International Journal of Current Advanced Research
ISSN: O: 2319-6475, ISSN: P: 2319-6505, Impact Factor: 6.614
Available Online at www.journalijcar.org
Volume 8; Issue 11 (A); November 2019; Page No.20361-20364
DOI: http://dx.doi.org/10.24327/ijcar.2019.20364.3975

Research Article

INFLUENCE OF INVASION GAME AND GENDER ON PHYSICAL FITNESS OF INTELLECTUAL DISABILITY

Hana Fauziah Sofyani[1], Sumaryanti[2], Aqim Visalim[3] and Japhet Ndayisenga[4]

[1, 2,3]Yogyakarta State University in Indonesia
[4]Institute of Physical Education and Sports University of Burundi

A R T I C L E I N F O

Article History:
Received 4th August, 2019
Received in revised form 25th September, 2019
Accepted 18th October, 2019
Published online 28th November, 2019

Key words:
Invasion games, gender, physical fitness, intellectual disability

A B S T R A C T

The aims of this research were to determine the effect of the invasion and gender game against the physical fitness of children intellectual disability. This research is an experiment with quantitative approach. The research sample was 24 people mild intellectual disabillity aged 13-15 years, 10 men and 14 women taken by purposive sampling. Technique Collection data using rockport walking test. The results showed that there was a significant difference between the treatment of football games and basketball to improve physical fitness, there is no significant effect between men and women in physical fitness, there is an interaction between treatment games invasion and gender on changes in the level of physical fitness.

INTRODUCTION

National education goals is to develop students' potentials to become a man of faith and devoted to God Almighty, noble, healthy, knowledgeable, skilled, creative, independent, and become citizens of a democratic and responsible (Republic of Indonesia, Law No. 20 of 2003). To achieve these objectives, the government has sought various ways. One of them by changing the curriculum in Indonesia has so far been amended nine times. Last curriculum constituted by the government, namely the curriculum in 2013.

Curriculum in Indonesia must include several subjects, one of them teaching physical education, sports and health (Republic of Indonesia, Law No. 20 of 2003). The purpose of learning physical education, sports and health are affective, cognitive and psychomotor domains. Affective domain covers the concept of self and personality components such as intelligence, emotional and character of students. Cognitive domain includes understanding of the concept and principle of motion. While the psychomotor domain directed at the physical fitness aspects of the development objectives and the development of perceptual motor aspects of learners.

Child-average intellectual disability have lower physical fitness than normal children of the same age (Van de Vliet, P., Rintala, P., Fröjd, K., Verellen, J., Van Houtte, S., Daly, D. J., & Vanlandewijck, Y. C, 2006; Skowroński, W., Horvat, M., Nocera, J., Roswal, G., & Croce, R., 2009).

Corresponding author:* **Hana Fauziah Sofyani
Yogyakarta State University in Indonesia

A lower score from the assessment of physical fitness due to less active lifestyles (Lotan, M., Isakov, E., Kessel, S., & Merrick, J, 2004; Vuijk, P. J., Hartman, E., Scherder, E., & Visscher, C, 2010). The mental abilities are limited and short attention span, the limitations and obstacles in motor development (Bucco, L. y Zubiaur, M, 2015; Westendorp, M., Houwen, S., Hartman, E., & Visscher, C, 2011), and lack of motivation to do the best activity during the test (Halle, J. W., Gabler-Halle, D., & Chung, Y. B, 1999; Gremeaux, V., Gayda, M., Lepers, R., Sosner, P., Juneau, M., & Nigam, A, 2012).

Practice

Exercise is an activity that requires physical effort that is planned, structured and repetitive to maintain or improve their health and fitness (Lieberman DE, 2015; Oberg E, 200&) The philosophy of training is based on four aspects: frequency, intensity, time and type of exercise (pinsip FITT) (Knols, R. H., Swanenburg, J., De Bon, D., Gennaro, F., Wolf, M., Krüger, B., … de Bruin, E. D, 2017). FITT is a component of the physical conditioning program that determines the effect on cardiorespiratory endurance, muscle strength and / or endurance and flexibility (Project T., and M, 2011)

Invasion game

Invasion game is a part of the physical education program. The game has great categories mass appeal and tends to be popular with students. Invasions game is a game with the most complex strategy, followed by a game fielding/run-scoring, net/wall, and the target. Invasions game aims were to attack the opponent to score points area and protect the area from the

opponent's attack and keeping points to a minimum opponents during a specific time period. To achieve goal the player must maintain possession of ball, create and use space and scoring points. The invasion games such as basketball, football, handball, etc, are very useful (Mansour. F, 2016)

Gender

Understanding the concept of gender is certainly necessary to distinguish between the notion of gender in the sense of sex or gender. Biologically human is determined being attached to a specific gender male or female. Basically, different gender from biological sex. Biological sex is a gift, we are born as a man or a woman. The road makes us masculine or feminine is a combination of the building blocks of basic biological and biological interpretation by our culture. Gender includes appearance, attire, attitude, personality, work inside and outside the household, sexuality, family responsibilities, etc. (Keller, B. A, 2008)

Gender and physical fitness

Differences in fitness development caused by factors intrinsic correct gender greatest influence around the time of puberty. This change is driven mainly by factors that mediated neuroendocrine axes interact with peripheral hormones during puberty. Gender dimorphism in puberty in males, including the increase in height, weight, muscle mass and fiber type IIb area and decreased fat mass relative, contribute to gender. differences in aerobic and anaerobic power performance, power, and gross and fine motor tasks, in favor of men. The gender difference in this index during the prepubertal difficult to explain. Some showed that gender differences neuroendocrine mediated can influence the development of the fetus.

Physical fitness

Physical fitness is to provide durability or endurance someone so do not feel exhausted while doing the activity (Keller, B. A, 2008). . Physical fitness component is divided into two aspects, namely physical fitness related to health and physical fitness related to skills (Lutan. R, 2002)

Components of Physical Fitness Health

Components of physical fitness related to health include: (1) endurance cardiovascular or endurance pulmonary heart (cardiovascular endurance), (2) durability of muscle (muscle endurance), (3) the strength of muscle (muscle strength), (4) flexibility (flexibility), (5) the body composition (body composition).

Physical fitness is important for everyone, this is due to good physical fitness person can carry out their daily activities without experiencing fatigue. However, every person has a degree of fitness is different, it is caused by several factors such as genetic or hereditary (Lutan. R, 2002), gender, age level (Suharjana, 2013), health status, diet or nutrition rest time physical activity, obesity (Suharjana, 2008), and smoking (Lutan. R, 2002),

Intellectual Disabilities

Intellectual disability is intellectual disability with an IQ below 70 (determined by standard intelligence tests) are obtained when aged under 18 years and can affect their adaptive behavior (Shamoro D., and S. Mondal, 2014), Obstacles include barriers intelligence adaptive behavior, mental, emotional, social and physical.

In the sphere of education, intellectual disability are classified as: (1) borderline or slow learner (IQ 70-85), (2) educable (IQ 50-75), (3) trainable (IQ 35-55), (4) custodial, (5) dependent or profoundly mentally retarded (IQ <25) (Thursday., Ati Rosnawati, 2013)

METHOD

A total of 24 children with mild intellectual disabilities age range of 13-15 years being sampled in this study. They were divided into two experimental groups, treatment soccer game (12) and basketball game (12) with an equal number of boys (5) and female (7) in each group. Pretest done before children received treatment to determine the initial level of cardiovascular fitness by using rockport walking test. Before conducting the test participants measured their weight beforehand. Then warm up for 10-15 minutes. After heating, the participants do brisk as far as one mile. Travel time measurement and pulse in one minute is done after participants a distance of one mile.

Both the experimental group getting treatment three times a week for 16 sessions. The game of football and basketball are applied and have been modified in terms of rules, number of players and the size of the field so that participants were more easily do so. The division of time on both the same treatment. 20 minutes for the introduction (in prayer, heating static and dynamic), 15 minutes to drill, 20 minutes for game sessions, 15 minutes to cover (strecing, evaluations and praying). Data were analyzed by ANOVA.

RESULTS

Table 1 Test of Between Subjects Effects

Source	Type III Sum of Squares	df	mean Square	F	Sig.
corrected Model	14.664a	3	4888	2,131	.128
intercept	177 937	1	177 937	77 585	.000
treatment	12 894	1	12 894	5622	.028
gender	1,166	1	1,166	.508	.484
Treatment * Gender	1,864	1	1,864	.813	.378
Error	45 869	20	2,293		
Total	248 525	24			
corrected Total	60 533	23			

Table 2 Treatment statistics test invasion game of physical fitness

Treatment	mean	Std. Error	95% Confidence Interval	
			Lower Bound	*Upper Bound*
Football	3,505	.443	2,580	4,430
Basketball	2,018	.443	1,093	2943

Table 3 Statistic Gender test on Physical fitness

Treatment	mean	Std. Error	95% Confidence Interval	
			Lower Bound	*Upper Bound*
Boys	2,538	.479	1,539	3537
Girls	2,985	.405	2,141	3,829

Table 4 Test the Gender Statistics on Physical Fitness

Treatment	Gender	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	*Upper Bound*
Football	Boys	3,564	.677	2,151	4,977
	Girls	3,446	.572	2,252	4,640
Basketball	Boys	1,512	.677	.099	2,925
	Girls	2524	.572	1,330	3,718

Hypothesis I stating "there is a significant difference between the treatment of football games and basketball to the improvement of physical fitness" was tested using ANOVA test and obtained F count = 5.622 with significant value 0.028. The result of this calculation consulted with F table with df = k-1 numerator and denominator df = nk with a significance level of 0.05 was obtained Ftable = 3.47. Because Fcount> Ftable or5.622 > 3.47 with a significance level of 0.028 <0.05, Ha which reads, "there is a significant difference between the treatment of football games and basketball to the improvement of physical fitness of children's intellectual disability", accepted, while Ho was rejected.

Hypothesis 2 stated, "there is a significant difference between men and women to physical fitness" was tested using ANOVA test and obtained F count = 0, 508 with significant value 0.484. The result of this calculation consulted with F table with df = k-1 numerator and denominator df nk with a significance level of 0.05 was obtained Ftabel = 3.47. Because Fhitung <Ftable or 0.508 <3.47 with a significance level of 0.484> 0.05, Ha which reads "there is a difference of influence between men and women to physical fitness" was rejected, while Ho accepted

Hypothesis 3 which states, "there is an interaction between treatment and gender invasion game on physical fitness changes" were tested using ANOVA test and obtained F count = 1,864 with significant value 0.378, The result of this calculation consulted with F table with df = k-1 numerator and denominator df nk with a significance level of 0.05 was obtained Ftabel = 3.47 Because of F <Ftable or1,864 > 3.47 with a significance level of 0.378> 0.05, Ha which reads "there is an interaction between treatment and gender invasion game on changes in VO2max" rejected, while Ho accepted

DISCUSSION

This study aims to determine the effect of the invasion and gender game on physical fitness mild intellectual disability. In the present invention it was found that there is a significant difference between the treatment of football games and basketball to the improvement of physical fitness. This is because the second game of the invasion have dominant motion characteristics and different levels of intensity so as to have a different effect in improving cardiorespiratory fitness (Dvorak. J. Junge. A, Graff-Boumann, T., Peterson, LG, 2004). Additionally popularity invasion also affect the types of games that difference. Football is a global game with participants invasion women and men of all ages and abilities, so that participants are more motivated to actively play because we already know the game of football (Bangsbo. J., Hansen. PR., Dvorak. J., and P. Krustup, 2015)

In terms of gender, the study found that there was no significant difference between men and women to physical fitness. Improvement of physical fitness in children intellectual disability is not affected by gender, it is indicated by the increased level of physical fitness that is similar between men and women. There is no clear explanation for the facts found gender effects in the study sample (Hartman, E., Smith, J., Westendorp, M., & Visscher, C, 2014). In this study also found an interaction between treatment and gender invasion game on physical fitness. Treatment group game of football for boys increased physical fitness with the average of 3564 and for women by 3446. With treatment group game of basketball for men increased physical fitness average of 1,512 and for women an average of 2,524. Giving treatment of football games and basketball diinteraksikan by gender resulted in an increase in physical fitness of children mild intellectual disability.

CONCLUSION

The game is simple invasion could be an effective alternative to physical activity to improve physical fitness of children mild intellectual disability both for boys and girls. With fun activities, mild intellectual disability the child will be more motivated to perform physical activity.

Acknowledge

We thankful to the international students, who give up their consent to participate in this research,

Disclosure statement

No potential conflict of interest was reported by the authors.

References

Republic of Indonesia, Law No. 20 of 2003 on National Education System, 2003

Van de Vliet, P., Rintala, P., Fröjd, K., Verellen, J., Van Houtte, S., Daly, D. J., & Vanlandewijck, Y. C. (2006). *Physical fitness profile of elite athletes with intellectual disability. Scandinavian Journal of Medicine and Science in Sports, 16(6), 417–425*. doi:10.1111/j.1600-0838.2006.00539.x

Skowroński, W., Horvat, M., Nocera, J., Roswal, G., & Croce, R. (2009). *Eurofit Special: European Fitness Battery Score Variation among Individuals with Intellectual Disabilities. Adapted Physical Activity Quarterly, 26(1), 54–67*. doi:10.1123/apaq.26.1.54

Asonitou, K. , Mpampoulis, T. , Irakleous-Paleologou, H. and Koutsouki, D. (2018) Effects of an Adapted Physical Activity Program on Physical Fitness of Adults with Intellectual Disabilities. *Advances in Physical Education*, 8, 321-336. doi: 10.4236/ape. 2018.83028.

Lotan, M., Isakov, E., Kessel, S., & Merrick, J. (2004). *Physical Fitness and Functional Ability of Children with Intellectual Disability: Effects of a Short-Term Daily Treadmill Intervention. The Scientific World JOURNAL, 4, 449–457*. doi:10.1100/ tsw.2004.97

Vuijk, P. J., Hartman, E., Scherder, E., & Visscher, C. (2010). *Motor performance of children with mild intellectual disability and borderline intellectual functioning. Journal of Intellectual Disability Research, 54(11), 955–965*. doi:10.1111/j.1365-2788.2010.01318.x

Bucco, L. y Zubiaur, M. (2015). Análisis del desarrollo motor en escolares brasileños con medidas corporales de obesidad y sobrepeso / Analysis of the Motor Development in Brazilian Schoolchildren with Corporal Measures of Obesity and Overweight. Revista Internacional de Medicina y Ciencias de la Actividad Física y el Deporte vol. 15 (59) pp. 593-611. Http://cdeporte.rediris.es/revista/revista59/artevolucion5

87.htmDOI: http://dx.doi.org/10.15366/rimcafd 2015.59.012

Westendorp, M., Houwen, S., Hartman, E., & Visscher, C. (2011). Are gross motor skills and sports participation related in children with intellectual disabilities? Research in Developmental Disabilities, *32(3), 1147–1153*. doi:10.1016/j.ridd. 2011.01.009

Halle, J. W., Gabler-Halle, D., & Chung, Y. B. (1999). Effects of a Peer-Mediated Aerobic Conditioning Program on Fitness Levels of Youth With Mental Retardation: Two Systematic Replications. Mental Retardation, 37(6), 435–448. doi:10.1352/0047-6765(1999)037<0435:eoapac>2.0.co;2

Gremeaux, V., Gayda, M., Lepers, R., Sosner, P., Juneau, M., & Nigam, A. (2012). Exercise and longevity. Maturitas, 73(4), 312–317. doi:10.1016/j.maturitas. 2012.09.012

Lieberman DE. (2015), "Is exercise really medicine? an evolutionary perspective ", 313-319.

Oberg E. (200&) "Physical Activity Prescription: Our Best Medicine", , 6 (5), 18-22.

Knols, R. H., Swanenburg, J., De Bon, D., Gennaro, F., Wolf, M., Krüger, B., … de Bruin, E. D. (2017). Investigating the Usability and Acute Effects of a Bedside Video Console to Prefrontal Cortical Activity Alterations: A Preclinical Study in Healthy Elderly. Frontiers in Systems Neuroscience, 11. doi:10.3389/ fnsys.2017.00085

Project T., and M.(2011) Office, "for Understanding" C (February), 1-40., https://doi.org/10.1002/pmj Mansour. F.(2016). "Gender analysis and social transformation". Yogyakarta: INSISTPress,.

Keller, B. A. (2008). *State of the Art Reviews: Development of Fitness in Children: The Influence of Gender and Physical Activity. American Journal of Lifestyle Medicine, 2(1), 58–74.* doi:10.1177/1559827607308802 .

Lutan. R(2002), "Towards a healthy and fit". Jakarta: Ministry of National Education.

Suharjana (2013), "Fitness physical". Yogyakarta: Yogyakarta Global Media,

G. Wiarto, "Free exercise for health and fitness", Yogyakarta: Graha Science, 2015 Suharjana (2008), "Education of physical fitness", Lecture Guidelines. Yogyakarta: FIK UNY

Shamoro D., and S. Mondal (2014). "Comparative relationship of selected variables among different fitness physicl college student of Mekelle university ethiopia africa". Journal of Physical Education, Fitness and Sports, , 3 (14). 2277: 5477.

Thursday., Ati Rosnawati. (2013) "Education mentally disabled children with special needs". Bandung: PT. Luxima Metro Media.

Bangsbo. J., Hansen. PR., Dvorak. J., and P. Krustup (2015) "Recreational football for disease prevention and treatment in Untrained men: a narrative review examining cardiovasvular health, lipid profile, body composition, muscle strength and functional capacity", Br J Sport Med, May; 49 (9): 568-576, doi: 10.1136 / bjsport-2015-094781

Dvorak. J. Junge. A, Graff-Boumann, T., Peterson, LG (2004), "Football is the most popular sport in the world", The American Journal of Sports Medecine, 32 (1 Suppl): 3S-4S, January, https : //dx.doi .org / 10.1177 / 0363546503262283

Hartman, E., Smith, J., Westendorp, M., & Visscher, C. (2014). *Development of physical fitness in children with intellectual disabilities. Journal of Intellectual Disability Research, 59(5), 439–449.* doi:10.1111/ jir.12142

How to cite this article:

Hana Fauziah Sofyani *et al* (2019) 'Influence of Invasion Game and Gender on Physical Fitness of Intellectual Disability', *International Journal of Current Advanced Research,* 08(11), pp. 20361-20364. DOI: http://dx.doi.org/10.24327/ijcar.2019. 20364.3975

****