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A study on intelligence among physically active and inactive early adulthood individuals

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Abstract

The purpose of the study was to identify the difference in intelligence between physically active and inactive early adulthood individuals. The study has done on 60 participants, physically active and physically inactive early adulthood individuals with 30 members each in both categories. The people who are engaging in physical activities minimum three times a week other than their daily routines are considered as physically active members. The people who are not engaging in any type of physical activities other than their daily routines are considered in this study as inactive people. "Test of general intelligence" by Dr. S K Pal and Dr. K S Mishra were used as the research tool. Descriptive statistics and independent t test were applied. The level of significance kept at 0.05 level. Significant difference has identified between two groups since the p value was less than 0.05 (p value = 0.016). Physically active individuals have scored more in intelligence test than physically inactive individuals.

Keywords: intelligence, physically active, physically inactive, early adulthood

Introduction

Intelligence is defined as the ability to acquire and apply knowledge and skills. it can be also described as the ability to perceive or infer information, and to retain it as knowledge to be applied towards adaptive behaviours within an environment or context. Psychologist Robert Sternberg defined intelligence as "mental activity directed toward purposive adaptation to, selection, and shaping of real-world environments relevant to one's life".

The life stage called early adulthood defines individuals between the ages of 20 and 35, who are typically vibrant, active and healthy. Unlike our physical abilities, which peak in our mid-20s and then begin a slow decline, our cognitive abilities remain relatively steady throughout early and middle adulthood. Since Piaget's theory of cognitive development, other developmental psychologists have suggested a fifth stage of cognitive development, known as postformal operational thinking. Early adulthood is a time of relativistic thinking, in which young people begin to become aware of more complexities in life. Adult intellectual development is known to produce a pattern of average age-related changes differing by whether the ability in question is dominated by acquired knowledge (crystallized intelligence) or by processes involved in reasoning and memory, especially working memory (fluid intelligence) (Christopher Hertzog, 2019). Adult intelligence and creativity do not change as person ages, but the components of intelligence can. The question of whether or not to assign a formal cognitive stage to early adulthood is a source of debate among developmentalists. Early life stages result in substantial and critical changes, whereas essential brain growth has already occurred in early adulthood, and people are now applying and utilising their knowledge and analytical abilities. Many studies, however, point to ongoing changes, including as those occurring in the frontal lobes of the cerebral cortex, which are the parts of the brain where judgement, planning, speaking, and moving muscles are situated. This part of the brain only reaches full maturity in the early twenties. Additionally, many theorists, such as Jean Piaget (1896-1980) noted a significant difference between adult and adolescent thinking. Adults have more flexibility in their thought patterns, understanding that there are multiple opinions on issues, and that there is more than one way to approach a problem. More active or higher fit individuals are capable of allocating greater attentional resources toward the environment and are able to process information more quickly (Fernando Gomez-Pinilla, 2013).

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Acute physical activity significantly improves attention. Concerning the link between physical activity and subsequent future school performance, a systematic review of the literature established a long-term relationship between the two variables under scrutiny (Singh *et al.*, 2012). The brain requires a steady supply of oxygen and other substances transported through its many blood arteries to maintain optimal cognitive function. Physical activity, even basic tasks like cleaning dishes or vacuuming, aids in the effective circulation of nutrient-rich blood throughout the body and keeps blood vessels healthy. Exercise also boosts the production of mitochondria, which are the cellular structures that generate and maintain our energy, in both our muscles and our brains, which could explain the mental boost we get after a workout. Increased heart rate also promotes neurogenesis, the ability of adults to produce new brain cells. It is emphasized that any morphological change results in a modification of the functional properties of a neural circuit and vice versa any change in neuronal efficiency and functionality is based on morphological modifications (Mandolesi *et al.*, 2017). Mindfulness meditation has also been demonstrated to increase the effects of cognitive training by improving attention control and reducing anxiety-related executive function impairments.

Methodology

The purpose of the study was to compare the intelligence among physically active and inactive early adulthood individuals. In this investigation, physically active individuals are considered as people who are engaging in physical activities minimum three times a week other than their daily routine. They are actively participating in various activities such as morning jogging, gym, badminton and some are in yoga. The inactive individuals those who are not engaging in any physical activities other than their daily routine. The working profession of individuals participated in this study includes, office job personnel, teachers and businessmen. A total of 60 members have participated, among them 30 subjects were in physically active category and 30 were in physically inactive category. The age ranged between 24 to

32.

Administration of test

“Test of general intelligence” by Dr. S K Pal and Dr. K S Mishra were used as the research tool to measure the intelligence. The questionnaire includes 6 various parts and are having 10 questions each. Right answer will be awarded by 1 mark. Instructions have given clearly to the individuals while distributing the questionnaire. Response sheets were collected immediately after the completion of test.

Statistical technique

Descriptive statistics were calculated and in order to find the significance difference between two groups on selected variable, the independent t-test has applied. The level of significance kept at 0.05 level.

Result

The result of the study given below.

Table 1: Average(mean) score of intelligence test among physically active and inactive groups

Group	No. of subjects	L.I.S	S.I.S	Mean
Physically active	30	53	21	30.7
Physically inactive	30	34	21	26.7

L.I.S - largest intelligence score

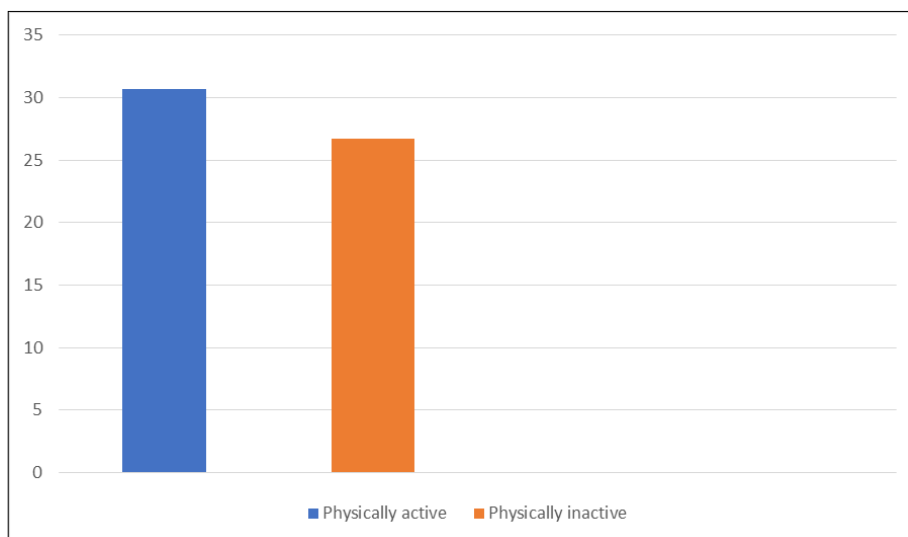
S.I.S - smallest intelligence score

Table 2: Value of t statistics and P value for assessing the significant difference between two groups

Value of t statistics	Degree of freedom	Significance level	P value
-2.4837	58	0.05	0.016

$P < 0.05$

Since the p value is less than 0.05 (table no.2), there is a significant difference between physically active and physically inactive individuals. Physically active individuals have dominated in intelligence score.



Graph 1: Average scores in intelligence test of physically active and inactive groups

Discussion on findings

In this research, the investigation was to find the difference in intelligence among physically active and physically inactive early adulthood individuals. The result of the study shows that there is a significant difference appears between physically

active and inactive early adulthood individuals since the p value is less than 0.05 significance level (table 2). The physically active individual category has dominated in average score of intelligence test (table 1). This is showing that physically active people are more intelligent than inactive

people. Physical activity can be a catalysing factor in the development of intelligence.

Conclusion

Based on result of the study, the following conclusions were drawn,

- There is a significant difference has been found in intelligence between physically active and inactive early adulthood individuals.
- Physically active individuals were dominated in intelligence score.

References

1. Hillman CH, Erickson KI, Kramer AF. Be smart, exercise your heart: Exercise effects on brain and cognition. *Nat. Rev. Neurosci* 2008;9:58.
2. Chen C. *Fitness Powered Brains: Optimize Your Productivity, Leadership and Performance*. Brain & Life Publishing; London, UK 2017.
3. Stimpson NJ, Davison G, Javadi AH. Joggin'the noggin: Towards a physiological understanding of exercise-induced cognitive benefits. *Neurosci. Biobehav. Rev* 2018;88:177-186.
4. Pontifex MB, Parks AC, Henning DA, Kamijo K. Single bouts of exercise selectively sustain attentional processes. *Psychophysiology* 2015;52:618-625.
5. Chaddock-Heyman L, Erickson KI, Voss M, Knecht A, Pontifex MB, Castelli D, *et al.* The effects of physical activity on functional MRI activation associated with cognitive control in children: A randomized controlled intervention. *Front. Hum. Neurosci.* 2013;7:72.
6. Dwyer T, Sallis JF, Blizzard L, Lazarus R, Dean K. Relation of academic performance to physical activity and fitness in children. *Paediatric Exercise Science* 2001;13:225-237.
7. Brown BJ. The effect of an isometric strength program on the intellectual and social development of trainable retarded males. *American Corrective Therapy Journal* 1967;31:44-48.
8. Penedo FJ, Dahn JR. Exercise and well-being: a review of mental and physical health benefits associated with physical activity. *Curr Opin Psychiatry* 2005;18(2):189-93.
9. Tsaousis I, Nikolaou I. Exploring the relationship of emotional intelligence with physical and psychological health functioning. *Stress Heal* 2005;21(2):77-86.
10. Santana CCA, Azevedo LB, Cattuzzo MT, Hill JO, Andrade LP, Prado WL. Physical fitness and academic performance in youth: A systematic review. *Scand. J Med. Sci. Sports* 2017;55:579-603.