) the striking pattern has been discovered by young people's research. Children only recall 20% of what they hear, 40% of what they see and hear and 75% of what they see and do, according to this study. That is one of the

main reasons modern educational technology has become crucial for the delivery of education. To give students a nearly real-time experience of what they are studying, they mix the usage of a variety of ICTs including the internet, video, audio, graphics, text, and images.

The study conducted by (Embi, Mohamed Amin et al., 2011) there were e-Learning administrators, professors and students from chosen Malaysian IHLs who participated in the survey. Data were gathered from the Malaysian IHL e-Learning Questionnaire, or MIeLQ, which includes for students, instructors, and for IT managers. There are two ways to examine e-learning. Education is the first, and training is the second. Both elementary school and higher education levels can use it for education. Companies might utilize it for training to upskill their staff members.

This papers reveals that (Sallam Marwan H, 2022) a thorough analysis of the published literature revealed the following research trends in LMOOC studies: 1) conceptualization of LMOOCs and their unique features; 2) attempts to find the best model for language teaching and learning outside of the xMOOC/cMOOC dichotomy; 3) suitability of LMOOCs for languages for specific purposes (LSP) courses; 4) focus on the students and their motivation and experience throughout the course; and 5) reflection on the new role of teacher.

In particular in STEM education studied by (Gamage Sithara HPW et al., 2022), the Moodle Learning Management System (LMS) is frequently utilised in online teaching and learning. Moodle-related academic research is, however, dispersed across the literature. In order to help three groups of stakeholders like educators, researchers, and software developers—this review will provide a summary of this research. It identifies: (a) how and where Moodle has been implemented; (b) the issues, patterns, and gaps that will guide next research and software development; and (c) new and potent techniques for enhancing online teaching and learning.

Trends in E-Learning

Sallam (2022) examined the most recent research that has been published on Language Massive Open Online Courses (LMOOCs), highlighting the different sorts of articles, nations where studies were conducted, and organisations that specialise in this area. Spain is the nation where the majority of studies have been conducted to date, and Universidad Nacional de Educacion a Distancia (UNED) is the organisation that is currently most active in this field. The

most common study categories within the established taxonomy concentrated on LMOOC participants or providers and case studies.

Encouragement of skill development becomes an initial value to transform the adaption within the technology aspects in order to manage effectively in using it for many aspects such as economic, business, social, cultural, privacy, and security within technological base. As a result, delivering the advancement of research along with critical engagement for sensible application within society refers to having a thorough understanding of the larger difficulties regarding diverse topics. The use of Internet of Things (IoT) platforms connected on an online basis to transmit into the digitalization across various sectors, including smart shopping, smart learning, smart interaction, and also delivery of services, could be stated as having a wider contribution due to the advancement of digital transformation.

(Singh Juhi et al., 2023) article shows the there is a doubt the veracity of the information and resources that are available on the Internet due to its rapid proliferation. This study covered the idea of E-Learning 4.0 as well as the advantages and drawbacks of Web 4.0. This problem, which has emerged as the Internet has gained in popularity, is being actively researched by the information technology association. Currently, COVID-19 is causing a pandemic that is affecting individuals all over the world. Long-term sustainability will be a big issue for the country's sociological, educational, and economic components. Educational institutions are switching from traditional face-to-face classroom teaching to virtual online mode training for the sake of safety and acclimating to the new normal.

Whether MOOCs are a passing fad or whether they will carry on to develop? The second scenario is more likely. The fast development of MOOCs, however, raises concerns about the quality of education and, in particular, the potential decline of higher education. Additionally, the following problems are discussed: a lack of direction, the teacher's function, and data copying. Therefore, it will be important to determine whether the change that MOOCs bring will be the best in the future. However, we should constantly keep in mind that learning from many sources is usually a good thing. Students can improve their academic performance and acquire broad information about many industries and fields of interest.

Given that MOOCs are the newest recent trend in online learning, it is crucial to find out whether Moodle LMS can support them. It is beneficial to consider the technical requirements to

handle thousands of users in a system like Moodle because MOOCs are designed for and distributed to a very large number of consumers. Students also gain a full and better understanding of their subject of study while simultaneously being able to observe something unique offered by other academic institutions abroad.

Challenges in E-Learning

India is a significant player in the global e-learning services market. It already ranks among the top nations for IT service providers, and it now wants to hold that position for IT-enabled services. This paper shows the (Aktaruzzaman Md et al., 2011) it is one of the top providers of e-learning services in the world because to the presence of top-notch educational infrastructure and training specialists. Both the public and private sectors have launched numerous e-learning projects at home. Although there has been a great deal of enthusiasm and user acceptability for these efforts their business potential is still being thought about. To improve the e-learning environment in India, the government has been acting pro-actively on both a financial and regulatory level.

The majority of the population lives in rural regions, thus educating them about the idea of online learning is a significant difficulty. Another problem is a lack of infrastructure in terms of connectivity, Internet accessibility, etc. New technologies like 4G in the telecom arena have already started to be used as part of the government's efforts to modernize communication services.

This paper (Singh Rachael Jesika, 2015) identified the main goal was to give a brief overview of the most recent developments in e-learning. Without a doubt, e-learning will keep expanding in our enterprises. Governments, corporations, and professional associations can begin concentrating on applications and the effective and efficient implementation of e-learning in advance of this increase. The greatest advantages that e-learning has to offer both now and in the future can be realised by realising that it is, in fact, a technique. The reality is that subpar procurement processes in all sectors, but particularly in the public sector are a barrier to e-expansion learning's and adoption. In order to improve student knowledge, learning outcomes, performance outcomes, business and policy effect, and to value the money spent, a thorough review is therefore required when choosing an e-learning programme for education.

Another area of research that is crucial to comprehend for the success of e-learning in India is social implications of e-learning. The following categories of concerns can be grouped under the heading of social consequences of e-learning: cultural, gender, lifestyle, geographic, religious/spiritual, literacy, impairments, and digital divide

Learning Management System (LMS)

This research article shows (Embi Mohamed Amin, 2011) the lack of manpower and the absence of incentives for those tasked with implementing e-Learning in IHLs is the two key issues relating to the governance of e-Learning. The major obstacle to academic staff using the LMS was their complacency with present teaching methods, which affected of IHLs. Almost two thirds of IHLs reported having staff members that were not IT-savvy, overworked with research and publication, overburdened with teaching duties and skeptical of e-learning.

E-Learning Training

Low training attendance and modest levels of employee motivation are two major issues that most IHLs participated in this study deal with. Other difficulties include a lack of knowledgeable instructors, a lack of training materials, and an inappropriate training schedule.

E-Content Development

The academic staff's lack of desire, their lack of knowledge, their lack of a committed team to create e-Content, their lack of commitment, and their lack of funding/budget were the five main issues most IHLs encountered.

E-Learning Integration into Teaching & Learning

Time restrictions and combining teaching and research are the two biggest obstacles lecturers confront when integrating e-Learning into their teaching and learning. The least to blame aspect for the difficulties professors had integrating e-Learning was technophobia. Find out how e-Learning is doing in Malaysian HEIs in terms of policy, governance, learning management systems (LMS), training, e-content development, integration with teaching & learning, quality assurance, and future planning.

In terms of policy, governance, the Learning Management System (LMS), training, e-Content production, integration in teaching and learning, quality assurances, and future planning, evaluate the trends and efficacy of e-Learning in Malaysian HEIs. Determine the issues and

difficulties associated with adopting e-Learning in Malaysian HEIs with regard to the production of e-Content, integration into teaching and learning, quality assurance, and long-term planning.

This paper highlights the (Embi, Mohamed Amin et al., 2011) statistics also indicated that these HEIs (6) had implemented e-Learning with high degrees of success. In light of this, MOHE should take the proper actions to provide methods and recommendations to encourage HEIs that haven't set up a policy to do so. Evaluate the trends and effectiveness of e-Learning in Malaysian HEIs in terms of policy, governance, the Learning Management System (LMS), training, e-Content development, integration in teaching and learning, quality assurance, and long-term planning.

The generation of e-Content, integration into teaching and learning, assurance of quality, and long-term planning are the issues and challenges involved with adopting e-Learning in Malaysian HEIs. The usage of e-Learning technologies in HEIs is now a need rather than a choice. When implemented appropriately and successfully, e-learning technology can put HEIs in a more competitive position, particularly when it comes to the management of provided programmes.

By incorporating a more natural, integrated array of learning experiences and assistance that is "anywhere, anytime, and just-in-time" available, digital technologies (Yang Harrison Hao, 2013) this paper shows the particularly Web-based technologies, continue to expand the reach of settings for education and training. E-learning, which gained popularity in the early 2000s and is similar to CBT (Computer-Based Training) IBT (Internet-Based Training) and WBT (Web-Based Training), refers to any electronically assisted education.

E-learning commonly referred to as (Mukherjee Triparna and Asoke Nath, 2016) online learning or networked learning places an emphasis on the use of technology to transform and direct education. The foundation of an e-learning platform is digital media technology, and educational use is being made of the digital resources that are accessible through an internet network.

This paper shows the (Pena-Bandalaria Melinda M. Dela, 2009) the attention has shifted inward to the teaching, learning, and research practises of individual institutions over the past five years, which has resulted in a dramatic change in higher education teaching and learning in South Africa. As South Africa struggles to produce enough teachers to fulfill its high demand,

teacher education has drawn particular attention. Higher education institutions (HEIs) have been forced to concentrate on developing research capacity in the areas of supervision, publications, and staff credentials due to a demand for increased postgraduate throughput. Large class sizes, re-curriculation and the development and use of regional African languages provide difficulties alongside these.

(Nikolaos Voudoukis, and Gerasimos Pagiatakis, 2022) article shows the research conducted among the young professionals and non-students can now attend classes in a variety of subjects that they might find interesting but were unable to do so when they were younger due to time constraints or budgetary constraints. No matter why a person chooses to enrol in a MOOC, the advantage is the same. MOOCs can be a fantastic tool in this regard because knowledge is a powerful force.

Conclusion

E-learning opens up new avenues for the transfer of knowledge by enabling faster knowledge and information delivery to learners. Early adopters are businesses that have attempted to use this technology to enhance in-person meetings, demonstrations, training sessions, and lectures. Currently, e-learning is not widely used in organizations, educational institutions, or other settings. When compared to the global market, the Indian market is not very large. Postgraduate research development programmes are expanding as well, with the goal of educating postgraduate students in research techniques so that they can complete their degrees quickly. As in any race, those who are better equipped progress more quickly; colleges with more highly qualified staff are well ahead in this field, sustaining the gap created by the apartheid legacy.

More qualitative analysis of Moodle utilization is needed, with a focus on educators' viewpoints. The rise of link connected into all things in recent decades has permitted the creation of digital transformation, which has enabled connectivity advancement among numerous lines, resulting in the new industrial revolution age. This development is commonly recognized as the Industrial Revolution Era (IR). With such growth and achievement, the advancement has provided useful insights on how to support human life, including their employment, education, and social interactions with peers online.

References

- Fatma Shaikh Farhat, "E-learning trends issues and challenges", *International Journal of Economics, Commerce and Research* 3.2 (2013): 1-10.
- Aktaruzzaman Md, Md Shamim and Che Kum Clement, "Trends and issues to integrate ICT in teaching learning for the future world of education", *International Journal of Engineering & Technology* 11.3 (2011): 114-119.
- Khurana Diksha, et al, "Natural language processing: State of the art, current trends and challenges", *Multimedia tools and applications* (2022): 1-32.
- Garrett Nina, "Technology in the service of language learning: Trends and issues", *The Modern Language Journal* 93 (2009): 697-718.
- Embi Mohamed Amin, "E-Learning in Malaysian institutions of higher learning: Status, trends and challenges", *Keynote Address presented at the International Lifelong Learning Conference (ICLLL 2011), Seri Pacific Hotel, Kuala Lumpur, 2011.*
- Embi Mohamed Amin, et al, "E-learning in Malaysian higher education institutions: Status, trends & challenges", *Department of Higher Education Ministry of Higher Education* (2011).
- Anshari Muhammad, et al, "Online Learning: trends, issues and challenges in the Big Data Era", *Journal of E-learning and Knowledge Society* 12.1 (2016).
- Yang Harrison Hao, "New world, new learning: trends and issues of e-learning", *Procedia-Social and Behavioral Sciences* 77 (2013): 429-442.
- Mukherjee Triparna and Asoke Nath, "Trends and challenges in e-learning methodologies", *Current Trends in Technology and Science* 5.1 (2016): 1.
- Pena-Bandalaria and Melinda M. Dela, "E-learning in the Philippines: Trends, directions and challenges", *International Journal on E-Learning* 8.4 (2009): 495-510.
- Singh Rachael Jesika, "Current trends and challenges in South African higher education: Part 1", *South African Journal of Higher Education* 29.3 (2015): 1-7.
- Gamage Sithara HPW, Jennifer R. Ayres, and Monica B. Behrend, "A systematic review on trends in using Moodle for teaching and learning", *International Journal of STEM Education* 9.1 (2022): 1-24.
- Mulyadi Dedi, Miftachul Huda and Islah Gusmian, "Smart learning environment (SLE) in the fourth industrial revolution (IR 4.0): practical insights into online learning resources", *International Journal of Asian Business and Information Management (IJABIM)* 13.2 (2022): 1-23.
- Singh Juhi, Arun Kumar Singh and Mukesh Singla, "Recent Trends in E-Learning Using Web 4.0", *Proceedings of the Third International Conference on Information Management and Machine Intelligence*, Springer, Singapore, 2023.
- Voudoukis Nikolaos and Gerasimos Pagiatakis, "Massive Open Online Courses (MOOCs): Practices, Trends and Challenges for the Higher Education", *European Journal of Education and Pedagogy* 3.3 (2022): 288-295.
- Sallam Marwan H, Elena Martin-Monje and Yan Li, "Research trends in language MOOC studies: a systematic review of the published literature (2012-2018)", *Computer Assisted Language Learning* 35.4 (2022): 764-791.
- Nikolaos Voudoukis and Gerasimos Pagiatakis, "Massive Open Online Courses (MOOCs): Practices, Trends and Challenges for the Higher Education", *European Journal of Education and Pedagogy*, 2022, pp.288-295.

Institute Reorganization of Authors

**Teaching Assistant, Department of Computational Logistics, Alagappa University, Karaikudi, India, Email-
avkarthick@gmail.com*

***Professor and Head, Department of Computational Logistics, Alagappa University, Karaikudi, India, Email-
agni_senthil@yahoo.com*

****Teaching Assistant, Department of Computational Logistics, Alagappa University, Karaikudi, India, Email-
karolinmsc@gmail.com*

EFFECT OF CIRCUIT TRAINING LADDER TRAINING AND COMBINED TRAINING ON SELECTED BIO CHEMICAL VARIABLES AMONG UNIVERSITY HOCKEY PLAYERS

K. Kaviyarasan & Dr. K. Murali Rajan***

Abstract

Background: *To develop the Bio chemical variables among university hockey players to practice the circuit training and ladder training.*

Purpose: *This study persevered in determining whether the circuit and ladder training effect physical variables such as Low-Density Lipoprotein (LDL) and High-Density Lipoprotein (HDL) among university level Hockey players. For this study 60 hockey players were randomly chosen from Arts & Science Colleges affiliated to Alagappa University were selected as subjects and their age range between 18to 25 years.*

Methods: *There were four groups of 15 players each, total subject were 60 University hockey players. The Group A Circuit training is followed by group Bladder training is followed by group C Combined training and the control group D have not Underwent any training and the data was before and after twelve weeks of training. A pre-test was administered two days before the training period began, and a post-test was administered after the training period concluded. The following variables namely Low-Density Lipoprotein and High-Density Lipoprotein were selected as criterion variables. All the subjects of four groups were tested on selected dependent variables at prior to and immediately after the training programme by using standardize testing tool respectively.*

Conclusion: *Combined Circuit training, ladder training has been beneficial to university level hockey players because it refines better Low-density Lipoprotein (LDL) and High-density Lipoprotein (HDL)*

Keywords: *Circuit, ladder, Hockey, Low Density Lipoprotein, High Density Lipoprotein*

Introduction

“A method of physical conditioning in which one moves from one exercise to another, usually in a series of different stations or pieces of equipment”. In circuit Training each of several stations has a designated task. The student moves from station to station, generally in a prescribed order, completing the designated fitness task at each station. Activities should

contribute to various components of physical fitness (strength, power, endurance, Agility and flexibility) (Morgan and Anderson (1953). Circuit training is an efficient and challenging form of conditioning. It works well for developing strength, endurance (both aerobic and anaerobic), flexibility and coordination. Its versatility has made it popular with the general Public right through to elite athletes. For sports men and women, it can be used during the closed season and early pre-season to help develop a solid base of fitness and prepare the body for more stressful subsequent training. Circuit training is a continuous series of exercises attempting to improve as many components of physical fitness as possible especially endurance. Generally, six to twelve stations are up. Selection and sequence of the activities within a lap of circuit is made with consideration given to the continuous nature of the performance. A group of individuals spends two minutes at each station (Mathews, 1971). Ladder training is the multi-directional training, because the elements of strength, power, balance, agility, co-ordination, proprioception, core and joint stability, foot speed, hand eye coordination, reaction time and mobility. Each component should be integrated in to daily training session. Ladder skills are fun and functional ways to teach movement skills. By training, the mind and body to understand a verity of foot combinations. There are 4 basic skills is used when training with ladder. Runs, skips, shuffles and jump/hops. Ladder agility drills are an excellent way to improve foot speed, agility, coordination and overall quickness. They are an integral part of many SAQ programs and compliment many different sports and events. Speed ladder drills are about quality and form rather than producing overload. The drills are not meant to leave you fatigued or breathless in the way that shuttle runs might (“Ladder agility drills”, 2014).

Methodology

The purpose of the study was to investigate effect of Circuit training, ladder training and combined training on selected bio chemical variables among university hockey Players. It was hypothesized that there would be significant differences on selected dependent variables namely as Low-Density Lipoprotein (LDL) and High-Density Lipoprotein (HDL) due to the effect of circuit training ladder training and combined training among university hockey Players. For the present study, sixty hockey players from Arts & Science Colleges affiliated to Alagappa University, were chosen as the subjects was selected as subjects at random and their age ranged from 18 to 25 years. The subjects were divided into four equal groups of fifteen each. The subjects were randomly assigned to three equal groups of twenty each and named as Group ‘A’ –

Circuit training, Group ‘B’ – Ladder Training, Group ‘C’ – Combined Training and Group D - Control group have not undergone any training programme. Low-Density Lipoprotein and High-Density Lipoprotein was assessed by Boehringer Mannheim Kit. The data were collected before and after twelve weeks of training. Initially descriptive statistics and paired ‘t’ test was applied to test the significance of mean gains made in each of the variables by the experimental groups. The analysis of covariance (ANCOVA) was also used to analyze the significant difference, if, any among the groups. Since, the four groups were compared whenever they obtained ‘F’ ratio for adjusted posttest was found to be significant.

Table–1
The Summary of Mean and Dependent ‘T’ Test for the Pre and Post Tests on LDL of Experimental Groups

Mean	Circuit Training Group-A	Ladder Training Group-B	Combined Training Group-C	Control Group- D
Pre-Test Mean	130.27	129.93	130.33	128.33
Post Test Mean	107.53	109.33	100.33	127.73
‘t’ test	5.28*	3.91*	5.67*	0.10

*Significant at .05 levels (Table value required for significance at .05 level for ‘t’-test with df 14 is 2.15)

Table–1.2
Analysis of Covariance of Adjusted Post- Test Means on LDL for Experimental groups and Control Group

Tests	Adjusted Post Test Means				Source of Variance	Sum of Squares	df	Mean Squares	‘F’ Ratio
	Circuit Training Group	Ladder Training Group	Combined Training Group	Control Group					
Pre Test	130.27	129.93	130.33	128.33	Between	39.65	3	13.22	0.04
					Within	18464.53	56	329.72	
Post Tests	107.53	109.33	100.33	127.73	Between	6125.40	3	2041.80	7.73*
					Within	14795.33	56	264.20	
Adjusted post Test	107.18	109.20	99.94	128.61	Between	6739.42	3	2246.47	16.94*
					Within	7295.41	55	132.64	

**Significant at .05 level of confidence (LDL Scores in mg/dL)*

(The table value required for Significance at 0.05 levels with df 3 and 56 & 3 and 55 is 2.76 and 2.77)

Table-2

The Summary of Mean and Dependent 'T' Test for the Pre and Post Tests on HDL of Experimental Groups

Mean	Circuit Training Group	Ladder Training Group	Combined Training Group	Control Group
Pre-Test Mean	42.13	41.87	41.87	41.00
Post Test Mean	46.87	50.33	51.27	40.73
't' test	2.71*	4.71	5.88*	0.16

Significant at .05 level (Table value required for significance at .05 level for 't'-test with df 14 is 2.15)* **Table-2.1

Analysis of Covariance of Adjusted Post- Test Means on HDL for Experimental groups and Control group

Tests	Adjusted Post Test Means				Source of Variance	Sum of Squares	df	Mean Squares	'F' Ratio
	Circuit Training Group	Ladder Training Group	Combined Training Group	Control Group					
Pre Test	42.13	41.87	41.87	41.00	Between	10.98	3	3.66	0.21
					Within	959.20	56	17.13	
Post Tests	46.87	50.33	41.27	40.73	Between	1023.67	3	341.22	24.10*
					Within	792.93	56	14.16	
Adjusted Post Test	46.60	50.24	51.17	41.18	Between	916.71	3	305.57	40.67*
					Within	413.27	55	7.51	

**Significant at .05 level of confidence (HDL scores in mg/dL)*

(The table value required for Significance at 0.05 level with df 3 and 56 & 3 and 55 is 2.76 and 2.77)

Discussion on Findings

This study confirms that Circuit training, ladder training and combined training has positive improvement on Low-Density Lipoprotein (LDL) and High-Density Lipoprotein (HDL). From the results of the present investigation, it is also concluded that significant difference on Circuit training, Ladder training and combined training in developing dependent variables Low-Density Lipoprotein (LDL) and High-Density Lipoprotein (HDL) hence the hypothesis was accepted.

Conclusions:

Based on findings and within the limitations of the study the following conclusions were drawn:

1. The present study explains clearly that bio chemical variables the observed results significantly favored the experimental groups namely Circuit training, ladder Training and combined training as compared to control group.
2. Similarly, the Effect of experimental group of was found as significantly difference than control group on Low-Density Lipoprotein (LDL) and High-Density Lipoprotein (HDL).
3. It was concluded that university level hockey players should practice both circuit training and ladder training for positive enhancement of performance.
4. Thus, based on the result, it was concluded that combined training methods shows positive result and would be recommended for developing the Bio chemical variables of the study.

References:

- *Abel, M G; Mortara, A J; Pettitt, R,(2011) Evaluation of Circuit Training Workout Intensity for Firefighters, Journal of Strength & Conditioning Research. 25(): S18-S19, March*
- *Al-Haliq, M. (2015). Using the Circuit Training Method to Promote the Physical Fitness Components of the Hashemite University Students. Advances in Physical Education., 5(03): 170.*
- *Babalola, J. F. (2011). Effects of 8-weeks circuit training programme on physiological and performance characteristics of university racket gameplayers. Journal of Asian Scientific Research., 1(4): 143-149.*
- *Dhanaraj S. (2014), Effects of Ladder Training on Selected Motor Fitness Variables Among Handball Players, International Journal of Scientific Research, 3:4, April*

- Halverstadt, A., Phares, D.A., Wilund, K.R., et al. Endurance exercise training raises high-density lipoprotein cholesterol and lowers small low-density lipoprotein and very low-density lipoprotein independent of body fat phenotypes in older men and women. *Metabol.*, 56. 444-450. 2007
- Jyoti M. Reddy (2012), Comparison of Circuit Training Methods on Performance Variables of SC/ST Non-SC/ST Boys, *Zenith, International Journal of Multidisciplinary Research*, Vol.2 Issue 4, April.
- Jamil, Syarulniza Abdul, Nurhani Aziz, & Lim Boon Hooi(2015), Effects of Ladder Drills Training on Agility Performance, *International Journal of Health, Physical Education and Computer Science in Sports*, Volume No.17, No.1. pp17-2
- Koc, H., & Tamer, K. (2008). The effects of aerobic and anaerobic trainings on lipoprotein levels. *Journal of Health Sciences*. 17, 137-143.
- Manna, N., Khanna, G. L., & Dhara, P. C. (2012). Effect of training on anthropometric, physiological, and biochemical variables of U-19 volleyball Players. *Journal of Human Sport & Exercise*, 7(1).
- Musa DI, Adeniran SA, Dikko AU, Sayers SP. The effect of a high-intensity interval training program on high-density lipoprotein cholesterol in young men. *J Strength Cond Res*. 2009; 23:587–592.
- Nithesh, K R and S J Albert Chandrasekar (2017), Effect of Ladder Training on Selected Motor Abilities of School Level Soccer Players, *Asian Journal of Applied Research*, Volume 03- Issue 05 -, pp-11-17.
- Raja, K and Mahendran A. (2016), Effect of Ladder Training Followed by Speed Training on Selected Physical Variables among Kho-Kho Players, *International Journal of Physical Education, Yoga and Health Sciences*, Vol.3, Issue -1, February.

Institute Reorganization of Authors

*Research Scholar, Alagappa University College of Physical Education, Karaikudi, Tamil Nadu, India

**Principal, Alagappa University College of Physical Education, Karaikudi, Tamil Nadu, India

AWARENESS OF LEARNING DISABILITIES AMONG TEACHERS OF PRIMARY SCHOOLS

Dr. J. E. Merlin Sasikala and Dr. T. Ravichandran***

Abstract

The purpose of this research is to determine the level of knowledge that primary school teachers possess regarding learning disabilities. A significant difficulty for educators and schools is learning difficulties. Ensuring that students with learning impairments receive the assistance they need in regular classes or special education settings within the school is crucial to achieving the goals of universal elementary education and equitable educational opportunities. Failure to do so will result in these goals being missed. The study's goal is to evaluate primary school teachers' knowledge and proficiency with LD. In the Karaikudi area, 50 primary school teachers from 20 schools were chosen for an exploratory study using a lottery system. The study discovered that elementary school instructors had little understanding or awareness of learning difficulties.

Keywords: *Learning Disabilities, Awareness, Primary School*

Introduction

A learning disability refers to delays, diversions, and discrepancies in fundamental academic subjects such as mathematics, reading, writing, spelling, as well as speech. These difficulties cannot be ascribed to inherent deceleration, emotional deficiencies, or disturbances, constituting a broad educational term encompassing various conditions. Unfortunately, many of these kids are frequently misinterpreted as having learning impairments, facing stigmatization due to a lack of awareness among educators, parents, and school authorities. Teachers play a crucial role in shaping the intellectual, physical, and moral development of children within the educational system.

In typical classrooms, one or two students with learning disabilities can be found, while those with severe literacy issues may enter special schools tailored to their needs. However, numerous students with learning disabilities are enrolled in regular schools where they struggle to succeed and, ultimately, prematurely exit the educational system (Gandhimathi, 2010). The needs of these overlooked and marginalised kids are frequently ignored in the school's normal

and special education classes. Failure to recognize these disabilities poses a risk of other issues like depression, anxiety, and delinquency for these children (Trute, 2008). Early intervention is crucial for improving outcomes and requires proactive identification and appropriate intervention planning.

The primary challenge lies in the lack of awareness among the general public and educators. Transforming educators to adopt early detection and educational strategies is paramount. Teachers play a pivotal role in facilitating the integration of these children's capabilities. Once educators are equipped to handle these students effectively, their overall status within the educational system could witness significant improvement. Learning disabilities, despite being frequently misdiagnosed, are lifelong conditions without a cure. Unfortunately, due to a lack of recognition, these children are often labeled as failures or slow learners, leading to a decline in self-esteem, disinterest in learning, and eventual dropout from school.

This situation is concerning, as learning-disabled individuals who leave school without adequate academic support are more prone to engaging in risky behaviors such as tobacco, alcohol, and drug abuse. School dropout is correlated with illegal activities, incarceration, and an increased likelihood of teenage pregnancies. The objective of this study is to evaluate the current knowledge level of primary school teachers regarding learning disabilities.

Review of Literature

In a study conducted by Sarojiny (2000), the focus was on primary school teachers' awareness of English language learning difficulties in primary school settings. The purpose of the study was to increase and assess primary school teachers' understanding of challenges associated with learning the English language. The findings showed that primary school teachers had a poor degree of awareness, underscoring the need for them to learn more about the difficulties involved in learning English.

Gandhimathi (2010) explored the awareness of primary school teachers regarding learning disabilities. The research aimed to assess the level of awareness, identify influencing factors, and propose remedies for teachers dealing with children with learning disabilities. The study, conducted in Thiruverumbur block in Tiruchirappalli with a sample of 71 teachers from 16 randomly selected schools, revealed that a significant majority (66.2%) had a low general awareness of learning disabilities.

Malusu and Kamau-Kang'ethe (2010) evaluated teachers' awareness and interventions for students with learning disabilities in inclusive education within Makadara Division. The findings indicated that while teachers were aware of inclusive education and employed various interventions, such as remedial methods and direct teaching, they were not adequately prepared professionally to address the needs of students with learning disabilities.

Aladwani and Shaye (2013) focused on Kuwaiti primary school teachers, assessing their knowledge of early signs of dyslexia and their awareness of the challenges faced by children with dyslexia. The study concluded that while Kuwaiti teachers were aware of the issue, time constraints and the demands of daily school routines hindered their ability to effectively support and assess these children.

A common thread in various studies emphasized that the success of including students with learning disabilities in mainstream education is contingent on teachers' awareness of these students' needs (Trute, B., Worthington, C., & Hiebert-Murphy, D 2008). This highlights the crucial role of teacher awareness in fostering an a welcoming atmosphere in the classroom with learning disabilities.

Research Methods

Participants based on lottery method in Karaikudi region, 20 schools were selected and data were collected from 50 primary teachers from these 20 schools.

Assessment

In order to gauge primary school teachers' knowledge of learning difficulties, the researcher created a questionnaire.

Procedure

The school administration's prior consent was obtained in order for the data collection to administer the researcher's creation, the Learning Disability Awareness Inventory.

The participants received the necessary instructions and the researcher provided an explanation of the survey's goal.

Findings and Conclusions

The data collected was statistically analyzed on percentile basis and analyses were done on the basis of Level of awareness of learning disabilities and scores achieved in test items by the teachers.

Analysis on basis of Level of awareness: The scores were divided into high, medium and low level of awareness as depicted in Table 1.

Table 1

Percentage Distribution of Respondents (Teachers) Across Various Levels of Awareness Regarding Learning Disability

Sl. No	Levels	Scores	% age of respondent
1.	High	7.5	15%
2.	Medium	12.5	25%
3.	LOW	30	60%

60% of teachers had no knowledge of learning disabilities. 25% teachers had little aware of learning disabilities. 15% teachers knew about the learning disabilities satisfactorily.

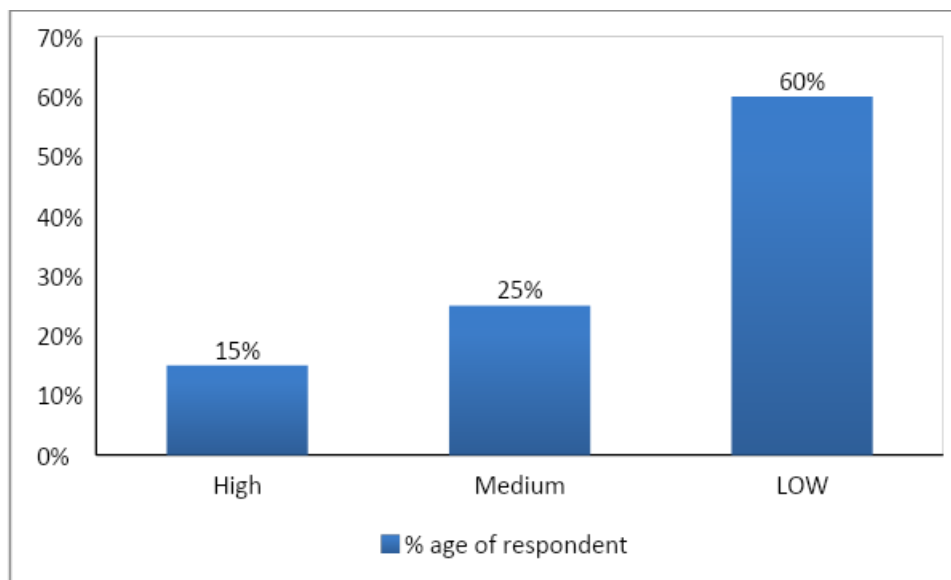


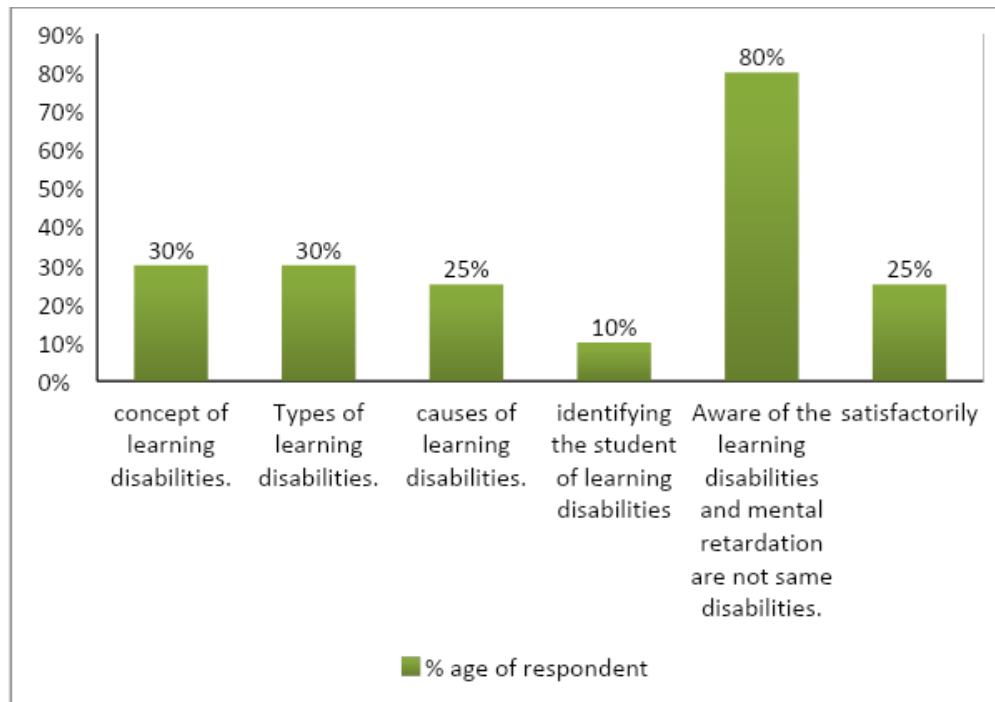
Table 2

Percentage of Knowledge and Awareness in Different Questions about Learning Disabilities

Sl. No	Awareness Question	Scores	% age of respondent
1.	Concept of learning disabilities.	15	30%
2.	Types of learning disabilities.	15	30%
3.	Learning disabilities causes.	12.5	25%
4.	identifying the of learning disability students	5	10%
5.	Understanding that mental retardation and learning difficulties are not the same	40	80%
6.	satisfactorily	12.5	25%

- 30% of the total teachers told that they were aware of the concept of learning disabilities.
- 30% of the teachers told that they were aware of the types of learning disabilities.
- 25% told that they were aware of the causes of learning disabilities.
- Only 10% of the teachers were identifying the student of learning disabilities in their classroom.

- 80% of the instructors reported knowing that mental retardation and learning difficulties are not the same.
- A satisfactory percentage of the instructors received recommendations and guidance for teaching children with disabilities. Understanding that mental retardation and learning difficulties are two different conditions



Discussion

The findings of this study reveal that, irrespective of gender and teaching experience, the participating teachers exhibit a low level of knowledge regarding specific learning skills. This deficiency may stem from inadequate training in addressing unseen disabilities and learning difficulties. The study's results align with those of other researchers in the field, as noted by Krishnakumar A (2010), who highlighted limited knowledge among teachers regarding learning abilities. Moreover, the absence of a dedicated module for identifying and addressing children's learning disabilities in the Indian Bachelor of Teacher Education (B.Ed.) program, as pointed out by Chatterjee (2009), contributes to this shortfall.

Consistently, the lack of adequately trained personnel has been identified as a significant barrier to providing services to children with disabilities in India, as noted by Krishnakumar A (2010). Rajakumar et al. (2005) emphasized the necessity for teachers to undergo training to

effectively address the special needs of children. The initial step involves training teacher educators to identify students with learning disabilities, implement innovative teaching strategies, and create an inclusive environment. Subsequently, these trained educators can impart their knowledge to prospective teachers.

Recognizing the complexity of learning disabilities and the prevalence of such challenges in the average classroom (at least two or three children per class), there is a call for organizing programs, discussions, lectures, and workshops for teachers through group work. Shukla, P., and Agrawal, G. (2015) advocated for special teachers to be assigned to regular schools to support educators in effectively managing children with learning disabilities. Overall, the study underscores the critical need for comprehensive training initiatives for educators to enhance their understanding of learning disabilities and equip them with the skills to address the diverse needs of students in mainstream classrooms.

Conclusion

The findings of this study indicate a low level of awareness regarding learning disabilities in primary schools. Given the crucial role lower-level teachers play in a child's education, it becomes imperative for a Bachelor of Education (B.Ed.) or teacher education program to provide teachers with specialized skills. These skills should encompass the identification of various learning disabilities, understanding their causes and development, employing effective teaching strategies, utilizing appropriate media and materials, implementing developed treatment approaches, and incorporating guidance and counseling.

It is essential for primary school teachers to enhance their familiarity with students experiencing learning difficulties. This includes the ability to accurately identify and categorize different types of students in their classes. This proactive approach is crucial to preventing the emergence of new mental and social challenges among students. Introducing special teaching methods, rehabilitation techniques, and personalized treatment strategies based on individual student needs becomes a necessary step to address and overcome learning disabilities in the primary school setting.

References

- Al Khatib, J. M (2007). A Survey of General Education Teachers' Knowledge Of Learning Disabilities In Jordan, *International Journal of Special Education*, 22(1), 72-76. Retrieved from <http://eric.ed.gov/?id=EJ814471> dated December 14, 2013
- Aladwani, Amel M; Shaye, Shaye S. Al (2013). Primary School Teachers' Knowledge and Awareness of Dyslexia in Kuwaiti Students, *Academic journal*, 132(3). Retrieved from <http://www.questia.com/library/journal/1G1-283945585/primary-school-teachers-knowledgeand-awareness-of#articleDetails>
- Avramidis, E., and Norwich, B. (2002). Teachers' attitudes towards integration/inclusion: A review of the literature. *European Journal of Special Needs Education*, 17 (2)
- American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 4th ed. Washington D.C., 1994.
- M. Chatterjee, Indian teachers still not trained to Tackle Dyslexia, (2009), http://www.daijiworld.com/news/news_disp.asp?n_id=65148
- Gandhimathi U.(2010). Awareness about learning disabilities among the primary school teachers. *Cauvery Research Journal*, vol. 3, 1&2(2010), 71-72.
- Karande S. , S. Sawant, M. Kulkarni, P. Galvankar and R. Sholapurwala, Comparison of cognition abilities between groups of children with specific learning disability, *Indian Journal of Medical Sciences*, 59(3) (2005), 95-103.
- Karanth P. , *Reading and Reading Disorders: An Indian Perspective (Vols. 22-23)*, (1998), Hyderabad, India: University of Osmania.
- Krishnakumar A., *Coping with a disability*, *Frontline*, April (1999), Retrieved march 21 (2015), from http://www.frontline.in/static/html/fl_1608/16081140.htm.
- Malusu., & Kamau-Kang'ethe (2010). Teachers Awareness and Intervention For Primary School Pupils With Learning Disabilities in Inclusive Education in Makadara Division KENYA Retrieved from http://www.ku.ac.ke/schools/graduate/images/stories/docs/abstracts/2010/june/teachers_awareness_and_interventions_for_primary_school_pupils.pdf
- Poorna Shukla(2015) Awareness of Learning Disabilities among Teachers of Primary Schools, *Online Journal of Multidisciplinary Research (OJMR)*, Vol. 1 Issue (1), 33-38
- P. Rajakumar, S. Kumar, S. Uppal and V. Devikar, *National Curriculum Framework*, (2005), National Council of Educational Research and Training, New Delhi: NCERT Publication.
- Shilpa. (2000, January 20). Detect Learning Disabilities in Children. Message posted to http://www.indiaparenting.com/childshealthcare/36_240/detect-learningdisabilities-inchildren.html
- Shukla , P., and Agrawal, G. (2015). Awareness of Learning Disabilities among Teachers of Primary Schools. *Online Journal of Multidisciplinary Research*, 1(1): 33-38.
- Sarojini, R. (2000). Awareness of primary school teachers towards learning disabilities in English at primary stage. Unpublished M.Phil. Dissertation, Alagappa University, Karaikudi.
- Trute, B., Worthington, C., & Hiebert Murphy, D. (2008). Grandmother support for parents of children with disabilities: Gender differences in parenting stress. *Families, Systems & Health*, 26(2), 135- 146.
- World Health Organization. How To Define And Categories Learning Disability. Retrieved march 6, 2015 <http://www.aboutlearningdisabilities.co.uk/how-define-categorise-learningdisabilities.html>.

Institute Reorganization of Authors

*Associate Professor, Alagappa University College of Education, Alagappa University, Karaikudi-630003

**Associate Professor, Government College of Education, Pudukkottai-622001

COMPARATIVE STUDY OF ABDOMEN STRENGTH BETWEEN MEN CRICKET PLAYERS AND HOCKEY PLAYERS

*D. Maruthanyagam**, *Dr. S. Nagarajan***, *S. Sangeetha****, & *Dr. K. Usha Rani*****

Abstract

The purpose of the present study was to compare the abdomen fitness variable of college men Hockey and Cricket players. Thirty (30) college level men Hockey and Cricket players were selected from Alagappa University College of Physical Education, Karaikudi, Tamil Nadu. Were chosen based on the subjects, with 15 participants in each group. Their aged ranged between 17-25 years. The curl up test was used to assess abdomen strength of the men cricket players and hockey players. The selected criterion variable was evaluated using the curl up test. The collected data were treated with “t’ test. The level of confidence was fixed at 0.05 levels. The result of the study indicates that there was a significant difference occurred on abdomen strength between college men cricket players and hockey players. The result of the study cricket players shows superior to hockey players in abdomen strength.

Keywords: *Cricket, Hockey, Strength Training, Curl up Test*

Introduction

Strength, Endurance, Speed, Agility, and Flexibility are the primary physical traits deemed important for success. The physical system of the body must work well enough to support the specific activity that the individual is conducting in order for it to be fit. Hockey is a sport that demands a high degree of physical fitness. It is one of the few games that require not just speed but also agility, strength, power, and endurance. To be successful, hockey players must have a combination of technical, tactical, and physical abilities. Improving aerobic capacity and general fitness improves hockey performance. Cricket is a deceptively hard activity; players spend the most of the day on their feet, and there are frequent fast sprints when batting, chasing down a ball, and bowling, as well as different dynamic actions like as leaping, throwing, and turning swiftly. It is critical that all players improve their fitness. Fitness is crucial at all levels of the game, and while it is necessary for top-level players, it is also advantageous for novices, who will increase both their effectiveness and pleasure by maintaining a healthy level of fitness. Fitness is crucial at all levels of the game, and while it is necessary for top-level players, it is also

advantageous for novices, who will increase both their effectiveness and enjoyment via strong fitness standards. Fitness allows a player to deal with the physical demands of the game while also allowing him to employ his different technical and tactical abilities effectively during the game. The researcher is curious in the fitness differences between cricket and hockey players because the movements in both games are comparable.

Cricket

The cricket was played with three skills batting, fielding and bowling. Their performance was better they are focus on They call for outstanding attention, strength, muscular endurance, explosive bursts, postural control, and fitness. Since cricket is an intermittent activity and fitness is the key to being a healthy cricket player, physical qualities should be highly valued in terms of fitness in the game. The body's capacity to regulate the trunk and pelvis for maximum output, as well as the transmission and regulation of functional activities, is referred to as core stability. Bowling is one of several sports that involve intricate upper- and lower-extremity coordination. The core serves as the important connecting element between the lower and upper extremities. Anatomically speaking, the core region of the body is shaped like a box, with the diaphragm at the top, the pelvic floor and hip muscles at the bottom, the spinal and gluteal muscle groups at the back, and the abdomens on the front. (The muscles of the core, comprising the gluteal, hip, back, and abdomen regions, are crucial for generating force throughout the various motions involved in cricket.) Cricket has evolved quickly in the current era, necessitating the requirement for athletes in peak physical condition. These athletes must have the following attributes: muscular strength and endurance, speed, agility, balance, flexibility, cardio respiratory endurance, etc.

Hockey

Hockey players need to be nimble and flexible since hanging directions and moving fast around other players are essential skills. The majority of the time when playing hockey players is semi-crouched when handling, dribbling, and guarding the ball. A force that is unequal between the hip flexors and the gluteal muscles is produced by the prolonged hip flexion, which makes the anterior pelvic tilt easier to achieve. The external rotator and hip extensor muscles are essential for running, sprinting, ball throwing, and abrupt direction changes. Because of the heavy stress these rapid motions exert on them, they are frequently overused. Hockey players

frequently experience limited hip flexibility as a result of extended flexion during games and excessive usage of the hip extensor and external rotator muscles.

Statement of the Problem

The purpose of this study was to find out the comparison of abdomen strength between men cricket players and hockey players.

Objective of the Study

1. To measure out the abdomen strength of the cricket players.
2. To measure out the abdomen strength of the hockey players.
3. To compare and find out the abdomen strength between hockey and cricket players.

Methodology

Selection of Subject

The purpose of the study was to determine the comparative study of abdomen strength between men cricket players and hockey players. The purpose of the present study was to compare the abdomen fitness variable of college men Hockey and Cricket players. Thirty (30) college level men Hockey and Cricket players were selected from Alagappa University College of physical education, Karaikudi, Tamil Nadu. Were chosen based on the subjects, with 15 participants in each group. Their aged ranged between 17-25 years.

Design of Study

The single Random group design was used to select the subjects.

Criterion Measure

Sl. No	Criterion variables	Test items	Unit of measurement
1	Abdomen Strength	Curl-up test	Numbers

Statistical Analysis

Descriptive statistics “t” test was used to analyse the difference between the men cricket players and hockey players in abdomen strength.

Result and Discussion

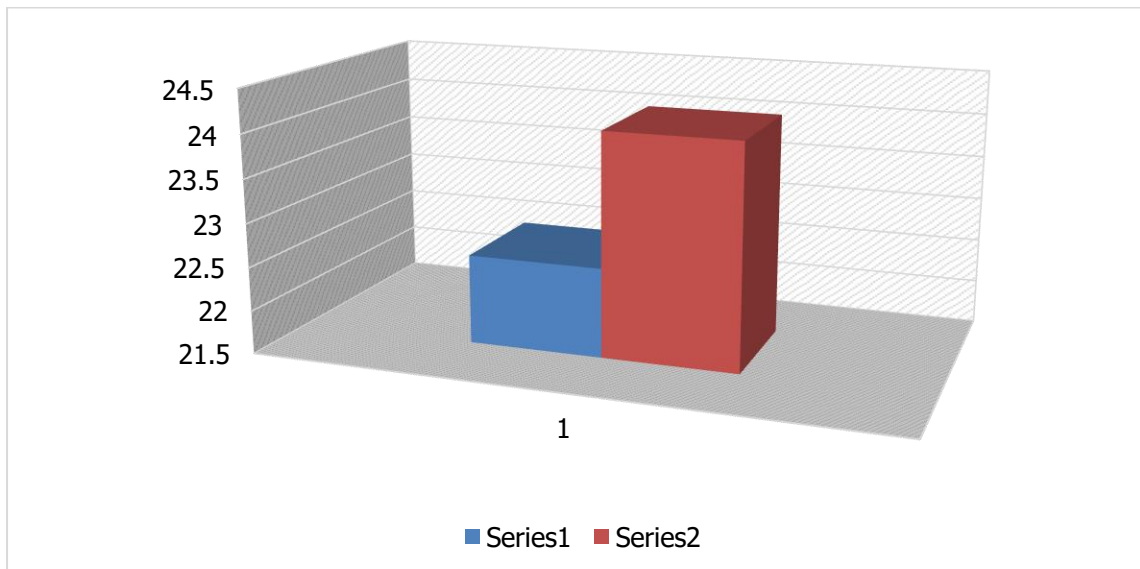
Computation of mean, difference between the mean, standard deviation, and t test on abdomen strength between men hockey and cricket players.

Table-1

Variables	Mean		Difference between the Mean	SD		“t” ratio	Table Value
	Hockey	Cricket		Hockey	Cricket		
Abdomen Strength	22.53	24.06	1.533	1.84	1.22	2.14	*2.05

*significance at 0.05 level of confidence, degrees of freedom 28 is 2.05

It was found that the above table 1 shows mean, difference between the mean, standard deviation and “t” ratio of men cricket and hockey players in abdomen strength, The mean 22.53, 24.06 mean difference 1.533, stander deviation 1.84, 1.22 “t” ratio 2.14. The obtain “t” ratio value is *2.05 greater than the table t value 2.14 at 0.05 level of confidence, Degrees of freedom 28 these indicate there is a significant difference between men cricket player and hockey players in abdomen strength.



Discussion and Finding

The result of the study indicates that there is a significance difference between the men cricket and hockey players in the variable of abdomen strength.

Conclusion

- Based on the result of the present study the “t” ratio shows significant difference in abdomen strength.
- The result of the study cricket players shows superior to hockey players in abdomen strength.

Reference

- Ananth, S. (2018). Comparison of selected physical fitness variables of school level hockey and cricket players. *International Journal of Yogic, Human Movement and Sports Sciences*, 3(2), 939-940.
- Ansari, A. M., & Mirani, M. (2023). Association of Abdomen Endurance with Body Mass Index and Playing Hours in Collegiate Cricket Players: An Observational Study. *Int J Physiother Res*, 11(2), 4462-66.
- Fitness for cricket. (n.d.). Isle of Man Cricket Association. <https://www.iomcricket.co.uk/fitness-for-cricket.html>
- Cholaviya, R., & Shah, N. (2022). Effect of hip adductor strengthening on performance in young male cricket players.
- Singh, L. S., Singh, N. R., & Singh, K. P. ANALYSIS OF SELECTED MOTOR ABILITIES BETWEEN FOOTBALL AND HOCKEY PLAYERS. *EMERGING TRENDS OF PHYSICAL EDUCATION AND SPORTS SCIENCE*, 20(34.95), 7-64.
- Ramasamy, S., Franklin, J., Govindharaj, P., &Panneerselvam, S. (2023). The effect of 8-week warm-ups, static and dynamic stretching of hip flexors on flexibility, agility, and dynamic balance in junior field hockey players: a randomized controlled trial. *Bulletin of Faculty of Physical Therapy*, 28(1), 53.

Institute Reorganization of Authors

*Research Scholar, Alagappa University College of Physical Education, Alagappa University, Karaikudi

**Professor, Alagappa University College of Physical Education, Alagappa University, Karaikudi

***Research Scholar, Department of Physical Education and Health Sciences, Alagappa University, Karaikudi

****Professor & Head, Department of Physical Education and Health Sciences, Alagappa University, Karaikudi

EFFICIENCY OF YOGIC PRACTICE AND NEUROMUSCULAR TRAINING ON PHYSICAL FITNESS PARAMETERS AMONG SCHOOL LEVEL FENCERS

A. Lincy* & Dr. A. Rube Jesintha**

Abstract

The purpose of study was to find out the Influence of Asana Practice and Neuromuscular Drills on Physical fitness parameters of school level fencers. To achieve the purpose of the study, thirty fencing players with the age of 11 to 14 years from Fencing Coaching centre, Kanyakumari, Tamil Nadu were selected as subject at random. The study was formulated as pre and post test random group design. The selected subject was divided into three equal groups. The group-1 (n=10, ND) underwent neuromuscular drills. The group-2 (n=10, AP) underwent asana practices and group-3 served as control group (n=10, CG). In this study, two training programmes were adopted as independent variables and the agility was selected as dependent variable. It was tested by T test; scores recorded in seconds. The agility tested before and after the training period. The collected pre and post data was critically analyzed with apt statistical tool of analysis of co-variance (ANCOVA). The Scheffe's post hoc test was used to find out pairwise comparisons between groups. The result clearly proved that there was a significant improvement on agility in experimental groups than the control group.

Keywords: Neuromuscular; Asana; Agility; Fencing; Ancova

Introduction

The body in asanas is the vehicle for the development of wisdom, of spiritual awakening, and as such the body is held to be sacred and mastery of our body is considered the foundation for spiritual progress. In yoga we learn a discipline of the body which comes out of awareness and attentiveness, tuning in to our body's subtle energy flows and the life-giving rhythm of our breathing. The idea is that through entering more deeply and subtly into our physical experience, we can become more connected with ourselves, more grounded, and less swayed by anxieties or neurotic cravings for things that will not truly satisfy us. This can be a very positive Influence on our approach to life, offering an antidote to the alienated rushing and disconnection from ourselves that characterizes much of our modern world.

Marked evidence shows that neuromuscular drills programs are Influenceive for improving measures of performance. The benefits of a program designed for performance enhancement often include increased power, agility, and speed. Comprehensive neuromuscular drills programs designed for young women may significantly increase power, strength, and neuromuscular control and decrease gender differences in these measures Dynamic neuromuscular drills has also been demonstrated to reduce gender-related differences in force absorption, active joint stabilization, muscle imbalances, and functional biomechanics while increasing strength of structural tissues (bones, ligaments, and tendons). These ancillary Influences of neuromuscular drills, which are likely related to the reduction of the risk of injury in all athletes, are positive results of training.

Statement of the Problem

The main purpose of the study is to find out the Influence of Asana Practice and Neuromuscular Drills on Physical fitness parameters of school level fencers.

Subjects and Methods

Thirty fencing players with the age between 11 to 14 years were selected randomly from Fencing Coaching centre, Kanyakumari, Tamil Nadu, India. They were randomly divided into three equal groups, i.e., two experimental and one control group. The experimental group-1 (n=10, ND) entertained neuromuscular drills, the experimental group-2 (n=10, AP) and group-3 (n=10, CG) served as control group, they did not participate any training.

The two experimental groups underwent their respective trainings as per the schedule under the direction of the researcher who provided advice, motivation and encouragement to the players. Every day the training program was carried out in the morning session that lasted for sixty minutes. The experimental groups had ten minutes of warm up and ten minutes of warm down exercises for before and after the training program.

Table 1: The Results of Analysis of Covariance on Agility of Different Groups (Scores in Seconds)

Test	Mean	N	Std. Deviation	Std. Error Mean	T	df	Sig. (2-tailed)
Pre test	26.293	15	3.2675	.8437	10.395	14	.000
Post test	18.347	15	1.2409	.3204			

*Significant at .05 level of confidence. Therequire table’s value for test the significance was 3.2675 and 1.2409 with the df of 14 and 26 and 18.

Table- 1 Reveals the APG mean value of AG for pre test 26.293, and post test 18.347, also it represent the obtained t ratio value is 10.395 and sig value 0.000. The obtained t ratio value is greater that the t table value (two tailed) is 2.144, Also the obtained Sig value 0.00 is less than the level of significance 0.05. From the table 4.17 statistical results shows there is a significant improvement between pre and post test mean value due to the effect of 12 weeks of AP training programme on AG.

Table 1 reveals the NMT mean value of AG for pre test 24.447, and post test 18.840, also it represent the obtained t ratio value is 8.680 and sig value 0.000. The obtained t ratio value is greater that the t table value (two tailed) is 2.144, Also the obtained Sig value 0.00 is less than the level of significance 0.05. From the table 4.18 statistical results shows there is a significant improvement between pre and post test mean value due to the effect of 12 weeks of NMDG training programme on AG.

Table 1 reveals the CG mean value of AG for pre test 22.613, and post test 22.507, also it represent the obtained t ratio value is 0.33 and sig value 0.747. The obtained t ratio value is less that the t table value (two tailed) is 2.144; also the obtained Sig value 0.747 is greater than the level of significance 0.05. From the table 4.20 statistical results shows there is no significant improvement between pre and post test mean value on AG because the CG didn’t involve any special activity.

Table 1 (A): The Results of Scheffe’s Post Hoc Test Mean Differences on AGILITY among Two Groups (Scores in Seconds)

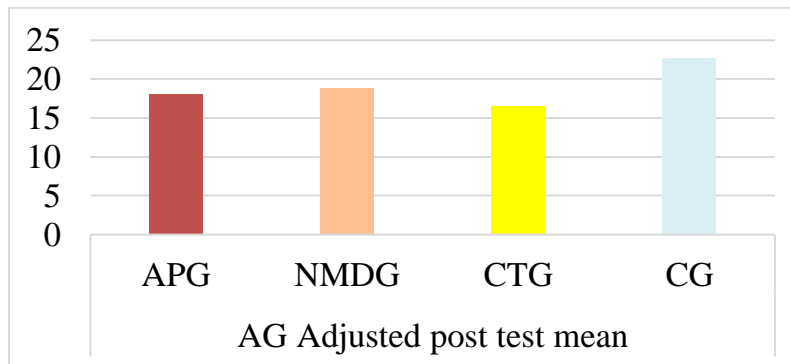
APG	NMDG	CTG	CG	MD	CI
18.121	18.816			.695	1.40
18.121		16.541		1.580*	
18.121			22.682	4.561*	
	18.816	16.541		2.275*	
	18.816		22.682	3.866*	
		16.541	22.682	6.141*	

* Significant at .05 level of confidence.

Result of Scheffe’s Post Hoc Test onAgility

Table 1 a indicate the ANCOVA statistical results of AG, the adjusted post test mean value of APG is 18.121, NMDG is 18.816, CTG is 16.541 and CG is 22.682, however the table 4.37 shows the F ratio 53.077 which is greater than the f table value 2.77 with df 3, 55 at 0.05 level of significant. Also, obtained sig value 0.00 less than, the 0.05 level of significant. The statistical results concluded that there is significant improvement difference exists among APG, NMDG, and CG. The adjusted post test mean value of AG was presented in the graphical format in 4.33. The table 4.37 shows the difference exists. Hence, Scheffe’s post hoc test used to find the MD from the paired mean comparison and presented in 4.38.

The adjusted post test mean deference of experimental and control group value graphically represented in the figure-1



From the figure-1 represent the paired wise mean comparison MD value between APG and NMDG is less than the CI value of 1.40. Also, MD of APG and CTG; APG and CG; NMDG and CTG; NMDG and CG; CTG and CG is greater than the CI value of 1.40.

From the Table 4.38 statistical results indicates there is no difference exists among APG and NMDG. Also, indicates there is difference exists APG and CG; NMDG and CTG, NMDG and CG and CTG and CG. When comparing the adjusted post test mean the CTG are better in improving the AG compare than the APG, NMDG and CG.

Discussion

After analyzing the statistical end results the researcher found that the selected training groups have significantly improved the performance of agility from the base line to post interventions. The pre to post intervention was presents as follows. The neuromuscular drills and asana practices group from pre (13.43 ± 0.31) to post (12.60 ± 0.28). The percentage of improvement on agility for neuromuscular drills and asana practices group was 0.008%. The findings support, in line with the result of the studies

Conclusion

The neuromuscular drills and asana practices have improved the performance of agility than the control group. The neuromuscular drills and asana practices produced similar Influences on agility. The control group did not show any improvement.

References

- Timothy R. Ackland, Bruce Elliott, John Bloomfield (2009). "Applied Anatomy and Biomechanics in Sport". Human kinetics. P.No:2
- Avery D. Faigenbaum, Anne Farrell, and Marc Fabiano. Influences of Integrative Neuromuscular Training on Fitness Performance in Children. *Paediatric Exercise Science* 2011; 23: 573-584.
- Avery D. Faigenbaum, Gregory D. Myer, Anne Farrell, Tracy Radler, Marc Fabiano, Jie Kang, Nicholas Ratamess, Jane Khoury Timothy E Hewett. Integrative neuromuscular training and sex specific fitness performance in 7 year old children. *J Athl Train.* 2014; 49(2):145-53.
- David G. Behm. *The Science and Physiology of Flexibility and Stretching: Implications and stretching.* Routledge Publishers. 2019.
- Avery D. Faigenbaum, EdD, FACSM Department of Health and Exercise Science The College of New Jersey 2011 Northland Regional Chapter of the ACSM Progressive Plyometrics for Kids.

- Avery D. Faigenbaum, Gregory D. Myer, Anne Farrell, Tracy Radler, Marc Fabiano, Jie Kang, Nicholas Ratamess, Jane Khoury, and Timothy E. Hewett (2014) Integrative Neuromuscular Training and Sex-Specific Fitness Performance in 7-Year-Old Children: An Exploratory Investigation. *Journal of Athletic Training*: Mar/Apr 2014, Vol. 49, No. 2, pp. 145-153.
- Faigembaum, A. & Naclerio, F. (2011). *Prescripción Del Entrenamiento Adolescentes. Capitulo 25. IN NACLERIO, F. (Ed.) Entrenamiento Deportivo: Fundamentos y aplicaciones on diferentes Deportes. Editorial Médica Panamericana.387-402.*
- <https://www.healthykids.nsw.gov.au/teachers-childcare/physical-activity.aspx> NCYS report on trends and participation in organized youth sports. In: *Book NCYSReport on Trends and Participation in Organized Youth Sports. National Council on Youth Sports Web site, 2008.*
- Gregory D. Myer, Avery D. Faigenbaum, Kevin R. Ford, Thomas M. Best, Michael F. Bergeron and Timothy E. Hewett When to initiate integrative neuromuscular training to reduce sports-related injuries in youth? *Curr Sports Med Rep.* 2011 May-Jun; 10(3):15.
- Avery D. Faigenbaum, Anne Farrell, and Marc Fabiano. *Effects of Integrative Neuromuscular Training on Fitness Performance in Children. Paediatric Exercise Science 2011; 23: 573-584.*

Institute Reorganization of Authors

* *Ph.D, Research Scholar, Department of Physical Education and Health Sciences, Alagappa University, Karaikudi, Tamilnadu, India*

***Assistant Professor in Physical Education, Alagappa University College of Education, Alagappa University, Karaikudi, Tamilnadu, India*

EFFECT OF RESISTED AND ASSISTED SPRINT TRAINING ON SELECTED PHYSICAL FITNESS VARIABLES AMONG INTER-COLLEGIATE ATHLETES

Jogi Prasad & Dr. A. Rube Jesintha***

Abstract

The aim of this study was to examine the Effect of Resisted and Assisted sprint training on selected physical fitness variables among intercollegiate athletes. To achieve this purpose, sixty male intercollegiate athletes were chosen from Government Degree College, Karvetinagaram, Chittoor district, Andhra Pradesh, India, India, during the 2023-24 academic years. The age of the subjects ranged from 17 to 25 years. The selected athletes were divided into three equal groups, each consisting of 20 male athletes. Experimental group I underwent Resisted Sprint training, Experimental group II underwent Assisted Sprint training, and control group did not participate in any training during the period. Shoulder muscular strength endurance was selected as the criterion variable for this study. Pre-tests were conducted before the training period, and post-tests were taken immediately after the twelve week training period. The statistical technique ANCOVA was employed to analyze the means of the pre-test and post-test data for both the experimental groups and the control group. The results indicated a significant difference in the criterion variable. This difference was attributed to the resisted and assisted sprint training provided to the experimental groups, when compared to the control group.

Keywords: *Training, Physical Fitness, Inter-Collegiate Athletes*

Introduction

Resisted sprint training is a form of sprinting exercise that involves the use of external resistance to enhance strength, power, and speed. This type of training is commonly utilized in various sports and fitness programs to improve an athlete's sprinting performance. It involves the addition of resistance through various means, such as sleds, resistance bands, or parachutes, to create a challenging environment for the sprinter.

Assisted sprint training is a form of sprinting exercise that involves the use of external assistance to enhance an athlete's speed and running mechanics. Unlike resisted sprint training, which adds resistance, assisted sprint training utilizes aids such as bungee cords, slingshots, or assistance from a partner to reduce the resistance and facilitate faster sprinting.

Methodology

The aim of the study was to assess the effect of resisted and resisted sprint training on selected physical fitness variables among intercollegiate athletes. To achieve this objective, sixty male intercollegiate athletes were randomly selected as subjects, with ages ranging from 17 to 25 years. These subjects were then randomly divided into three equal groups, each comprising twenty individuals. No efforts were made to equalize the groups. Experimental group –I underwent Resisted sprint training, experimental group-II underwent in assisted sprint training, and group III acted as a control group for a 12-week period. The control group did not undergo any specific training program beyond their regular physical activities as per the curriculum. The chosen criterion variable for this study was shoulder muscular strength endurance. All subjects in the three groups were tested on the selected criterion variable both before and immediately after the training program. The ANCOVA was used to analyze any significant differences that might exist between the groups. A confidence level of 0.05 was set to test the significance level, which was deemed appropriate for the study.

Table- I

Variable	Name of the test	Units of measurement
Shoulder muscular strength endurance	Push ups	numbers

Computation of analysis of covariance of resisted and assisted sprint training and control groups on shoulder muscular strength endurance

Table I (a)

Test	Resisted	Assisted	Control	Source of variance	Sum of squares	Df	Mean value	f- ratio
Pre	7.75	7.95	7.85	BG	0.400	2	0.200	0.060
				WG	189.25	57	3.320	
Post	10.30	9.40	7.75	BG	66.90	2	33.450	10.101*
				WG	188.75	57	3.11	
Adjusted	10.39	9.30	7.75	BG	70.481	2	35.241	61.374*

Post Test mean				WG	32.155	57	0.574	
-----------------------	--	--	--	-----------	---------------	-----------	--------------	--

The scheffe's test for the difference between the adjusted post test paired means

Table I (b)

Resisted	Assisted	Control	Mean Differences	CI value
10.39	9.3	-	1.09*	0.6
10.39	-	7.75	2.64*	
-	9.3	7.75	1.55*	

(Table value for 0.05 levels for df 2 & 57= 2.376)

Results on Shoulder Muscular Strength Endurance

The pre test means for the experimental group and control group are 7.75 and 7.95, respectively, with an overall mean of 7.85. The calculated F-ratio for the pre test mean is 0.006, and the p-value is greater than 0.05. The table f-ratio is 2.38, indicating that the pre test mean F-ratio is insignificant at the 0.05 level of confidence for the degree of freedom 2 and 57. This suggests that random sampling was successful.

Moving to the post test the obtained f-ratio is 10.10 ($p > 0.05$), and the table F-ratio is 2.37. Therefore, the post-test mean F-ratio is significant at the 0.05 level of confidence for the degree of freedom 2 and 57. The adjusted post-test mean for the experimental training and control groups are 10.39, 9.30, and 7.75, respectively. The obtained F-ratio for the adjusted post-test mean is 61.37 ($p > 0.05$), signifying that the adjusted post-test mean criterion variable F-ratio is significant at the 0.05 level of confidence for the degree of freedom 2 and 57.

Conclusion

The analysis of pre test means indicated no significant difference between the experimental and control groups, as the calculated F-ratio (0.006) and the associated p-value (> 0.05) were both below the threshold for significance. This lack of significance, coupled

with the comparable means (7.75 and 7.95), suggests that the initial random sampling was successful.

However, in the post-test phase, a notable shift occurred with an obtained F-ratio of 10.10 ($p > 0.05$), surpassing the table F-ratio of 2.37 at the 0.05 level of confidence for the degree of freedom 2 and 57. This finding signifies a statistically significant difference between the experimental and control groups after the intervention. The adjusted post-test means (10.39, 9.30, and 7.75) further reinforce this distinction.

Remarkably, the obtained F-ratio for the adjusted post-test mean (61.37, $p > 0.05$) remained significant at the 0.05 level of confidence for the same degree of freedom. This underscores at the enduring impact of the experimental intervention on the criterion variable,. In conclusion, the results indicate a substantial and lasting effect of the intervention, as reflected in the statistically significant differences observed in the adjusted post-test means between the experimental and control groups

References

- Kamandulis S, Cadefau JA, Snieckus A, Mickevicius M, Lukonaitiene I, Muanjai P, Satkunskiene D, Molina V, de Blas Foix X, Conte D. *Front Physiol.* 2023 Aug 21;14:1219087. doi: 10.3389/fphys.2023.1219087. eCollection 2023. PMID: 37670769.
- Hicks DS, Drummond C, Williams KJ, van den Tillaar R. *PeerJ.* 2023 Mar 15;11:e14873. doi: 10.7717/peerj.14873. eCollection 2023. PMID: 36941999.
- Loturco I, Freitas TT, Zabaloy S, Pereira LA, Moura TBMA, Fernandes V, Mercer VP, Alcaraz PE, Zajac A, Bishop C. *J Hum Kinet.* 2023 Oct 27;89:187-211. doi: 10.5114/jhk/174071. eCollection 2023 Oct. PMID: 38053953.
- Ford P, De Ste Croix M, Lloyd R, Meyers R, Moosavi M, Oliver J, Till K, and Williams C. *The long-term athlete development model: physiological evidence and application. J Sports Sci* 29: 389-402, 2011.
- Gottlieb R, Eliakim A, Shalom A, Dellolacono A, and Meckel Y. *Improving anaerobic fitness in young basketball players: plyometric vs. specific sprint training. Journal of Athletic Enhancement* 3, 2014.
- Haff GG and Triplett TN. *Essentials of Strength and Conditioning. Human Kinetics, 2015.*

Institute Reorganization of Authors

*Ph.D. Research Scholar, Department of Physical Education & Health Sciences, Alagappa University

**Assistant Professor, Alagappa University College of Education, Alagappa University

THE EVOLVING LANDSCAPE: TECHNOLOGY IN SPORTS

*Dr. A. Rube Jesintha**

Introduction

In the ever-evolving realm of sports, technology has emerged as a driving force, reshaping the way athletes train, competes, and fans engage with their favourite games. From state-of-the-art wearable's to ground breaking data analytics, the influence of technology is pervasive. This article delves into the multifaceted impact of technology in sports, exploring how innovations in various domains are transforming the athletic landscape and creating new possibilities.

Wearable Technology and Performance Tracking

Wearable's technology has become a cornerstone in the quest for athletic excellence. In the fast-paced world of sports, the pursuit of excellence has always been at the forefront. Athletes strive to push their limits, and in this quest, technology has emerged as a crucial ally. Wearable technology, encompassing a spectrum of devices designed to be worn on the body, has become a game changer in performance tracking and athletic optimization.

a. The Rise of Wearable Devices:

Wearable devices have evolved far beyond simple fitness trackers. Today, athletes have access to a plethora of sophisticated wearable's that collect and analyze a wide array of physiological and biomechanical data. These devices include smart watches, fitness bands, smart clothing, and specialized sensors tailored to monitor specific aspects of an athlete's performance.

b. Real-Time Monitoring for Optimal Performance

One of the key advantages of wearable technology is ability to provide real-time data on various performance metrics. Athletes can monitor their heart rate, sleep patterns, and even recovery rates on the fly. This instantaneous feedback allows for quick adjustments in training intensity, ensuring that athletes operate within their optimal zones for performance and recovery.

c. Personalized Training Programs

The data generated by wearable devices is a goldmine for coaches and sports scientists. Through careful analysis of an athlete's metrics, personalized training programs can be designed

to address specific strengths and weaknesses. For example, if an athlete is prone to overtraining, the device can signal when it's time to dial back intensity, preventing burnout and potential injuries.

d. Injury Prevention and Rehabilitation

Wearable technology plays a crucial role in injury prevention and rehabilitation. By continuously monitoring biomechanical data during training sessions, these devices can identify irregularities in movement patterns that may indicate an increased risk of injury. This proactive approach enables athletes and their support teams to take preventive measures, adjusting training regimens or addressing potential issues before they escalate.

e. Enhancing Team Dynamics

In team sports, wearable technology fosters a new level of connectivity among players. Wearable equipped with communication features allow athletes to share real-time data during training sessions or games. This enhanced communication can lead to more synchronized team strategies, as coaches gain insights into the physical condition and exertion levels of each player.

f. Challenges and Considerations

While wearable technology presents numerous benefits, it also comes with challenges. Privacy concerns, data security, and the potential for information overload are areas that need careful consideration. Athletes and sports organizations must strike a balance between harnessing the power of wearable data and respecting individual privacy rights.

g. Future Trends and Innovations

As technology continues to advance, the future of wearable devices in sports appears promising. Integrations with artificial intelligence (AI) for more sophisticated data analysis, the development of even more discreet and comfortable wearable, and the incorporation of augmented reality for real-time performance feedback are among the exciting possibilities on the horizon

Virtual and Augmented Reality in Training

The integration of virtual reality (VR) and augmented reality (AR) technologies has introduced a paradigm shift in how athletes prepare for competition. VR allows athletes to

immerse themselves in simulated game scenarios, providing a controlled environment for skill development and strategic training. On the other hand, AR overlays digital information onto the real world, offering real-time insights during live events. These technologies not only enhance the cognitive and decision-making abilities but also contribute to a more dynamic and engaging training experience.

Data Analytics Revolutionizing Sports

The rise of data analytics has revolutionized the way teams approach training, strategy development, and player management. Advanced statistical models and performance metrics provide teams with a treasure trove of information. Coaches can analyze player movements, track game patterns, and identify areas for improvement with unprecedented precision. This data-driven approach is not only transforming team sports but is also influencing individual athletes who leverage analytics to fine-tune their training regimes and gain a competitive edge.

Biomechanics and Sports Engineering

The marriage of biomechanics and sports engineering has ushered in a new era of understanding athletic movements and optimizing equipment design. High-speed cameras, motion sensors, and force plates enable researchers and coaches to dissect and analyze the biomechanics of every action on the field. This insight allows athletes to refine their techniques for maximum efficiency and injury prevention. Sports engineering, in turn, has led to the development of cutting-edge equipment that pushes the boundaries of performance, from aerodynamically designed sportswear to technologically advanced gear.

Fan Engagement in the Digital Age

The impact of technology is not confined to the realms of training and competition; it has permeated the way fans experience sports. Virtual and augmented reality applications, along with immersive viewing experiences, have transformed the traditional spectatorship model. Virtual stadiums, interactive apps, and 360-degree broadcasts have brought fans closer to the action, transcending geographical limitations. Technology has created a global community of sports enthusiasts, fostering a more interactive and personalized fan experience.

Conclusion

The evolving landscape of technology in sports is a testament to the indomitable spirit of innovation and the unyielding pursuit of excellence. As we navigate this renaissance, we are confronted with challenges, ethical considerations, and the responsibility to strike a delicate balance between technological advancement and the essence of sportsmanship. Yet, the promises of a future where wearables seamlessly integrate with AI, where virtual and augmented realities redefine training, and where data analytics continues to unlock new dimensions of performance, beckon us into a realm where the possibilities are as boundless as the human spirit. In this brave new world, the evolving landscape of technology in sports stands as a testament to the enduring marriage of tradition and progress, creating a tapestry where each thread weaves the story of athletic achievement in the digital age.

References

- S. Aengenheyster et al. *Real-time Delphi in practice — a comparative analysis of existing software-based tools* *Technol. Forecast. Soc. Chang.* (2017)
- M.J. Bardecki *Participants' response to the Delphi method: an attitudinal perspective* *Technol. Forecast. Soc. Chang.* (1984)
- D. Beiderbeck et al. *Preparing, conducting, and analyzing Delphi surveys: cross-disciplinary practices, new directions, and advancements* *MethodsX* (2021)
- D. Beiderbeck et al. *The impact of COVID-19 on the European football ecosystem – a Delphi-based scenario analysis* *Technol. Forecast. Soc. Chang.* (2021)
- I. Belton et al. *Improving the practical application of the Delphi method in group-based judgment: a six-step prescription for a well-founded and defensible process* *Technol. Forecast. Soc. Chang.* (2019)
- F. Bolger et al. *Improving the Delphi process: Lessons from social psychological research* *Technol. Forecast. Soc. Chang.* (2011)
- F. Bolger et al. *Does the Delphi process lead to increased accuracy in group-based judgmental forecasts or does it simply induce consensus amongst judgmental forecasters?* *Technol. Forecast. Soc. Chang.* (2011)
- S. Bonaccio et al. *Advice taking and decision-making: an integrative literature review, and implications for the organizational sciences* *Organ. Behav. Hum. Decis. Process.* (2006)
- A. Bonaccorsi et al. *Expert biases in technology foresight. Why they are a problem and how to mitigate them* *Technol. Forecast. Soc. Chang.* (2020)

Institute Reorganization of Authors

*Asst. Prof. in Physical Education, Alagappa University College of Education, Karaikudi

EFFECT OF PLYOMETRIC GROSS AND MUD TRAINING ON SELECTED KINANTHROPOMETRIC VARIABLES AMONG COLLEGE WOMEN FOOTBALL PLAYERS

M. Nelliyan & Dr. S. Nagarajan***

Abstract

The purposes of this study find out effect of plyometric gross and mud training on selected kin anthropometric variables among college women football players. The selected subjects were the participants of inter – collegiate football tournament, studying in Alagappa University College of Physical Education and Alagappa Government Arts College, Karaikudi. Their age is between 18 to 23 years. The selected subjects (N=45) were divided into three groups. Experimental group I (N=15) Plyometric mud training group, Plyometric gross training group and group II (N=15) acted as control group.

Keywords: Plyometric Training, Kinanthropometric, Women Football Players

Plyometric Training

Plyometrics, also known as jump training or plyos, are exercises in which muscles exert maximum force in short intervals of time, with the goal of increasing power (speed-strength). This training focuses on learning to move from a muscle extension to a contraction in a rapid or "explosive" manner, such as in specialized repeated jumping. Plyometrics are primarily used by athletes, especially martial artists, sprinters and high jumpers to improve performance, and are used in the fitness field to a much lesser degree.

Methodology

The purposes of this study find out an effect of plyometric gross and mud training on selected kinanthropometric variables among college women football players. The selected subjects were the participants of inter – collegiate football tournament, studying in Alagappa University College of Physical Education and Alagappa Government Arts College, Karaikudi. Their age group is between 18 to 23 years. The selected subjects (N=45) were divided into three groups. Experimental group I (N=15) Plyometric mud training group, Plyometric gross training group and group II (N=15) acted as control group.

The experimental groups were treated with their respective training for one and half hour per day for three days a week for a period of eight weeks. Thigh Girth measured by in Centimeters meters and Calf Girth measured by in Centimeters meters,

Table - I

Selection of variables and criterion measures

Sl. No	Criterion Variables	Test Items	Units of Measurement
1.	Thigh Girth	Flexible Metal Tape	In Centimeters
2.	Calf Girth		

Statistical Technique

The data will be collected before and after the experimental treatment. The data obtained from the experimental period will be statistically analyzed with paired 't' test at 0.05 level of significant improvement on Thigh Girth and Calf Girth from base line to post treatment.

Table - II

The Summary of Mean and Dependent 't' Test for the Pre and Post Tests on Thigh Girth of Plyometric Gross, Plyometric Mud

Training and Control Groups

Sl. No	Groups	Pre Test Mean	Post Test Mean	' t ' ratio	Table Value
1.	Plyometric Gross Group	45.20	50.00	44.90*	2.15
	Plyometric Mud Group	45.80	48.93	23.50*	2.15
2.	Control Group	46.40	46.20	0.90	2.15

*Significant at 0.05 level

The table II shows that the obtained dependent 't' ratio values between the pre and post test means plyometric mud training group, plyometric gross training group and control groups

are 44.90*, 23.50* and 0.90 respectively. The table value required for significant differences with df 14 at 0.05 level is 2.15 Since the obtained 't' ratio value of experimental groups are greater the table value, it is understood that plyometric gross training group and plyometric mud training group had significantly improved the thigh girth.

PRE AND POST TESTS ON THIGH GIRTH OF PLYOMETRIC GROSS TRAINING AND PLYOMETRIC MUD TRAINING GROUP AND CONTROL GROUPS

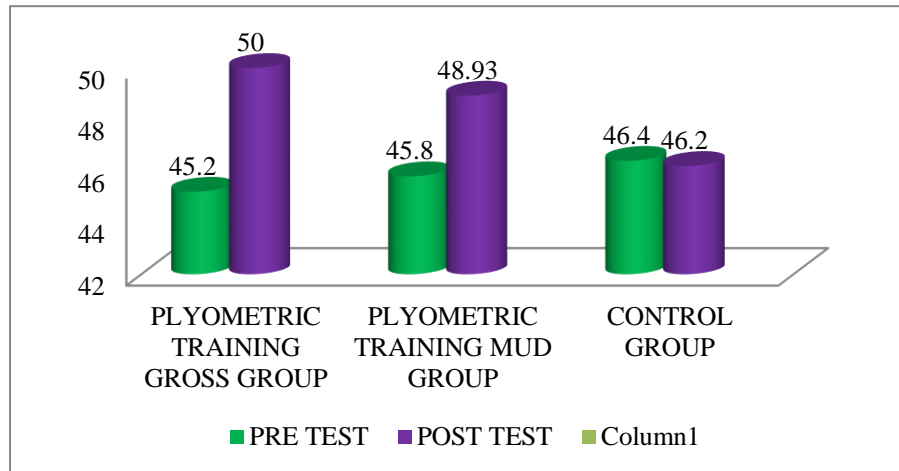


Table - III

The Summary of Mean and Dependent 't' Test for the Pre and Post Tests on Calf Girth of Plyometric Gross, Plyometric Mud Training and Control Groups

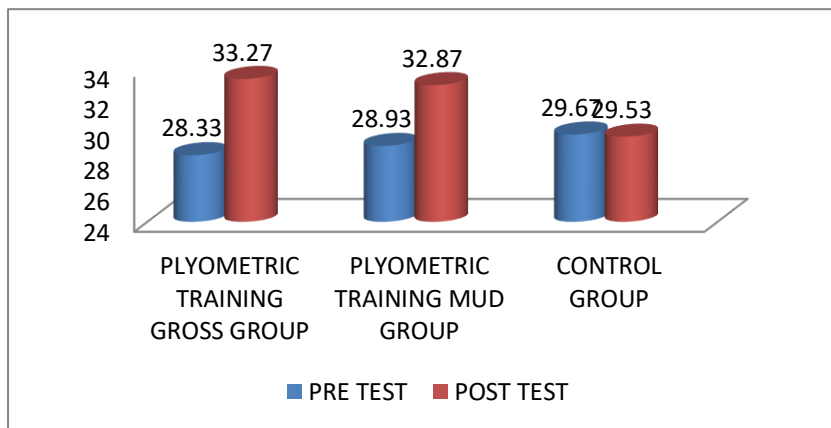
Sl. No	Groups	Pre Test Mean	Post Test Mean	' t ' ratio	Table Value
1.	Plyometric Gross Group	28.33	33.27	74.00*	2.15
	Plyometric Mud Group	28.93	32.87	25.66*	2.15
2.	Control Group	29.67	29.53	0.62	2.15

*Significant at 0.05 level

The table II shows that the obtained dependent 't' ratio values between the pre and post test means plyometric mud training group, plyometric gross training group and control groups

are 74.00*, 25.66* and 0.62 respectively. The table value required for significant differences with df 14 at 0.05 level is 2.15 Since the obtained ‘t’ ratio value of experimental groups are greater the table value, it is understood that plyometric gross training group and plyometric mud training group had significantly improved the calf girth.

Pre and Post Tests on Calf Girth of Plyometric Gross Training and Plyometric Mud Training Group and Control Groups



Conclusion

1. There was a significant improvement on selected dependent variable such as Thigh Girth and calf Girth on impact of different surface plyometric training on college women football players.

References

- Mina Ahmadi, Hadi Nobari et.,al (2021) *Effects of Plyometric Jump Training in Sand or Rigid Surface on Jump-Related Biomechanical Variables and Physical Fitness in Female Volleyball Players*, Dec; 18(24): 13093. Published online 2021 Dec 11. doi: 10.3390/ijerph182413093
- Mehrez Hammami, Nicola Luigi Bragazzi et., al (2020) *The effect of a sand surface on physical performance responses of junior male handball players to plyometric training*, ; 12: 26. Published online 2020 Apr 25. doi: 10.1186/s13102-020-00176-x
- Javier Sanchez-Sanchez & Alejandro Martinez-Rodriguez (2020) *Effect of Natural Turf, Artificial Turf, and Sand Surfaces on Sprint Performance. A Systematic Review and Meta-Analysis*, Dec; 17(24): 9478. Published online 2020 Dec 17. doi: 10.3390/ijerph17249478
- Johan Lännerström, Lina C Nilsson et.,al (2021) *Effects of Plyometric Training on Soft and Hard Surfaces for Improving Running Economy*, Jul; 79: 187–196. Published online 2021 Jul 28. doi: 10.2478/hukin-2021-0071
- Gaurav Singh, Gaurav Singh Kushwah et.,al (2022) *Effects of Sand-Based Plyometric-Jump Training in Combination with Endurance Running on Outdoor or Treadmill Surface on Physical Fitness in Young Adult Males*, Jun; 21(2): 277–286. Published online 2022 Jun 1. doi: 10.52082/jssm.2022.277

- *Tiago Cetolin, Anderson Santiago Teixeira et.,al (2021) High-Intensity Intermittent Exercise Performed on the Sand Induces Higher Internal Load Demands in Soccer Players, ; 12: 713106. Published online 2021 Jul 30. doi: 10.3389/fpsyg.2021.713106*
- *Byoung-Ha Hwang and Tae-Ho Kim (2019) The effects of sand surface training on changes in the muscle activity of the paretic side lower limb and the improvement of dynamic stability and gait endurance in stroke patients, Jun; 15(3): 439–444. Published online 2019 Jun 30. doi: 10.12965/jer.1938164.082.*
- *Rodrigo Ramirez-Campillo, Cristian Álvarez et.,al (2020) Effects of Combined Surfaces vs. Single-Surface Plyometric Training on Soccer Players' Physical Fitness, Sep;34(9):2644-2653.doi: 10.1519/JSC.0000000000002929.*

Institute Reorganization of Authors

**Ph.D Scholar, Alagappa University College of Physical Education, Alagappa University*

***Professor, Alagappa University College of Physical Education, Alagappa University*

EFFECT OF SAQ DRILLS ON SELECTED PHYSICAL AND PHYSIOLOGICAL VARIABLES AMONG COLLEGE MEN STUDENTS

Ms. S. Jeya Sharmila* & Dr. R. Senthil Kumaran**

Abstract

The motive of the find out about used to be to locate out the impact of SAQ Drills on chosen bodily and physiological variables such as Abdominal Strength and Resting Heart price of university guys college students analyzing a variety of Arts & Science Colleges affiliated to Madurai Kamaraj University, Madurai District, Tamil Nadu, India had been randomly chosen as subjects. Thirty guys college students had been chosen as subject. The subject's age had been ranged from eighteen to twenty-three years. The chosen matters had been divided into two equal organizations of thirty subjects each and every at randomly, which have been one experimental businesses and a manipulate group. Experimental Group underwent the SAQ Drills programme. The coaching length of an experimental crew used to be six weeks. Control team did nolonger bear any coaching programme instead thantheir activities work. The information havebeen gathered on bodily health variables particularly speed, leg explosive power, physiological variables specifically Resting Heart charge for all the two organizations earlier than the experimental length (Pre-test), after six weeks of coaching length (Post -test) respectively. In order to take a look at the impact of training, the accumulated records from all the two organizations before, all through and after experimentation on Physical, Physiological variables had been statistically analyzed with the aid of the usage of one-way factorial evaluation of variance with ultimate element repeated measures. When the acquired 'T' ratio fee in the easy impact is observed significant, to decide which of the paired imply had tremendous differences. In all the situations the stage of self assurance is regular at 0.05 to take a look at the significance. The end result of the learn about additionally published that there drastically multiplied in the Abdominal Strength and Resting Heart price had been notably decreased due to SAQ Drills amongst university guys college students after impact of SAQ Drills on chosen bodily and physiological variables amongst College guys students.

Key Words: SAQ Drills, Abdominal Strength and Resting Heart rate

Introduction

Acceleration, speed, and agility have been found to be independent, unrelated qualities that produce a constrained swap to each other. The subsequent step is to investigate strategies that produce the critical effects that can be used in the conditioning of athletes. But, it is decided that few lookups have investigated the teaching techniques that produce the critical consequences on a variety of abilities. One of the most well-known training strategies that produce the stated effects is the SAQ (speed, agility, quickness) method. Within the context of randomized intermittent, dynamic and expert action type sports activities things to do (randomized intermittent, dynamic type sports activities things to do [RIDS]), to which athletics most probably belongs, the built-in consequences are wanted. The problem is to determine out which form of conditioning want to be utilized (programmed or random conditioning) to decorate SAQ in athletics. A discover out about that has investigated this hassle leads to the conclusion that programmed conditioning enhances energy usual overall performance to a elevated extent. However, random conditioning is no longer rejected; however it comes as an advocated addition to programmed conditioning. That range of conditioning makes use of randomized intermittent patterns regarded in in structure performance. Both varieties have a look at the critical thoughts of conditioning and for this reason deliberately produce effects that can be in some way planned. The draw again of random conditionings that it has the incapacity to achieve the appreciated diploma of extent and depth relying on motivation and effort, then again on the one of a kind hand, the use of open abilities produces special wishes that are used in a proper match. Although the authors determined that programmed conditioning is increased favored when it comes to tempo and agility, when it comes to endurance, it is speculated that random conditioning can have increased effect. Thereby; every conditioning techniques are legit in fundamental common overall performance enhancing.

Methodology

The motive of the find out about was once to locate out the impact of SAQ Drills on chosen bodily and physiological variables such as Abdominal Strength and Resting Heart charge of university guys college students reading more than a few Arts & Science Colleges affiliated to Madurai Kamaraj University, Madurai District, Tamil Nadu, India have been randomly chosen as subjects. Thirty men college students had been chosen as subject. The subject's age had been

ranged from eighteen to twenty-three years. The chosen subjects had been divided into two equal businesses of thirty matters each and every at randomly, which have been one experimental groups and a manipulate group. Experimental Group underwent the SAQ Drills programme. The education length of an experimental team was once six weeks. Control team did now not endure any coaching programme alternatively than their activities work. The information had been gathered on bodily health variables specifically Abdominal Strength, physiological variables specifically Resting Heart price for all the two businesses earlier than the experimental duration (Pre-test), after six weeks of education length (Post -test) respectively. In order to check the impact of training, the accrued statistics from all the two agencies before, at some stage in and after experimentation on Physical, Physiological variables have been statistically analyzed by way of the usage of one-way factorial evaluation of variance with closing thing repeated measures. When the received ‘T’ ratio cost in the easy impact is located significant, to decide which of the paired suggest had tremendous differences. In all the cases the stage of self assurance is steady at 0.05 to test the significance.

Table 1

Analysis of ‘t’-Ratio on Pre and Post-test for Control and Experimental Group on Abdominal Strength

Variables	Group Name	Mean		Sd		Sd Error	df	‘t’ ratio
		Pre	Post	Pre	Post			
Flexibility	Control	26.22	24.4	4.36	3.73	0.29	14	6.08
	Experimental	26.27	28.53	3.03	2.53			0.36

*Significance at.05 level of confidence

The Table 1 suggests that the imply values of pre-test and post-test of manipulate team on flexibility had been 26.22 and 24.40 respectively. The acquired ‘t’ ratio was once 6.08 on account that the bought ‘t’ ratio used to be much less than the required desk fee of 2.15 for the sizable at 0.05 degree with 14 ranges of freedom, it was once determined to be statistically insignificant. The suggest values of pre-test and post-test of experimental crew on flexibility had been 26.27 and 28.53 respectively. The acquired ‘t’ ratio used to be 6.32 for the reason

that the bought 't' ratio was once increased than the required desk fee of 2.15 for importance at 0.05 degree with 14 levels of freedom it was once observed to be statistically significant. The end result of the find out about showed that there was once a vast distinction between manipulates team and experimental team in flexibility. It can also be concluded from the end result of learn about that experimental crew increased in flexibility due to six weeks of SAQ Drills.

Figure -1

Bar Diagram Shows Mean Value between the Pre and Post-test and Experimental and Control Group on Abdominal Strength

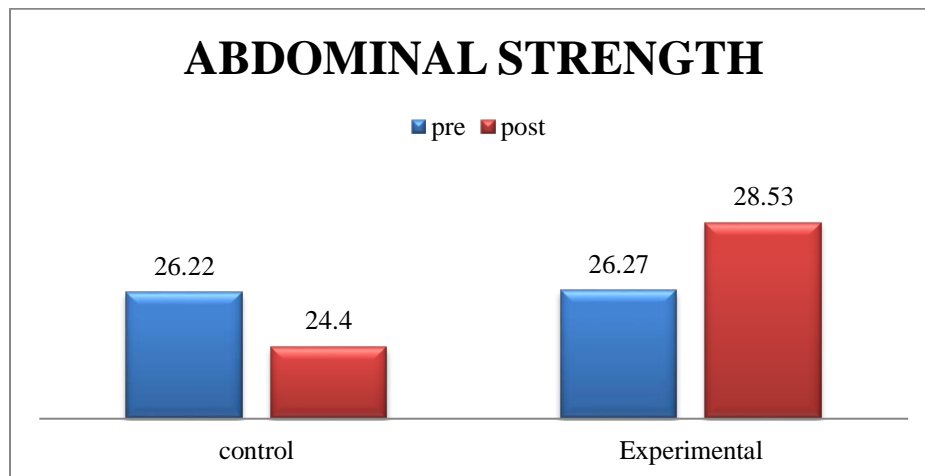


Table - 2

Analysis of 't'-Ratio on Pre and Post-test for Control and Experimental Group on Resting Heart Rate

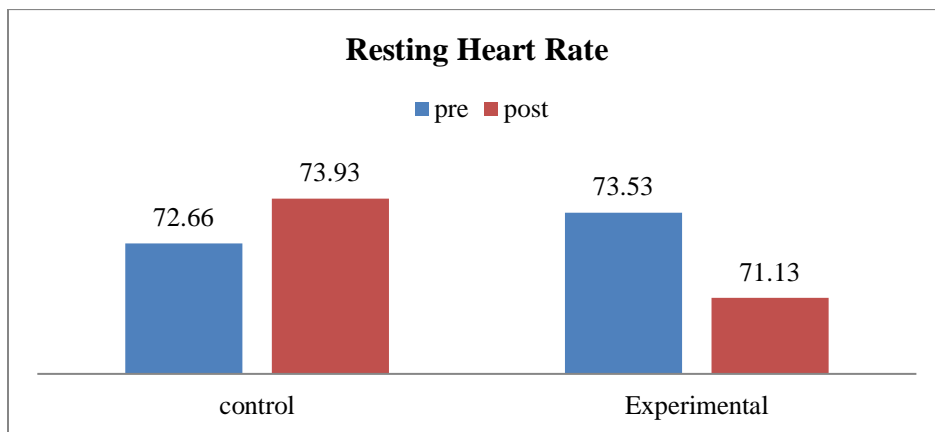
Variables	Group Name	Mean		Sd		Sd Error	Df	't' ratio
		Pre	Post	Pre	Post			
Resting Heart Rate	Control	72.65	73.53	3.92	3.77	0.73	14	1.17
	Experimental	73.92	71.13	3.82	3.97			0.34

*Significance at.05 level of confidence

The Table two indicates that the imply values of pre-test and post-test of manage crew on resting coronary heart price had been 72.65 and 73.53 respectively. They got 't' ratio was once 1.17 when you consider that they got 't' ratio was once much less than the required desk cost of 2.15 for the great at 0.05 stage with 14 ranges of freedom, it used to be observed to be statistically insignificant. The suggest values of pre-test and post-test of experimental team on resting coronary heart fee had been 73.92 and 71.13 respectively. The received 't' ratio used to be 8.18 due to the fact that the acquired 't' ratio used to be larger than the required desk cost of 2.15 for magnitude at 0.05 stage with 14 levels of freedom it was once located to be statistically significant. The end result of the find out about confirmed that there used to be a sizable distinction between manipulate crew and experimental team in resting coronary heart rate. It may additionally be concluded from the end result of the find out about that experimental crew extended in resting coronary heart fee due to six weeks of SAQ Drills.

Figure -2

Bar Diagram Shows the Mean Value between the Pre and Post-test and Experimental and Control Group in Resting Heart Rate



Conclusions

On the foundation of the barriers and the statistical evaluation of the data, the following conclusions have been drawn from the result.

1. It used to be concluded that Abdominal Strength have been extensively expanded and Resting Heart Rate have been substantially decreased due to the SAQ Drills amongst university guys Students.

2. The end result of the find out about exhibits that SAQ Drills would positively enhance the university guys Students physical and physiological variables significantly.

References

- Baechle T.R., (1994) *Essentials of Strength Training and Conditioning*, Champaign: Human Kinetics. p. 317.
- Brown L, Ferdgno V, Santana J., (2000) *Training for speed, agility and quiekness*. Champaign,IL: Human Kinetics.
- Leonard A. Larson, "Jumping Ability Depends on Strong Muscles & Tendons & Flexibility of the Ankle", *Knee & Hip Joints*, 1968, p.48.
- Grieco CR, Cortes N, Greska EK, Lucci S, Onate JA. 2012., *Effects of a combined resistance-plyometric training program on muscular strength, running economy, and Vo2peak in division I female soccer players*. *Jstrengthcond res* 26(9):2570-6.
- Sáez-Sáez de Villarreal E, Requena B, Newton RU. 2013., *Does plyometric training improve strength performance? A meta-analysis*. *JSci med sport* 2013 13(5):513-22.
- Sedano S, Matheu A, Redondo JC, Cuadrado G. 2011., *Effects of plyometric training on explosive strength, acceleration capacity and kicking speed in young elite soccer players*. *Med Physics Fitness* 51(1):50-8.

Institute Reorganization of Authors

*Ph.D. Research Scholar (Part Time), Alagappa University College of Physical Education, Alagappa University, Karaikudi, Tamil Nadu [E-mail-s.jeyasharmila@gmail.com](mailto:s.jeyasharmila@gmail.com)

**Director of Physical Education, Alagappa University, Karaikudi, Tamil Nadu. E.mail-
alagappa.director@gmail.com

NEED OF YOGA IN PHYSICAL EDUCATION AND SPORTS

S. Mahalakshmi & Prof. S. Saroja***

Abstract

Yoga is one of the Indian philosophical systems that emphasize the importance of the work with the body to develop healthy behaviours and thoughts. Among all its techniques the physical postures, called asanas in Sanskrit, are the ones that got. It is necessary to remember that sports and gymnastics belong to the scope of physical education. Aim of the present article is the role of some yoga elements in physical education and sports once there was a time when people said “it is not the winning itself but the competing nobly that really matters”. When the place, the competitions took place was sacred and the respect between competitors and audience was essential. In our modern society the term physical education has been understood in different ways. Some sat it is the when the “education of the body”, which is educating the body to achieve some skills and abilities as it is done, for example, in sports. Others think it is the “education to the body”, which is working out only to improve one’s looks unfortunately, this is the main reason why people join gyms, especially before the summer. In fact, the expression physical education originally means “Education through the body.” It is using the work with the body as at strategy to reach the noblest goals of education: autonomy and ethics in our relationships with each other and the environment. It is necessary to remember that the Sports and gymnastics belong to the scope of physical education. Once there was a time when people said “it is not the winning itself but the competing nobly that really matters”. When the place, the competitions took place was sacred and the respect between competitors was essential. Both yoga and Physical Education in their origin use the body as a tool for developing attitudes and abilities that are important to achieve physical and mental health. Nowadays they can be considered complementary subjects. While the west developed the aerobic conditioning and the sports training and focused on its relationship with good health, the East pursued the same goals through concentration and relaxation.

Keywords: *Sports, Yoga, Physical Education Exercise, Science*

Introduction

The word 'yoga' means "to join or Yoke together". It brings the body and mind together to become a harmonious experience. Man is a physical, mental, and spiritual being; yoga helps promote a balanced development of all the three. Yoga is a method of learning that aims at balancing "Mind, Body and Spirit". Yoga is a practice with historical origins in ancient Indian philosophy. Yoga is distinctly different from other kind of exercise as it generates motion without causing strain and imbalances in the body. Other forms of physical exercises, like aerobics, assure only physical well-being. They have little to do with the development of the spiritual or astral body. Yogic exercises recharge the body with cosmic energy and facilitates.

Benefits for Physical Education

Yoga is then commonly taken as a system of physical education with a spiritual component, although the truth is the reverse: Yoga is a spiritual system with a physical component. The practice of asanas is yet only a small part of the complete system of physical culture & Education known as Hatha Yoga. Need of yoga in education from various angles, including the type of education that was being provided to children throughout the world as well as the different levels of stress that children face in the classroom environment. The difficulties, problems, conflicts, distractions and dissipation of their energies were also considered. we started using certain principles and practices of yoga, firstly, as an experiment to increase the children's learning ability and, secondly, to inspire teacher to teach their subjects in a slightly different way. Our belief was, and still is, that we are educating our children without considering or caring for the growth of their entire personality. We are cramming their brains and minds with information without creating any support group outside the classroom environment.

Where they can continue to inbuilt education, we have to look at what science says about the growth of a child, what psychoanalysis says about child psychology and how the hormones and glands alter and influence the rationality, emotional structure and creative output of the child.

Benefits of Sports

Sports can lead to injury because of its repetitive nature and the resulting musculoskeletal imbalances. On a physical level, yoga restores balance and symmetry to the body, making it the

perfect complement to sports. Runners are often drawn to yoga to deal with specific issues, such as improving flexibility or helping with an injury. Yet many are shocked at the world it opens for them, specifically, the strengthening capacity and the use of muscles they never knew they had. Let's take a closer look at the effects of yoga, both physical and mental, on runners.

Physical Effects

As seen in the preceding definitions, yoga encompasses more than the mere physical postures. Nonetheless, the physicality of yoga is what draws most people to their first yoga class. The following summarizes the physical benefits that sports persons can expect from yoga.

Strength

Like, Runners are strong in ways that relate to running. However, a running stride involves only the lower body and movement in one plane-sagittal (i-e, forward and backward). Thus, certain muscles become strong while others are under used and remain weak. Runners have strong legs for running, but when faced with holding a standing yoga pose, they are quite surprised to find that their legs feel like jelly. This is simply because a properly aligned yoga pose involves using all the muscles in a variety of planes. The muscles that are weak fatigue quickly, and those that are tight scream for release-thus, the jelly-leg syndrome. Additionally, a by-product of becoming stronger is greater muscle tone. Yoga helps shape long, lean muscles that do not hinder free range of movement in joints.

Flexibility

Many sports person cite greater flexibility as the number one reason for beginning a yoga practice. This is a good reason, because yoga stretches the muscles that are tight, which in turn increases the range of motion in related joints. Increased flexibility decreases stiffness, results in greater ease of movement, and reduces many nagging aches and pains.

Biomechanical Stability

Overusing some muscles while under using others creates muscular imbalances, which affect the entire musculoskeletal balance and impairs biomechanical efficiency. For mostly sports persons, biomechanical imbalances eventually lead to pain and injury. Depending on the action, a muscles is either contracting (i.e, an agonist) or lengthening (i.e, an antagonist). For example, if you make a fist and lift your forearm, the biceps contract while the triceps stretches.

If you want showy biceps and do repeated biceps curls to pump up the muscle, the triceps will shorten and you could lose the ability to straighten your arm. A healthy balance is to work to both contract and stretch to maintain muscle equilibrium as well as functionality. For example, when stretching the hamstrings, the quadriceps need to contract. This coordinated action not only creates a deeper and safer hamstring stretch, but also provides an opportunity to strengthen the quadriceps, especially the inner quadriceps, which are weak in many runners. This is crucial for runners because the hamstrings most likely need lengthening while the commonly weak inner quads need strengthening. Every yoga pose is a balance of stability (muscles contracting and strengthening) and mobility (muscles stretching and lengthening). At no time is only one muscle group used. Even the simplest yoga pose requires an awakening of every part of the body downward dog is an exemplary pose to demonstrate this. Following is a summary of the major muscle actions in this fundamental pose.

Stability (Strength)

- Arms: hands, wrist, lower arms, triceps, deltoids.
- Back: lower trapezius, serratus anterior.
- Legs: quadriceps, tibia is anterior (front of shins).

Mobility (Flexibility)

- Arms : fingers, biceps
- Back : latissimus dorsi, paraspinals (both superficial and deep layers of back muscles)
- Legs : hamstrings, calves, Achilles tendon

A balanced yoga practice requires most of the muscles in the body to perform some action. At the same time, joints are taken through their full ranges of motion as the corresponding muscles contract or stretch to support the movement. The result is improved muscle balance, which translates to better form, stronger running, and fewer injuries.

Improved Breathing

Lung capacity is of prime importance for runners, because it creates the ability to maintain an even breathing pattern through all phases of running. The better the lung capacity is, the more oxygen is circulated through the system, which is most helpful for running long and

strong. However, the breathing pattern used in running and other forms of aerobic exercise involves quick and shallow inhalations and exhalations. This uses only the top portion of the lungs, leaving the middle and lower portions untouched. Yogic breathing involves slow, deep inhalations and long exhalations, making use of the upper, middle, and lower portions of the lungs. Yogic breathing has been shown to increase lung capacity, and greater lung capacity increases endurance and improves overall athletic performance.

Conclusion

Yoga can play a key role in cultivating mind control and concentration which helps a sportsperson to perform at their game. Yoga offers new learning possibilities to a wider group of students than traditional sports or fitness curriculum, making it a valuable addition to any educational program. Additionally, adding yoga to a school's curriculum will help provide a quality physical education programme as modification of traditional physical education yoga in sports as important as other think it helps us in different levels in a sports men life. It offers children and adults an opportunity to experience success in physical activity, which can help build a foundation of strong of life. However, curriculum specialists, teacher, trainers and students should know and analyse seriously the real challenges of yoga educations in classroom settings and real life as well.

References

- Introduction to yoga: A beginner's guide to health, fitness and relaxation. New york
- Dune D.The Manual of yoga. W.Fauloshan and co.Ltd.,London, 1956,144.
- Central Council of BSFS.(1989). Protocal No 22, Decision No 1/19.VI.1989.
- Foiershtain, G. (2001). Encyclopedia of yoga. Sofia: LIK.
- Bersma, D. & Visscher, M. (2003)
- Yoga games for children: Fun and fitness with postures, movements and breath.
- California: Hunter House Finger, A.(2000).

Institute Reorganization of Authors

**Research scholar (Full Time), Alagappa University College of Physical Education, Alagappa University, Karaikudi, Tamil Nadu*

***Alagappa University College of Physical Education, Alagappa University, Karaikudi, Tamil Nadu*

BENEFITS OF E-LEARNING FOR STUDENTS WITH DISABILITIES

Prabhu P, Tarak Halder**, Dr. J. Sujathamalini****

Abstract

Even though e-learning has a long tradition all around the world, COVID marks its beginning. Even in the midst of a pandemic, the importance of e-learning has been highlighted in regards to the education of all children. The education of students with disabilities is assisted by it. It allows effective learning and provides accessibility to the students with disabilities. Students with impairments are encouraged to use e-learning because it provides a helpful learning environment. E-learning is encouraged by the various assistive and adaptive technologies. The inclusion of students with disabilities in the classroom needs to be encouraged among teaching and professional staff in the twenty-first century, and an easy-to-understand plan needs to be prepared in accordance with the requirements of students based on their actual needs. Because of the numerous technologies, educational techniques, and design principles that make things accessible to persons with disabilities, disability is no longer a concern. The importance of and necessity for e-learning adaptation to serve students with impairments is emphasized in this article.

Keywords: *students with disabilities, e-learning, accessibility, assistive & adaptive devices, encourages*

Introduction

The world's development is still ongoing. Every development previously amazing technologies is fashioned. Online learning has distorted the flood and track of learning for visually impaired students with the support of the internet. Online courses set a greater importance on interactive studies, such as images, graphics, and videos with subheadings. They are regarded as a major stabilizer. The technologies provide students the chances to choose and participate in what they want to display their learning. These study and programmes also give to the mystery nearby their impairment. In this move toward, all students work jointly to get the common goal of studying and pursuing careers in a large quantity of fields.

Because everybody has access to technology in the form of computers, laptops, phones, or tablets, attending virtual classes is far better to commuting to college or universities. Because

of technological advancements, all learners can easily access the hearing and visual components of e-learning. It is also well recognized that older disabled students like better the online environment to the traditional system. E-learning is the most alluring way to encourage and inspire such students to improve and demonstrate their talents because it is adaptable, flexible, and easy to access for every student with a disability.

In addition to speed, e-learning provides students with a large deal of flexibility that face-to-face communication does not like. Online courses are created using Universal Designed Learning (UDL) principles. This makes the courses satisfied available in a range of formats.

An evaluation assignment, for example, that is accessible in clear text is also available in audio format. Students will be able to understand knowledge in also written or spoken form, as well as assess it as normally as they want. There is no need to travel because classes can be taken online, and students with disabilities can with no trouble set up their home or workplaces to perform well in their own preferences. If they are in their comfort zone, it will be easier to help them get better further.

Let us now look at how online learning can benefit a student with a disability. Our distance learning students with disabilities can use today's technology to:

- Have access to online educational resources from the expediency of their own home;
- Communicate with useful online learners and instructors without being troubled by long exchanges;
- Give confidence people to be inspired quite than discouraged by their limits.
- Develop a positive attitude towards learning because hesitation and fear have nothing to do with equality.

Five Benefits of eLearning for Students with Disabilities

1. Learning Difficulties

Online learning allows students with disabilities to work when and where they want. They can use eLearning to analysis resources and watch video lectures as several times as they require. Students with dyslexia or visual impairment can use IT systems and software to modify the font style or size of digital text, supplementary them in effectively communicating information.

2. Physical Impairments

The clear advantage for physically impaired students is that they can continue in their learning in comfort zone somewhat than travelling to campus or commuting between classes. For students who cannot type, technology such as voice-to-text and voice-activated programmes are included.

3. Visual Impairments

It is more suitable for visually impaired students to listen to the lecture on their computer. To help them in learning, adaptive technology such as Braille keyboards, voice-to-text software, and audio recordings are accessible.

4. Hearing Impairments

Students with hearing loss can advantage from technology to make their lives easier. They can view video lectures with subtitles through eLearning, which they cannot do in the classroom. Text, as the primary mode of communication with teachers and other students, can be an extra opportune method of communication than forums and emails.

5. Psychiatric Disabilities

Students with disabilities can work and study in their own atmosphere. They will help from their well-known surroundings as they struggle to cope with their condition and nervousness.

Online Learning Promotes Convenience:

These disabled pupils are able to work and learn in their own setting. Their comfortable settings will aid them in learning through eLearning as they battle to deal with their ailment and anxiety.

The Internet, which serves as the principal platform for online learning, makes it convenient for impaired students to receive an education. Students with physical disabilities no longer have to travel great distances and cope with the problems that come along with it, like being pressured for time and under continual stress, thanks to computer-based learning. Studies show that 90% of children with disabilities do not attend school. Many people lack the capacity or the means to travel vast distances, let alone our challenged pupils.

One of the main obstacles for impaired students to attend college or university is the hardship of commuting. The majority of them will have family members or other close friends in their lives that can help them with their needs. On the other hand, for college-bound kids who live alone owing to their disability, simple tasks like using the lavatory can be a small irritation. Imagine them making a long commute each day to school! Long-term university attendance to earn a degree seems like a lot of work with physical restrictions.

When attending college, a disabled student needs set aside money for tuition and living expenses in addition to other fees like medication and disability care. Finding work is a very other experience.

It's a common misconception that the only factors preventing impaired individuals from completing a degree are distance and cost. When selecting a higher education school, disabled students should take into account a variety of variables, such as whether or not the facility has the amenities they require. They would need to find a college or institution with ramps for students with mobility issues, designated handicap parking spaces, and qualified staff to handle their needs.

From the comfort of their homes, disabled students can readily access all instructional materials through online learning. In addition to making life easier for people who are blind or deaf, this online learning setup removes the inconvenience of physical tiredness for pupils who are mobile-impaired.

By reducing the obstacle to learning and encouraging children to participate more actively, e learning frees them to explore the world.

Distance learning also benefits the family and professional lives of disabled students. Families, careers, and students may all put an end to the everyday struggle thanks to online learning.

Online Learning Removes Discouragement:

The following are some ways that online education helps students with disabilities to overcome discouragement:

- ☒ Because online learning is more beneficial than in-person instruction, which would interfere with attention, students feel freer to engage. When there is less rivalry and peer pressure,

people are less afraid of failing or being judged. Easy access to a resource benefits online students and enhances performance. It should be highlighted as well that online teachers are constantly removing obstacles to promote participation in online classes.

- ☒ There aren't many big crowds, which can make it uncomfortable for kids with disabilities. Students overcome shyness and increase motivation since their loved ones support and cheer them on at home.
- ☒ Disability-related college students must be able to "study at their own pace" in order to succeed. The unneeded strain that most students experience at traditional universities is reduced by having the freedom to create their own schedule. Many college courses allow both disabled and able-bodied students to study for as long as they wish while adhering to the correct guidelines to prevent mental or emotional exhaustion.
- ☒ When it comes to online learning, it doesn't really matter if students repeat their courses as necessary because they won't be delaying the progress of the entire class. If students can piece together what was previously a confusing subject, they can move on to the next lesson without worrying about getting lost. As a result, the learning capacities of impaired children are improved individually.

Online Learning Promotes Resilience and Curiosity

Almost any topic we can think of can be found on the Internet, from adorable animal baby videos to theoretical research done by prominent scientists, and everything in between. In other words, the enormous amount of easily available information on the Internet can slake our thirst for knowledge. Who said, "Curiosity can kill a cat, but it can also make a cat a better hunter"?

Students with disabilities might have a favorable attitude towards online learning with the correct mentoring. More than merely online learning, it also entails perseverance in research to lay a strong foundation of reliable, high-quality content, all of which are made feasible by easy access to resources.

No student ever creates a high-quality product without also picking up valuable life skills along the route.

All of this results in a cycle of excellent performance and plentiful rewards. It is an opportunity that fosters not just academic development but also crucial student development of a positive, inquisitive, and resilient attitude towards their work.

Online Learning Offers Easily Accessible Learning Materials:

- Thanks to modern technology, our blind or visually challenged students can use a Braille keyboard. Using this cutting-edge gadget, they may quickly transcribe their genuine thoughts into the computer. As a result, it is now feasible for those who couldn't previously participate in the writing process. Students who are visually impaired can explore the countless online resources and hear what is written by using text-to-audio technology.
- Our deaf and hard-of-hearing students can benefit from contemporary technologies, such as subtitles in instructional films. Even if they cannot hear the speakers' real voices, they can grasp what they are saying.
- Despite the fact that some pupils may not have physical limitations, many of them do. The Learning impairments Association of America claim that problems with brain processing underlie learning impairments. These processing problems interfere with a person's innate capacity for learning, making it challenging for them to remember or even comprehend things.
- Learning-disabled students frequently have trouble understanding the material they are studying; they frequently need to read the material several times and analyze it in order to properly understand the lesson. It seems sense that college students with learning disabilities should enroll in distinct, specialized courses so they can study at their own pace as opposed to trying to keep up with the class as a whole.
- In actuality, technology is lowering obstacles to learning. Nearly all of the information available today that can be absorbed via techniques other than the conventional five senses can be accessible online. For those who are blind or hard of hearing, as well as those who have learning difficulties, what was once a pipe dream is now a reality; all they need to know is how to find and explore all of the useful resources. The resources are readily available online through the internet connection on your computer. And

certainly, there are countless opportunities to study them, and this holds true for any subject you can imagine.

- What about doing your homework alone at home? Don't give up; studying at home doesn't necessarily need studying by you. It is also possible to converse with students or other Internet users. You can compare and contrast notes, talk about or argue about particular subjects, and eventually learn from one another.
- Furthermore, you can nearly always be sure that the information you find can be validated, despite the fact that documents are readily available online and can initiate discussions. If you know where to look, there are several programmes available that can assist you in having discussions in the most entertaining and original manner imaginable.

Conclusion

The two most important elements that support impaired students at all levels are encouragement and adaptation. Online learning offers a handy entrance point for faraway learners and is more customizable than traditional teaching approaches. Based on their disability, disabled students in India are divided into 21 groups. Since the introduction of e-Learning, education is no longer a challenge for students with disabilities. For pupils with disabilities, technology is also assisting in offering the best learning solutions. For the flexible student with a disability, online learning offers a suitable and motivating educational experience. Distance learning gets rid of caution, and with it, fear and uncertainty.

Reference

- Fichten, C. S., Ferraro, V., Asuncion, J. V., Chwojka, C., Barile, M., Nguyen, M. N., ... & Wolforth, J. (2009). *Disabilities and e-learning problems and solutions: An exploratory study. Journal of Educational Technology & Society, 12(4), 241-256.*
- Mikolajewska, E., & Mikolajewski, D. (2011). *E-learning in the education of people with disabilities. AdvClinExp Med, 20(1), 103-109.*
- Mohammed Ali, A. (2021). *E-learning for students with disabilities during COVID-19: Faculty attitude and perception. SAGE Open, 11(4), 21582440211054494.*
- Ntombela, S. (2020). *Teaching and learning support for students with disabilities: issues and perspectives in open distance e-learning. Turkish Online Journal of Distance Education, 21(3), 18-26.*
- Petretto, D. R., Carta, S. M., Cataudella, S., Masala, I., Mascia, M. L., Penna, M. P., ... & Masala, C. (2021). *The Use of Distance Learning and E-learning in Students with Learning Disabilities: A Review on the Effects and some Hint of Analysis on the Use during COVID-19 Outbreak. Clinical practice and epidemiology in mental health: CP & EMH, 17, 92.*

- Seale, J. K. (2013). *E-learning and disability in higher education: accessibility research and practice*. Routledge.

Institute Reorganization of Authors

**Ph.D. Research Scholar, Department of Special Education & Rehabilitation Science, Alagappa University, Email- prabhusplvi@gamil.com*

***Teaching Assistant, Department of Special Education & Rehabilitation Science, Alagappa University*

****Professor & Head, Department of Special Education & Rehabilitation Science, Alagappa University*

UNIVERSAL DESIGN FOR LEARNING – BENEFITS TOWARDS EDUCATION OF INTELLECTUALLY DISBALED STUDENTS

*Yashvinder Kapil**, *Prof. J. Sujathamalini***, *Tarak Halder****

Abstract

Intellectual disability, a neuro-developmental disorder, a neurodevelopment disorder that imposes limitations on an individual's learning abilities due to impaired adaptive and intellectual functioning. Children experiencing intellectual disability may encounter challenges in comprehending information, expressing themselves verbally, engaging in logical thinking, retaining memories, and solving problems. Various methods and techniques, such as Universal Design for Learning (UDL), have been developed over time to augment the developmental process and integrate these children into the mainstream. The objective of UDL is to employ diverse teaching methods, eliminating barriers to learning and ensuring that all students have equitable opportunities for success. UDL focuses on incorporating flexibility that can be customized to accommodate the strengths and needs of each student, making it a beneficial approach for all children. Therefore, past researches conducted provide evidence that these strategies such as UDL are beneficial for children with disabilities. The underlying premise is that every child has the potential to learn, given suitable assistance, up to the extent of their individual capabilities. Put differently, numerous learners may need specific support, yet they can still acquire knowledge despite these challenges, whether due to diverse abilities or lower intelligence. Universal Design for Learning (UDL) intervention strategies prove to be effective in delivering instructions tailored to the unique learning preferences of individuals. In enhancing the reading comprehension skills of children with intellectual disabilities, employing multisensory embedded instructions is considered effective. This approach extends from curriculum development to instructional methods, necessitating the design of classrooms and environments that align with the principles of universal design—aiming for inclusivity through a single, accommodating design for all.

Keywords: *universal design, intellectually disabled, teaching methods, equal opportunities*

Overview

Universal Design for Learning (UDL) serves as a framework for designing, developing, and delivering curricula, aiming to create inclusive and accessible learning environments.

The primary objective of UDL is to guarantee access to learning while promoting the cultivation of expert learners.

The UDL Guidelines serve as a tool for implementing Universal Design for Learning, a framework designed to enhance and optimize teaching and learning for individuals, utilizing scientific insights into human learning processes. Educators, curriculum developers, researchers, parents, and individuals interested in incorporating the UDL framework into a learning environment can utilize the UDL Guidelines as a valuable resource.

Three Main Principles of UDL

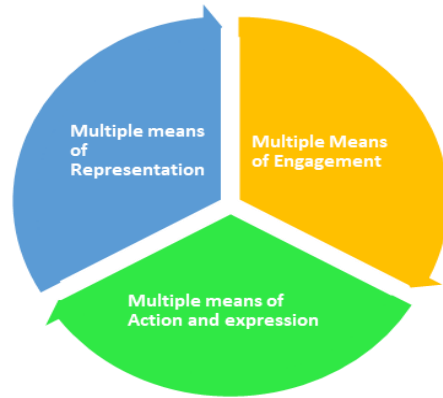
UDL is a framework for devising lesson plans and assessments, grounded in three fundamental principles-

Representation

UDL involves presenting information in multiple formats. While textbooks predominantly rely on visuals, incorporating text, audio, video, and hands-on learning ensures that all students have the opportunity to access the material in a manner aligned with their individual learning strengths.

Action and expression in UDL involve providing students with diverse ways to engage with the material and demonstrate their understanding. For instance, students could have the option to select from alternatives such as taking a traditional written test, delivering an oral presentation, or participating in a group project, allowing for flexibility based on individual preferences and abilities.

Engagement in UDL exploring various methods to motivate students. Strategies such as offering choices, assigning tasks that resonate with students' lives, incorporating elements of game play into skill-building, and providing opportunities for physical movement within the classroom are all ways in which teachers can sustain students' interest, fostering a more dynamic and inclusive learning experience.



Intellectual Disabilities

Intellectual disability, a neuro-developmental disorder, is the limitation on the learning abilities of an individual, due to impaired adaptive and intellectual functioning. This disability is one of the several common disabilities in children (Burack, 2012). The intellectual disability can range from mild to high or severe (Gargiulo & Bouck, 2017). Intellectual disability is identified with the help of IQ test score. The score around 70-75 means the person is having a mild disability (APA, 2018).

Individuals with intellectual disabilities face challenges due to neuro-developmental disorders, impeding normal brain functioning and hampering learning abilities and overall development. The impact of intellectual disabilities extends to both mental and physical well-being, manifesting in difficulties with comprehension, logical thinking, speech, memory retention, and problem-solving skills.

Children with Intellectual Disability

As per Rights on Persons with Disabilities Act, 2016, the intellectual disability refers to a characterized by significant limitations both in intellectual functioning (reasoning, learning, problem solving) and in adaptive behaviour, which covers a range of every day, social and practical skills.

In this study, the term "children with intellectual disability" pertains to individuals, both boys and girls, with mild to moderate IQ levels ranging between 50-69 and 35-49. These children are actively enrolled in mainstream schools for their education.

Intellectual disability is a condition marked by significant limitations in both intellectual functioning, which encompasses reasoning and learning, and adaptive behavior, covering a spectrum of practical skills including social and communication abilities. This disability typically manifests before the age of 18.

The number of children suffering from an intellectual disability is increasing rapidly. It has been found that the prevalence of this disability in America itself is about 36.8 percent (NCBI, 2015).

Intellectual disability fundamentally influences both the intellectual and adaptive functioning capacities of an individual. Children with intellectual disabilities often encounter difficulties in understanding, speaking, logical reasoning, memory retention, and problem-solving.

Children with intellectual disabilities may require an extended period to acquire even fundamental everyday skills like dressing, bathing, speaking, and writing. The delay in development in individuals with intellectual disabilities does not imply an inability to learn; rather, the underlying cause of this developmental delay is often unknown. Various methods and techniques, such as Universal Design for Learning (UDL), have been developed over time to facilitate the development process and integrate these children into mainstream education.

Needs of Intellectual Disability

People with intellectual disabilities encounter heightened difficulties relative to their peers, characterized by subpar cognitive abilities that partially or wholly constrain their capacity to execute specific tasks due to impairments in psychological, emotional, or behavioral faculties. Consequently, they possess essential requirements spanning daily living activities, proficiency in writing and mathematics, reading skills, participation in extracurricular pursuits, engagement in art and cultural activities, acquisition of independent living skills, and integration into the community, among other needs. Each aspect of life for individuals with intellectual disabilities carries significance, underscoring the need for a customized training regimen supported by pertinent services like audiology and early detection assessments for disabilities.

Benefits of Universal Design for Learning (UDL)

As well as implementing Universal Design for Learning (UDL) yields advantages for both students and educators. Although the most significant impact of UDL is often observed among students at the margins, there are multiple reasons to integrate UDL into higher education. Those who implement UDL typically experience.

A reduction in the need for, and time required to arrange, individual accommodations. The proactive design supports a more diverse student population. A greater opportunity for learners to more fully demonstrates knowledge. Better development of more self-aware and knowledgeable learners. Meeting the Accessibility for Ontarians with Disabilities Act is easier.

Universal Design for Learning for children with Intellectual Disability

The limitation on learning obstructs the development of the children, and they tend to learn more slowly than a normal child (Burack, 2012). The intellectual disability can range from mild too high or severe (Gargiulo & Bouck, 2017). Intellectual disability affects intellectual and adaptive functioning capabilities of a person. The children with intellectual disability face trouble in understanding, speaking, thinking logically, and remembering things, and solving problems (APA, 2018; Rätty, Kontu & Pirttimaa, 2016). In addition to this, intellectually disabled students find it difficult to adapt to the changes in conceptual skills, social skills, and practical skills, which slow down and put a limit on their learning abilities. It is common that people, in general, do not willingly accept the occurrence of intellectually disabled children and treat them in a very unwelcome manner (Wehmeyer, 2006). To address the unique needs of learners, educational experts must assess the extent of assistance required in classrooms. Overall, the implementation of Universal Design for Learning (UDL) is recommended, as it ensures that the diverse learning needs of individuals with intellectual disabilities are appropriately catered to through multiple instructional approaches.

Benefits of UDL for intellectually disabled students

UDL allows the teacher to engage students in the learning process regardless of their abilities. For instance, typically in schools, the education is provided in written form and through books. Some students may face the difficulty in reading while some other may experience difficulty in writing. With the help of UDL framework, the students can be educated with

multiple means such as pictures, audio, and video. This method provides alternatives to both learner and educator to acquire knowledge and demonstrate information respectively (Hall, Meyer & Rose, 2012).

The objective of Universal Design for Learning (UDL) is to employ diverse teaching methods, eliminating barriers to learning and providing every student with equitable opportunities for success. UDL focuses on incorporating flexibility that can be customized to accommodate the strengths and needs of each individual student. This adaptability is why UDL proves beneficial for all students.

Inclusive Classroom Environment for Children with Intellectual Impairments

There are numerous methods and techniques, for instance, UDL that have been developed over the time to enrich the development process and bring these children into the mainstream (Gargiulo and Bouck, 2017). Universal design of learning helps the students to meet their diversity of learning needs and abilities in the inclusive classrooms. The teachers find multiple ways of innovative approaches for concerning the needs of all the learners. By doing this, UDL becomes a proactive method that faculty can use to anticipate the potential needs of students and plan instruction accordingly (Basham, Israel, Graden, Poth & Winston, 2010). If pervasive support is provided, this technique assists in empowering the disabled child to resolve a problem that is beyond his usual unassisted efforts. Using UDL, a teacher can develop a plan lead by inspecting the barriers. UDL generally stresses on reducing the barriers so that the teacher does not have to adapt lessons to accommodate to the diverse needs of intellectually disabled children (Rao & Meo, 2016; Al-Azawei, Serenelli & Lundqvist, 2016). In the centuries since the progress and conceptualization of the UDL framework, many books and expressive articles have been published that define how UDL is being functional to teaching in various classroom settings. Many explain how UDL can be useful to instruction in early childhood education, and in elementary, middle, and high school classrooms (Basham & Marino, 2013; Bryant, Rao, & Ok, 2014; Glass, Meyer, & Rose, 2013). In an inclusive classroom, no single technique can reach all learners. In order to solve the problem multiple ways of concepts are needed. Students who received instruction using UDL principles made significant gains in reading (Coyne et al., 2012).

In a UDL classroom, challenges posed by diverse learning pathways can be addressed by encouraging diverse modes of thinking, providing students with multiple avenues to articulate

their understanding, and offering a range of choices for each student's engagement with the learning process.

The approach to addressing intellectual disabilities should be tailored to the individual needs and severity of the child's condition. It is crucial to understand each student, identifying their strengths and weaknesses, and determining the most effective strategies for each. Universal Design for Learning (UDL) encompasses various strategies, methods, and tools employed by teachers to ensure equal learning opportunities for all students. These guidelines aid teachers in selecting strategies that eliminate barriers in education, enabling every student to achieve their learning goals.

Active learning strategies play a key role in initiating both learners and educators into effective methods that engage students in activities based on principles of how people learn. Various active learning strategies can be incorporated into different learning designs to enhance the overall educational experience.

Strategies for implementing Universal Design for Learning (UDL) involve tailoring the approach to address intellectual disabilities based on individual needs and the severity of the child's condition. It is essential for educators to thoroughly understand each student, identify their strengths and weaknesses, and determine the most effective strategies for their unique requirements. UDL encompasses a range of strategies, methods, and tools that teachers can utilize to ensure equal learning opportunities for all students. These guidelines assist educators in selecting strategies that break down barriers in education, allowing every student to attain their learning objectives.

Active learning strategies play a pivotal role in introducing both learners and educators to effective methods that engage students in activities aligned with principles of how people learn. Incorporating various active learning strategies into different learning designs enhances the overall educational experience.

Conclusion

Students with intellectual disabilities often face challenges in social or educational settings that impede their learning abilities. The incorporation of a Universal Design for Learning (UDL) framework can be highly beneficial in ensuring that all students, regardless of their

mental health status, are provided with opportunities to access essential education. UDL guides educators in modifying their teaching approaches and offers training on implementing innovative teaching methods that enhance the ability to comprehend, differentiate, make choices, and conduct fair assessments for students with lower cognitive capacities. These strategies, methods, and tools associated with Universal Design for Learning are employed by teachers to ensure that every student has an equal opportunity to learn.

References

- Agran, M., Wehmeyer, M., Cavin, M., & Palmer, S. (2010). *Promoting active engagement in the general education classroom and access to the general education curriculum for students with cognitive disabilities. Education and Training in Autism and Developmental Disabilities*, 163-174.
- Al-Azawei, A., Serenelli, F., & Lundqvist, K. (2016). *Universal Design for Learning (UDL): A Content Analysis of Peer Reviewed Journals from 2012 to 2015. Journal of the Scholarship of Teaching and Learning*, 16(3), 39-56. <https://doi.org/10.14434/josotl.v16i3.19295>.
- Alnahdi, G. (2014). *Assistive Technology in Special Education and the Universal Design for Learning. Turkish Online Journal of Educational Technology-TOJET*, 13(2), 18-23.
- APA. (2018). *What is Intellectual Disability?* Retrieved 09 February 2018 from <https://www.psychiatry.org/patients-families/intellectual-disability/what-is-intellectual-disability>
- APA. (2018). *What is Intellectual Disability?* Retrieved 09 February 2018 from <https://www.psychiatry.org/patients-families/intellectual-disability/what-is-intellectual-disability>.
- Basham, J. D., & Marino, M.T. (2013). *Understanding STEM education and supporting students through universal design for learning. Teaching Exceptional Children*, 45(4), 8-15. <https://doi.org/10.1177/004005991304500401>.
- Burack, J. A. (2012). *The Oxford handbook of intellectual disability and development. Oxford: Oxford Library of Psychology*.
- Gargiulo, R. M., & Bouck, E. C. (2017). *Instructional Strategies for Students with Mild, Moderate, and Severe Intellectual Disability. London: SAGE Publications*.
- Hall, T. E., Meyer, A., & Rose, D. H. (2012). *Universal design for learning in the classroom: Practical applications. NY: Guilford Press*.
- Mr. R. Adaikalam, Mr. Tarak Halder, Dr. J. Sujathamalini. "A Case Study Analysis on Foundational Literacy Skill Among Children with Intellectual Impairment", *INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH IN TECHNOLOGY (IJIRT)*, ISSN: 2349-6002, Volume 10, Issue 1, June 2023, IJIRT 160265, Page(s): 107 – 110, <https://www.ijirt.org/Article?manuscript=160265>
- Mr. Tarak Halder, Mr. G. Ravichandran, Mr. R. Adaikalam, Dr. J. Sujathamalini. "THE IMPORTANCE OF WOMEN'S WITH DISABILITIES EMPOWERMENT IN INDIA", *International Journal of Creative Research Thoughts (IJCRT)*, ISSN:2320-2882, Vol.11, Issue 5, pp.k735-k739, May 2023, URL : <http://www.ijcrt.org/IJCRT23A5278>
- P Puspha, Tarak Halder, Dr. J Sujathamalini. "Attitude towards Traditional Methods and Modern Methods of Teaching Students with Visual Impairment" *Bharatiya Shiksha Shodh Patrika*. 2023. Volume- 42, Issue- 1(iii), Pages- 112
- Tarak Halder, J. Sujathamalini, G. Ravichandran. *According to NEP 2020, the role of art education techniques in school level for inclusion of students with disabilities. International Journal of Research and Review*. 2023; 10(3): 370-373. DOI: <https://doi.org/10.52403/ijrr.20230343>

- *Tarak Halder; R. Adaikalam; Dr. J. Sujathamalini; Dr. K. Gunasekaran. "Inclusive Development of Children with Disabilities." Volume. 8 Issues. 5, May - 2023, International Journal of Innovative Science and Research Technology (IJISRT), www.ijisrt.com. ISSN - 2456-2165, PP: - 1979-1982. <https://doi.org/10.5281/zenodo.8001653>*

Institute Reorganization of Authors

**Ph.D. Research Scholar, Department of Special Education and Rehabilitation Science, Alagappa University,
Email- kapilyash218@gmail.com*

***Professor & Head, Department of Special Education and Rehabilitation Science, Alagappa University*

****Teaching Assistant, Department of Special Education and Rehabilitation Science, Alagappa University*