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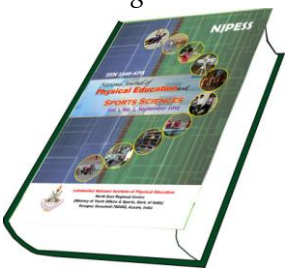

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Editorial

Epicenter Voyage of a Myth Institute-Lakshmibai National Institute of Physical Education
North East Regional Center

Lakshmibai National Institute of Physical Education, NERCis amongst the most admired centers of world-class education to foster academic excellence, physical fitness and research in sports committed to helping scholars, researchers and sports scientist leap into the 21st century. The present endeavor is a tribute to the holy symbol of Lakshmibai National Institute of Physical Education, NERC as the same was long precious aspiration. The journal shall symbolically signify the essence of quality research thereby appropriate in the ambition of the institute. The journal shall offer a much desired platform to publish quality research being undertaken in the whole world on the area in question. The journal shall bring the academicians and researchers from all over the globe to share their accumulated experiences and perceptions in order to realize new scientific and original innovation focused on aspects of the sports sciences and sports performance.

Prof. Shankar Basumatary
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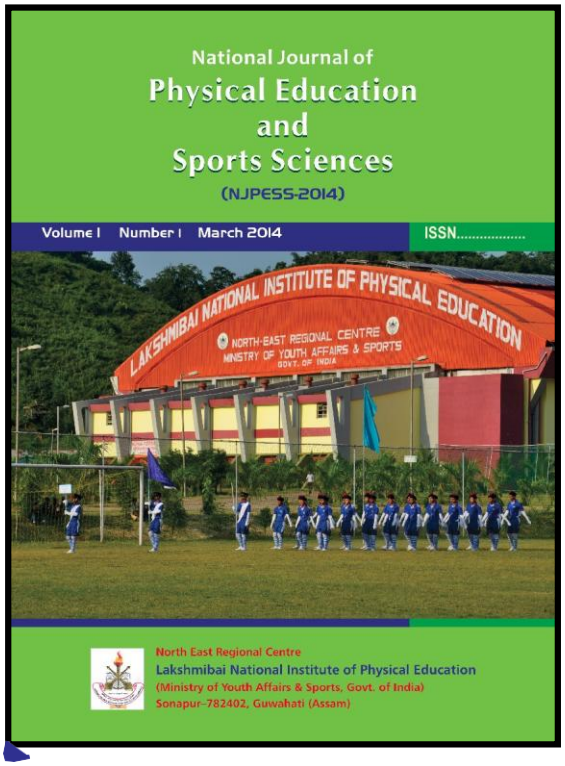

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N J P E S S

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General Awareness and Wellness Programs on Spine Injuries and Back Problems

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Abstract

The spinal cord is an extension of the brain and runs from the neck to the lower back. The spinal cord consists of millions of nerve fibers that transmit information to and from the limbs, trunk and organs of the body. A spinal cord injury can happen to anyone regardless of age or gender. The spine is the major factor in all movements of the body. It provides balance to the skeletal frame, absorbs jolts and shocks, and allows moving, bending and twisting, spinal anatomy is truly unique in its form and function. It is designed to be incredibly strong, protecting the highly sensitive nerve roots, yet highly flexible, providing for mobility on many different planes. Spinal anatomy is important for everyone to know their own body and understand the causes of back pain and evaluate treatment options. Spine injuries look small but its unbelievable painful problem. The purpose for this article is to help the community to be healthy fit and to know the importance of wellness and Awareness programs about back problems. National campaign can high lights the spinal cord injury awareness programs in the community. Creating organizations educate people and Share the safety message to prevent spinal cord injuries, and stay safe. 50 adults were randomly interviewed; some of them are with spinal cord injury. Very few of them were attended wellness workshops, in that they cover physical activity, nutrition, lifestyle management, maintaining healthy back and prevention of secondary conditions. The Conclusion is to create awareness in community and help to make healthy society.

Keywords: *Spine injuries, back problems, awareness and wellness etc.*

Shashidhara
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INTRODUCTION

Spinal injury is a devastating situation that occurs suddenly and whose consequences range from minimal symptomatic (sign) Spine injuries look small but its unbelievable painful problem. The purpose for this article is to help the community to be healthy fit and to know the importance of wellness and Awareness programs about back problems and avail the opportunity of such programs. National campaign can high lights the spinal cord injury awareness programs in the community, creating organizations and educate people and Share the safety message to prevent spinal cord injuries, and stay safe. 50 adults were randomly interviewed some of them are with spinal cord injury. Very few of them were attended wellness workshops in India, in that the topics they cover awareness about anatomy of their own body, importance of physical activity, nutrition, lifestyle management, maintaining healthy back, safety and prevention of secondary conditions, etc. They were satisfied with awareness programs. Significant improvements were found in their health-related self-efficacy and health behavior. Purpose of the study: the purpose for this article is to help the community, and help them to have awareness on health problems and to know the importance of wellness and Awareness programs about back problems and spinal injuries. Find out the organizations which available to help self and others.

Discussion

What is awareness? In general, “awareness” may also refer to public or common knowledge or understanding about a social, scientific, or political issue, and hence many movements try to foster “awareness” of a given subject, that is, “raising awareness”. Raising awareness is often the

first activity any advocacy group engages in. Like AIDS awareness and Multi-cultural awareness, Global warming, no smoking and drugs, save energy, save our sky, save power and save planet etc. Spinal Injuries Awareness Week 9-15 November 2014 in Australia. Spinal Cord Injuries Australia (SCIA) was formed in 1967 by a group of young men with spinal cord injuries who wanted to change the world. With a determination to become more independent they set about creating their own organization. Approximately 1000s of new spinal cord injuries occur each year. A majority of injuries occur from work-related accidents, sports injuries, motor vehicle accidents, falls, and stab or gunshot wounds. Every Organizations motto is to Prevent safety, Accessibility Social Inclusion Rebuilding Lives.

Spinal Injuries Awareness Week or Programs Aims at:-

1. Educate the community about spinal cord injury and the challenges faced
2. Safety measures and reduces the incidence of spinal cord injury
3. Engage people who have a spinal cord injury
4. Enlighten how people can assist organizations that support those with a spinal cord injury.

For Example

Wearing seat belt could have saved rural development minister Gopinath Munde who died in a road accident Union health minister Harsh Vardhan said and announced a major campaign to spread awareness on observing safety measures while driving. "Wearing seat belt could have saved Mr.Munde. Misconception in most people is they think that the back-seat belts serve only a decorative purpose. In fact wearing them is as necessary as wearing front seat belts. The damage to the minister's car was not great, but the force of the throw-forward within the confined space of the car damaged the ATLANTO AXIAL JOINT in his neck, and severely injured the SPINAL CORD.

One such accident was that of Princess Diana of Britain in August 1997 when her speeding car crashed against a pillar of an underground pass in Paris. Bodyguard Trevor Rees Jones, owed his escape to the fact that he wore a seat belt whereas the others–Princess Diana, her finance Dodi Fayed and driver Henri Paul–had all neglected wearing belt. Stating that the ignorance level about the importance of safety belts is alarming, "Many car owners cover the back seats of their cars with attractive cloth or other material to give comfort. In the process the seat belts get concealed. Ignoring seat belts, drivers and bikers speak on mobile phones and even text while on the wheel. India made seat belts compulsory only after the passing of the Motor Vehicles Act, 1989.

Awareness Programs in India and Rehab Centers

Three was Two days programme "World Health Organization workshop for managers of rehabilitation programs including wheelchair services". The workshop was held at Mobility India, Bangalore from 31 May–1 June 2013. Arrive Alive"—Theme on "Focus on bringing down road accidents" Road safety awareness week participated with Visakha Police in awareness program.

Rehabilitation Centers

We have post-hospital rehabilitation centers to provide active rehabilitation to people with disabilities especially spinal cord injury patients along with sports and vocational rehabilitation in Visakhapatnam A P. The goal of the center is not just to help patients, but to turn them into helpers of patients themselves. The proposed center will be the first of its kind in the entire Andhra Pradesh. The upcoming center named as "ARC (Ability Rehab Center)" Conducted 2 day's rehabilitation work shop for spinal cord injury and distributed materials and DVDs on role of technology and active rehabilitation in social integration in Visakhapatnam Andhra Pradesh. The spinal cord is a column of nerves that connects your brain to the rest of your body, allowing you to control your movements.. Even though the lower portion of your spine holds most of the body's weight, each segment relies upon the strength of the others to function properly.

Types of Spinal and Back Problems

Pain is the most common symptom of back problems and if you suffer from back problems the most important one is to distinguish between acute and prolonged pain, because they reflect different types of problems and different medical treatment needs. Inflammation, Osteoarthritis, Whiplash Herniated, Disc Compression, Fracture, Scoliosis Stenosis, Work-Related Injuries -- Lower Back and Upper Back etc.

CONCLUSION

However there are a limited number of spinal injury centers in India. The last two decades have seen a renewed interest in India to improve services for spinal injured. Things are bound to change in the interest of spinal injured. The Government needs to have a big role to play with the help of voluntary

organizations for community awareness & injury prevention programs. A National Programme on spine injuries and back problems—general awareness and wellness programs must be developed in our Country.

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Effect of Physical Activity on Cognitive Development of Autistic Children

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Abstract

The purpose of the study is to find out the Effect of Physical activity on Cognitive Development of Autistic Children of Roshni Ramakrishna Ashrama, Gwalior (M.P.). Five (N=5) subject were selected for the purpose of present study (mix group, boys= 03 & girls=02), age ranged from nine (9) to fifteen (15) years, according to Ashrama record, walking, carrying, balancing, cleaning, engaging in novel play, pushing, pulling, rotation, bending, and locomotion, and recreational activities are consider as Physical Activity to measure the Cognitive Development through Trail Making Test (TMT) Parts- A & B (consists 25 circle, A=number 1 – 25, B= both numbers & letters 1 – 13, A – L), before and after the Trail Making Test. In order to find out the effect of physical activity on Cognitive Development of autistic children, pre-test and post-test data was collected. Comparison was done by the means of paired't'-test. Significance difference was found at.05 level of significance.

Keywords: *Trail Making Test (TMT), Cognitive Development, Physical Activity, Autistic Children.*

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INTRODUCTION

Autism is a disorder that is associated with deficiencies in three related domains. The first is language and communication. To be classified as autistic there must be a delay during the developmental period in the acquisition of language. If the individual exhibited no delay but shows other deficiencies associated with autism, then the individual is typically classified as having Asperser syndrome especially when those other conditions are mild. A severely autistic individual will never acquire language. Such individuals are typically not able to function in society independently and eventually require Institutionalization of one sort or another. More mild autism is typically associated with eventual language acquisition, but typically the individual shows clear deficiencies in the pragmatic or social use of language. Back and forth conversation is difficult and the individual will frequently discuss one or two topics of interest in an obsessive fashion. There are also a range of other related problems concerning various issues including that facial expression and gestures frequently do not match what is being said. The second related domain is social interaction. Not surprisingly, given the deficiencies in pragmatic language skills, even high functioning autistic individuals typically find social interaction difficult. In addition, there are also a number of other aspects of the disorder that make social interaction difficult. First, autistic individuals have difficulty making appropriate eye contact during social interaction. Second, there is typically a deficiency in interpreting subtle social cues such as smiles, winks, and grimaces. Third, autistic individuals frequently exhibit what is referred to as mind blindness, i.e., they lack a conceptual understanding of what other individuals are thinking. This last characteristic can lead an autistic individual to make unintentional comments that the listener finds insulting. The final major way in which autistic individuals show deficiencies is in terms of repetitive behaviours and obsessive interests. This set of deficiencies takes a number of different forms. One specific way this deficiency manifests itself is in terms of odd repetitive motions such as flapping arms or walking on toes. Another is in terms of a desire for consistency or sameness of everyday routines. For example, an autistic child may demand that he or she leave for school at exactly the same time every day and that exactly the same route be taken, where any deviation concerning either of these dimensions can cause the child to become extremely agitated. The last way this deficiency is

manifested is in terms of obsessive interests. For example, an autistic child may become obsessed with a narrow interest such as vacuum cleaners or train schedules or wasps and want to learn everything he or she can about the topics.

From the early 1900s, autism referred to range psychological conditions. But where the term did comes from. The word "autism" which has been used for about 100s year, comes from the Greek word "autos" meaning "self". The term describes condition in which a person is removed from social interaction-hence an isolated self. Eugen Bleuler, a Swiss psychologist, was the first person to use the term. He started using it around 1911 to refer to one group of symptoms of schizophrenia. In the year 1940s, researcher in the United State began to use the term "autism" to describe children with emotional or social problems.

Autism and schizophrenia remains linked in many researcher minds until the 1960s. It was only then that professionals began to have separate understanding to autism in children.

From the 1960s through the 1970s, research into treatments for autism focused on medication such as LSD, electric shock, and behaviour change techniques. During the 1980s and 1900s use of high controlled learning environments emerged as the primary treatments for many form of autism and related condition.

Objective

The purpose of the study was to compare Cognitive Development of Autistic Children before and after six (6) week physical training activity.

METHODOLOGY

Selection of Subjects

For the purpose of the study Five (N=5) subject (mix group, boys= 03 & girls=02), Autistic Children of Roshni Ramakrishna Ashrama, Gwalior (M.P.), were selected according to Ashrama record with age ranged from nine (9) to fifteen (15) years,

Selection of Variable

For the purpose of the study, Cognitive development was selected as a dependent variable which was measured with a valid & reliable test that TMT.

Method and Tools

Subjects were made aware of the purpose of the study and also about test and procedure to perform Trail Making Test (TMT). The Pre-test & Post-test data was collected from the selected Autistic Children of Roshni Rama krishna Ashrama, Gwalior (M.P.). The Pre-test data was collected before engaged them in any physical activity and Post-test data was collected after the six (6) week physical activityat Roshni Rama krishna Ashrama,Gwalior (M.P.). The tool & equipment's which was used during the data collection is Trail Making Trail (TMT) parts A & B, Stop watch, Pencil & Paper etc. Total duration of the training was six (6) week and training was given in every alternate days (three days in a week), duration of class is 45 minutes and three minutes recovery period in between the activities. The cognitive development measurement was done on the basis of time record in seconds to complete the Trail Making Test (TMT) Parts- A & B (consists 25 circle, A=number 1 – 25, B= both numbers & letters 1 – 13, A – L).

The overall score of TMT was taken as the sum of time in seconds of part A & B.

Statistical Technique

The data was analysed by employing paired t-test at.05 level of Significance. The SPSS statistical was used for calculation.

RESULTS

The data was collected and analysed in order to draw a conclusion or to compare the pre and post status of the Cognitive Development of autistic children of Roshni Ramakrishna Ashrama, Gwalior (M.P.). The findings of descriptive statistical values are presented in the Table underneath.

Table 1: Paired Sample Statistics for Cognitive Development

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Cognitive Development pre-test	3.164	5	1.023	.458
	Cognitive Development post-test	2.780	5	.682	.305

Table 1 shows the value of mean, SD and standard error of the mean for the data on cognitive development in pre and post-testing as 3.164±1.023 & 2.78±0.682 respectively.

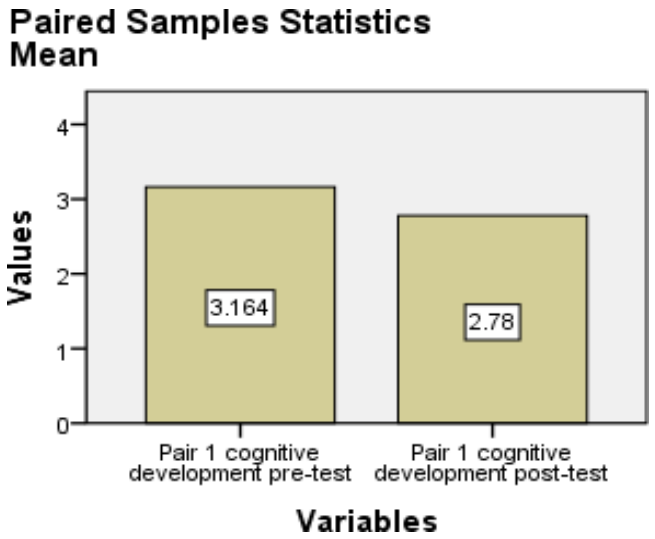

Fig. 1: Comparison of Mean Result in Pre-test and Post-test Cognitive Development of Autistic Children.

The comparison of mean difference of pre-test cognitive development and post-test cognitive development of autistic children of Roshni Ramakrishna Ashrama, Gwalior, (M.P.).

Table 2: Paired T-test between Pre and Post Cognitive Development

Paired Samples Test							
Mean		Paired Differences			t	df	Sig. (2-tailed)
		Std. Deviation	Std. Error Mean				
Pair 1	Cognitive Development pre & post-test	.384	.418	.187	2.056	4	.109

Table 2 shows that obtained p-value (.109) is more than 0.05 thus indicating that there is no significance difference between Pre-test and Post-test cognitive development.

CONCLUSION

The result of the study clearly conclude that there is no significant difference in pre and post test score. Comparative graph shows that there is improvement in cognitive development but they are not significant, so the researcher may conclude training was effective but requires to include some more ingredients and duration can also be increase to make the training more affective.

DISCUSSION

It has been noticed in the statistical analyses that there is no significant difference in pre and post-test of Trail Making Test of autistic children of Roshni Ramakrishna Ashrama, Gwalior, M.P., but in the graph it is showed that there is little difference in Mean value of pre and post-test (TMT), that means the physical training/activity period is need be to extended from 6 week to 8 -10 week and also increased the frequency (numbers of days per week) of the training, so that the Trail Making Test will be more effective to compare the Cognitive Development of autistic children of Roshni Ramakrishna Ashrama, Gwalior, M.P.

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Physical Education and Sports Programs in Schools

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Abstract

Physical Education is an indispensable of education as if contributes to the health, to the emotional and mental development of an individual. In the modern era we cannot undermine the importance of relationship between general education and physical education. These are complementary and supplementary to each other. Their aims and objectives lead towards common goal–the all-round development of personality, enabling the man to lead enriched, abundant and harmonious life. Therefore, physical education is an integral part of general education and their relationship cannot be ignored. They are inter-related and inter-dependent, and constitute an indivisible whole. Physical Education as an integral part of all educational programs, deserves to be appreciated. The outcomes of these programs extend much beyond the horizons of keeping fit and healthy. They become positive inputs for the development of multiuse proficiencies, neuro-muscular skills, values and attitudes, which have great potential as foundations for success in life. Activities like rhythmic, expressive movements, dance, mass-drill, flag salutation and singing of the National Anthem do in the course of celebrations of national days and other events certainly go a long way in strengthening national integration. It helps students to realize and appreciate the contributions of these activities in physical, mental, moral, social and emotional development.

Keywords: *physical education and sports etc.*

Shashidhara
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INTRODUCTION

Physical Education is an indispensable of education as if contributes to the health, to the emotional and mental development of an individual. In the modern era we cannot undermine the importance of relationship between general education and physical education. These are complementary and supplementary to each other. Their aims and objectives lead towards common goal–the all-round development of personality, enabling the man to lead enriched, abundant and harmonious life. Therefore, physical education is an integral part of general education and their relationship cannot be ignored. They are inter-related and inter-dependent, and constitute an indivisible whole. Physical Education as an integral part of all educational programs, deserves to be appreciated. The outcomes of these programs extend much beyond the horizons of keeping fit and healthy. They become positive inputs for the development of multiuse proficiencies, neuro-muscular skills, values and attitudes, which have great potential as foundations for success in life. Activities like rhythmic, expressive movements, dance, mass-drill, flag salutation and singing of the National Anthem do in the course of celebrations of national days and other events certainly go a long way in strengthening national integration. It helps students to realize and appreciate the contributions of these activities in physical, mental, moral, social and emotional development.

SIGNIFICANCE OF THE STUDY

The study is to determine the physical education and sports programs in schools is total health system for healthy life style.

THE MAIN OBJECTIVES OF PHYSICAL EDUCATION PROGRAMMES ARE

To develop the concept of good health, physical fitness, grace and poise.

- To develop healthy habits relating to sleep, food exercise and hygiene.
- To develop neuro-muscular coordination (bodily skills)

- To develop attitudes and values of cooperation, sports manliness, fair play and team spirit.
- To develop traits of character such as discipline, courage, self- confidence and a sense of responsibility.
- To develop the ability for making an enjoyable use of leisure.
- To promote talent in sports and to achieve international standards.

FREE MOVEMENTS

Movements like walking, running, jumping, throwing are a part of movements education. For free movements and for exploration some improvised gadgets like hoops, old tyres, old boxes, old chairs, obstacles (prepared or existing) could be used. These activities facilitate free exploration, contributes to poise and body coordination and above all provide fund and enjoyment.

Rhythmic

Dance and action songs come under this category. Dance is an excellent medium of free healthful activity through which students can express their emotions. They are—various stimuli for dancing are necessary at this stage. These may be provided by audio-stimuli for dancing are necessary at this stage. These may be provided by audio-stimuli like mouth sounds, clapping, drums and also visual stimuli like demonstration, community songs and some other poems and songs selected from language readers. Examples group dance, action songs, flag drill etc., these activities help develop an agile body, balance and physical poise, graceful movements, a sense of rhythm and above all they yield joy and satisfaction.

SMALL AREA GAMES

These are simple games played within a small area involving running, chasing, dodging etc., students could play these individually, in pairs or in groups. The interest of children could be sustained for a very long time through them. Lion in the well, follow the leader, the if and the Policeman etc., such games provides exercise to various muscles, help develop physical strength and neuromuscular coordination, foster a sense of cooperation and have fun and enjoyment.

GYMNASTICS

Physically activities of this type should be so selected that the children, of the age-group in question, are able to perform without any special equipment, rabbit jumping, displaying the postures of standing, sitting lifting bending and stretching, forward, backward roll, monkey walk, cart wheel, wheelbarrow, shoulder roll, balance walk etc., Gymnastic activities help in body control and neuro-muscular coordination skills. They also impart strength, suppleness and balance to the body.

SIMPLE COMBATIVE

Simple combative like pushing, pulling, toppling help children in sublimating their aggressive drives and desires. Examples: drake fight, cock fight, lame duck fight, hand wrestle, pushing off the bench or the stool, stepping on toes, knee slap etc. These activities help children to know about their strength in relation to others and help develop courage and self-confidence.

CALISTHENICS

These are exercise without apparatus. They involve continuous movements of the head, arms, trunk, and legs without any rigid positions being held. These developmental exercises have to be done in a formal prescribed way for a sufficiently long time. These are normally 6 to 8 exercises of 2 to 4 counts for this age-group. Calisthenics help develop coordination of bodily movements leading to the growth and development of the body and better postures.

ATHLETICS

Athletics play an important role in the programme of physical education. Activities in this area involve movements of running, jumping and throwing which are measurable and hence comparable. A healthy competition can be fostered through these activities because achievements can be measured and tested objectively where even an individual can compete with himself. Examples: Short Spirits (25 M), hopping (25-50 M), Endurance (200 M), throwing a cricket ball or football, jumping for distance and height. Athletic activities help develop fundamental motor skills, contribute to physical fitness and open up avenues for competition.

GAMES

Games though important in their own right, have to be suggested with the full awareness of the fact that, playground faculties and specialist coaches or instructors are not available in many schools. Children may be offered opportunities for playing "lead-up" games leading them finally to major games. Next, they may be encouraged to learn and practice a few fundamental skills and family, to play the games in the modified simple form. An exposure and opportunity is expected to finally enable students to select the games of their choice. Games help children to develop the ability to participate their choice. Games help children to develop the ability to participate in vigorous activities, to learn new skills, to cultivate an interest in games and to drive fun and enjoyment. Relays constitute a commonly practiced form of games. They could be simple relays, zig-zag relays, hop and run, potato race, three legged race, jumping over the stick etc., Lead up games are miniature forms of big games. In lead-up games of football or hockey, for example, there could be a small field with say 5 yr. 5 players. In a lead-up cricket children may play tennis ball cricket etc.,

YOGIC EXERCISES

Yoga is an Indian contribution to the field of Health Education. Yogic asana be performed in a calm atmosphere, produce desirable effects on the body mind and are an excellent carry over activity. It will develop the ability to concentrate, has a carryover effect for it contributes to physical fitness and is now being increasingly used for therapeutic to cure a number of ailments. Asanas, in which students could be trained at this stage, are Swastikasana, Veerasana, Bhujangasana, Ardhshalabhasana, Utkatasana, Tandasana, Vrikshasana Padahastasana and Shavasana.

DRILL AND MARCHING

Drill and Marching are to be introduced at this state as a compulsory activity. They develop uniformity in orderly move sense of discipline and enable to formation of a habit for maintaining good posture leading to proper and effecting control of the body.

SWIMMING

Very few schools have swimming pools. However, whenever, natural facilities like a river, a sea, a pond is available nearby, swimming could be made a core programme Children ought to be encouraged and guided to get over the fear of water through confidence drill consisting (step-by-step) of:

Walking in waist deep water.

Jumping on the spot, back and forth and opening the eyes in the water.

Practice of aquatic breathing with the face above the water level, breath in through the month and breathing – out through the nose.

Floating with the support of a partner-holding the partner's waist stretched in a horizontal position.

Once the floating skill is achieved, an attempt should be made to introduce the free style, breast stroke, and the butterfly stroke.

The basic skill to be acquired for all the strokes should be: Body position (horizontal) Leg action Arm action Breathing Coordination Swimming leads to the removal of the fear of water helps develops Confidence, fun and pleasure.

DISCUSSION OF THE STUDY

Scientists and doctors have known for years that substantial benefits can be gained from regular physical activity. The expanding and strengthening evidence on the relationship between physical activity and health necessitates the focus of the study brings to this important public health challenge. Although the science of physical activity is a complex and still-developing field, we have today strong evidence to indicate that regular physical education & sports will provide clear and substantial health gains.

We must get serious about improving the health of the nation by affirming our commitment to healthy physical activity on all levels: personal, family, community, organizational, and national. Because physical activity is so directly related to preventing disease and premature death and to maintaining a high quality of life, we must accord it the same level of attention that we give other important public health practices that affect the entire nation. Physical activity thus joins the front ranks of essential health objectives, such as sound nutrition, and the prevention of adverse health effects of tobacco.

The effort to understand how to promote more active lifestyles is of great importance to the health of this nation. Although the study of physical activity & sports determinants and interventions is at an early stage, effective programs to increase physical activity have been carried out in a variety of settings, such as schools, physicians' offices, and worksites. Determining the most effective and cost-effective intervention approaches is a challenge for the future.

CONCLUSION

Opportunities ought to be provided to the children for learning and practicing the skills and playing the games with suitable modification in the school, as physical education is the integral part of the educational programme. The programme aim at promoting the development of the body and the mind and also develop the qualities in children that are essential for a happy and well adjusted for health and healthy life style in a free and democratic world. Therefore it can conclude that, there activities can develop the total personality of the child, to its fullness and perfection total health system for healthy life style.

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Comparative Study of Selected Cardio Respiratory Variables of Industrial and Non-Industrial Inhabitants

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Abstract:
The study aimed to compare the cardio-respiratory variables of Industrial and Non-industrial inhabitants of Amravati city. A total of fifty (50) subjects, comprising 25 industrial and 25 as Non-industrial inhabitants of Amravati city which were randomly selected for the study. The Subjects were selected by using simple random sampling. The age of the subjects ranged between 25-35 years. To analyze the cardio respiratory variables such as Haemoglobin amount, Exhale capacity, Resting heart rate and VO2 Max. Of the subjects of both the groups I.e. Industrial and non- Industrial group the following tests or equipments were used. Haemometer for measuring Haemoglobin percentage or amount. Peak flow meter for measuring Exhale capacity. A digital Stop watch for recording time during Heart Rate count. Vo2 Max. Bench for Cardiovascular Endurance of both Industrial and Non-industrial inhabitants the games. The analysis of data was done by using statistical technique 't'-test for finding the significance difference of selected Cardio Respiratory variables between Industrial and Non-industrial inhabitants of Amravati city and the level of significance was set at 0.05 levels ($p<0.05$). The findings means and standard deviation of selected cardio respiratory variables of industrial inhabitants viz. Haemoglobin amount is(12.82 ± 1.07), Exhale capacity is(398.4 ± 64.91), Resting heart rate is (77.66 ± 6.09) and VO2 Max is (58.24 ± 7.25) and the findings means and standard deviation of selected cardio respiratory variables of Non-industrial l inhabitants viz. Haemoglobin amount is (13.87± 2.93), Exhale capacity is (448 ± 66.39), and Resting heart rate is (73.84 ± 5.25) and VO2 Max is (61.66 ± 5.52). Hence the Non-industrial inhabitants were found with sound cardio respiratory capacities as compared to Industrial Inhabitants the difference might be due to the pollution of industries which directly or indirectly affects the population (people) residing in industrial area.

Keywords: *Cardio-respiratory, Exhale Capacity, Resting Heart Rate, Industrial Inhabitants, Haemoglobin, vo2 max.*

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INTRODUCTION

Man is basically an intruder in natural landscape. Unprecedented population growth unplanned industrialization have brought the manmade and natural environment into conflict to set a degree that not only his sound, economic and social development un-degraded but also the physical, social, esthetics, and spiritual well being of man is jeopardized. The industrial society is approaching across road. The human population has expended three folds in the past ninety years fossil fuel consumption as increased thirty times an industrial pollution has increased by fifty folds. Obviously this pattern cannot continue indefinitely what kind of industrial society we want. This has been an area of thinking today. Never before in the history of mankind man has faced such a severe crises of self destruction as he faces today. **The air pollution and bottom ash generated because considerable health problems, especially related to respiratory health**. Brook (2008) conducted his study on "Cardiovascular Effects Of Air Pollution". Air pollution is a heterogeneous mixture of gases, liquids and PM (particulate matter). In the modern urban world, PM is principally derived from fossil fuel combustion with individual constituents varying in size from a few nanometers to 10 micron in diameter. In addition to the ambient concentration, the

pollution source and chemical composition may play roles in determining the biological toxicity and subsequent health effects. Nevertheless, studies from across the world have consistently shown that both short- and long-term exposures to PM are associated with a host of cardiovascular diseases, including myocardial is chaemia and infarctions, heart failure, arrhythmias, strokes and increased cardiovascular mortality.

Procedure and Methodology

Fifty subjects were selected for the collection of data which include 25 subjects from industrial zones and 25 from non industrial zones of Amravati city. The subjects were selected by simple random sampling method. The age of the subjects ranged between 25-35 years.

Equipments Used For Collection of Data

The various equipments that were used for the collection of data were Haemometer for measuring haemoglobin percentage. Peak flow meter for measuring exhale capacity. A digital Stop watch for recording time during pulse rate count. Vo2max. Bench for cardiovascular endurance.

RESULTS

Table 1: Haemoglobin Percentage between Industrial and Non-Industrial Inhabitants

Group	Mean	S.D.	M.D.	D.F.	O.T.	T.T.
Non-industrial	13.87	2.93	1.05	48	2.1	2.00
Industrial	12.82	1.07				

*Level of Significance = 0.05
Tabulated 't' 0.05 (48) = 2.00

Table-1 reveals that there is difference between means of Non-industrial and industrial group, because the mean of Non-industrial is 13.87, greater than Industrial which is 12.82, and their mean difference is 1.05. To check the significant difference of Haemoglobin between Non-Industrial and Industrial group the data is analyzed by applying 't' test. Before applying 't' test, standard deviation is calculated between Non-Industrial and Industrial group which is 2.93 and 1.05 respectively. After applying 't' test it was found that there is significant difference haemoglobin between industrial and non-industrial group because value of calculated 't' (2.1) which is greater than tabulated 't' (2.00) at 0.05 level of significance, which indicates or shows that there is a significant difference in haemoglobin percentage between industrial and non-industrial group.

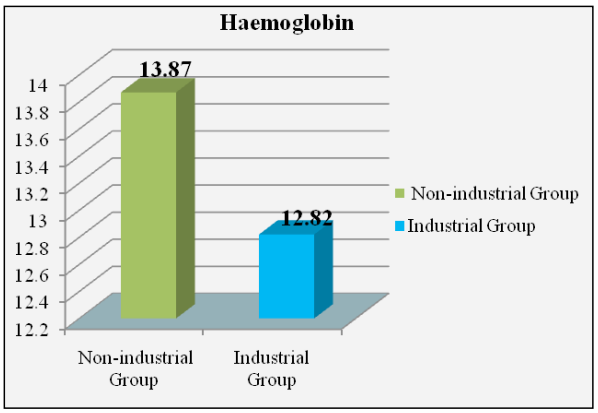

Fig. 1: Graphical Representation of Mean Difference of Haemoglobin Percentage of Non –Industrial and Industrial Group

Table 2: Exhale Capacity Between Industrial and Non-Industrial Inhabitants

Group	Mean	S.D.	M.D.	D.F.	O.T.	T.T.
Non- industrial	448	66.39	49.6	48	2.67	2.00
Industrial	398.4	64.91				

*Level of Significance = 0.05
Tabulated 't' 0.05 (48) =2.00

Table-2 reveals that there is difference between means of Non-industrial and industrial group, because the mean of Non-industrial is 448, greater than Industrial which is 398.4, and their mean difference is 49.6. To check the significant difference of Exhale Capacity between Non-Industrial and Industrial group the data is analyzed by applying 't' test. Before applying 't' test, standard deviation is calculated between Non-Industrial and Industrial group which is 66.39 and 64.91 respectively. After applying 't 'test it is clear that there is a significant difference exhale capacity between industrial and non-industrial group because value of calculated 't' (2.67) which is greater than tabulated 't' (2.00) at 0.05 level of significance, which indicates or shows that there is a significant difference in Exhale Capacity between industrial and non-industrial group.

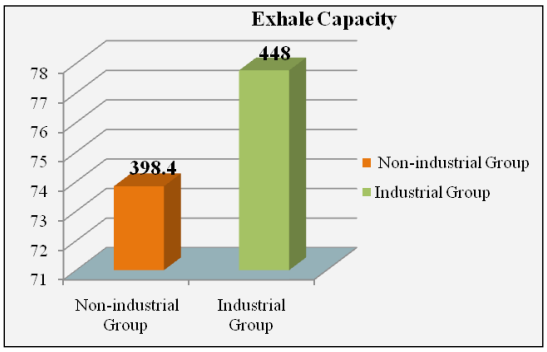

Fig. 2: Graphical Representation of Mean Difference of Exhale Capacity of Non–Industrial and Industrial Group

Table 3: Resting Heart Rate between Industrial And Non-Industrial Inhabitants

Group	Mean	S.D.	M.D.	D.F.	O.T.	T.T.
Non-industrial	73.84	5.25	1.08	48	2.38	2.00
Industrial	77.76	6.09				

*Level of Significance = 0.05
Tabulated 't' 0.05 (48) = 2.00

Table-3 reveals that there is difference between means of Non-industrial and industrial group, because the mean of Non-industrial is 448, greater than Industrial which is 77.76, and their mean difference is 1.08. To check the significant difference of Resting Heart Rate between Non-Industrial and Industrial group the data is analyzed by applying 't' test. Before applying 't' test, standard deviation is calculated between Non-Industrial and Industrial group which is 5.25 and 6.09 respectively. After applying 't' test it is clear that there is a significant difference in Resting Heart Rate between industrial and non-industrial group because value of calculated 't' (2.38) which is greater than tabulated 't' (2.00) at 0.05 level of significance, which indicates or shows that there is a significant difference in Resting Heart Rate between industrial and non-industrial group.

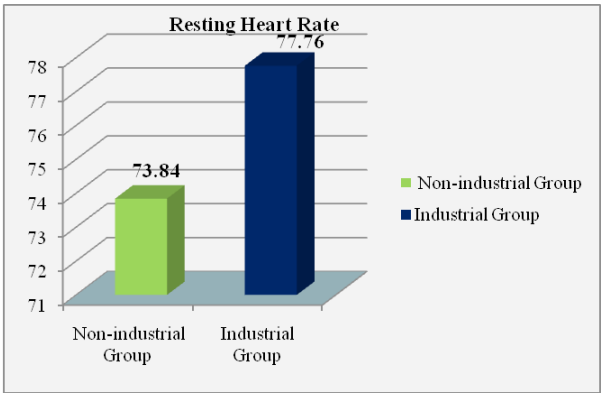

Fig. 3: Graphical Representation of Mean Difference of Resting Heart Rate of Non –Industrial and Industrial group

Table 4: Vo2 Max Between Industrial and Non-Industrial Inhabitants

Group	Mean	S.D.	M.D.	D.F.	O.T.	T.T.
Non-industrial	61.66	5.52	3.42	48	2.40	2.00
Industrial	58.24	7.25				

*Level of Significance = 0.05
Tabulated 't' 0.05 (38) = 2.00

Table-4 reveals that there is difference between means of Non-industrial and industrial group, because the mean of Non-industrial is 61.66, less than Industrial which is 58.24, and their mean difference is 3.42. To check the significant difference of Vo2 Max between Non-Industrial and Industrial group the data is analyzed by applying 't' test. Before applying 't' test, standard deviation is calculated between Non-Industrial and Industrial group which is 5.52 and 7.25 respectively. After applying 't' test there is a significant difference in Vo2 Max capacity between industrial and non-industrial group because value of calculated 't' (2.40) which is greater than tabulated 't' (2.00) at 0.05 level of significance, which indicates or shows that there is a significant difference in Vo2 Max. between industrial and Non-Industrial group.

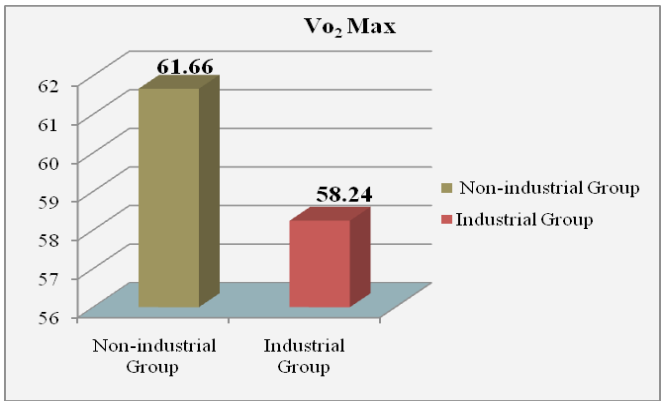

Fig. 4: Graphical Representation of Mean Difference of Vo2 Max of Non –Industrial and Industrial Group

CONCLUSION

Within the limitations of the study and from statistical analysis the following conclusion was drawn.

There was found significant difference in the cardio respiratory variables of industrial and non-industrial inhabitants of Amravati city. From result of this survey type of study we come to this conclusion that Industrial inhabitants were found poor in cardio respiratory variables as compared to Non Industrial inhabitants because in all the four selected cardio respiratory variables the industrial group showed poor performance as compared to Non-Industrial group, the reason behind this all might be the affect of industrial pollution as industrial inhabitants comes in direct contact with the pollutants that gets liberated from industries in the form of poisonous gases and chemicals. At last From this study we come this conclusion that industries proves to be very fatal to all the individual residing near to them These industries create lot of health related problems and sometimes they may take the life of whole population. So government should take necessary steps to minimize the effect of industrial pollution so save the human life from destruction.

RECOMMENDATION

In the light of results obtained and conclusions drawn, the following recommendations are made for future investigations and for practical applications:

1. It is strongly recommended to all the human population that they should not construct their homes near to industries.
2. The government should take necessary steps to minimize the effect of industrial pollution so that human life could be saved from destruction.

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