

The Effectiveness of Engklek and Zig-Zag Game Exercises on the Static and Dynamic Balance of Intellectually Impaired Children

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Abstract

This research uses quantitative quasi-experimental methods with a two factorial design. The aim of this research is to find out and analyze how effective the Zig-Zag and Engklek game exercises are on the static and dynamic balance of children with special needs who are mentally retarded in physical education learning at SLB Demak Regency. The population in this study were mentally retarded students at SDLB Demak Regency with a total of 36 children. The sampling technique used purposive sampling to obtain a sample size of 20 children. The data analysis technique uses multivariate analysis of variance (Manova) at the significance level (α : 0.05). The results of this study: 1) The Zig-zag training group with normal weight experienced an average increase of 13.4 in static balance and experienced an average increase of 10 in dynamic balance, while children who were obese were given Zig-zag training. experienced an average increase of 3 in static balance and experienced an average increase of 6 in dynamic balance. 2) The group that had normal body weight experienced an average increase of 11.2 in static balance and an average increase of 10 in dynamic balance, while the group that had an obese body weight experienced an average increase of 11.2 in playing crankshaft. 6 in static balance and experienced an average increase of 6 in dynamic balance. The conclusion of this research is the effectiveness of Zig-zag and crank game exercises on the static balance and dynamic balance of Intellectually Disabled Children in Physical Education Learning at Special Schools in Demak Regency.

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INTRODUCTION

The growth and development of every child will definitely be experienced at some point in time, including children who have disabilities, but the development of each child will be different. Many of them in their development, whether in terms of physical, cognitive, communication, emotional, social, adaptive behavior, are slow, or have risk factors so that to achieve optimal development requires early treatment or a special approach (Purwindra, 2017). Activities to improve sports performance need to be carried out through developing athletes as early as possible by searching and monitoring talent, nurturing, education and training for sports achievements through extracurricular activities at school (Febrianto, A., et al, 2022). Children who have abnormalities or differences from normal children in general, one of which is physical, are called children with special needs. Children are said to have special needs if there is something lacking or even more in them (Suharlina and Hidayat, 2010). One of the children with special needs is a child who has intellectual and cognitive abilities below the general average or is often referred to as mentally retarded.

Students with special needs are students who experience physical, psychological, social emotional or neurological obstacles that they may experience before, during and after birth. So they need special services that suit their needs and abilities as stated by (AYDamri, 2019). Various obstacles experienced by students with special needs include students with visual, hearing, speech, intellectual, physical and social emotional barriers. Of these various obstacles, some are known as mentally retarded students.

Education for mentally retarded children aims to optimally develop the potential they still have, so that they can live independently and adapt to the environment in which they find themselves. Mentally disabled children are complete and unique individuals who generally have the potential or strength to compensate for the disorders they suffer from, therefore the educational services provided are sought to be

able to develop the potential of children optimally (Nurlina: 47).

Through the traditional games of crank and Zig-Zag which are played using one leg, they are effective in training children's static and dynamic balance. Several educational institutions draw media sketches of this engklek game in the school yard. When learning and playing with children, a sense of togetherness can arise and they can communicate with each other according to each child's communication skills. In this game they can play together, share toys, help each other and also remind each other if a friend makes a mistake. So that students who cross the field accidentally jump up and down in these patches. This involuntary activity can develop gross motor skills in students.

Based on the results of observations in the field, it can be seen that there is a lack of movement activity in children, especially movements that involve all parts of the body, so this results in a decrease in movement skills and gross motor abilities, even though they really need a level of movement ability to carry out all activities in an effort to develop the potential that exists within them. better.

Researchers want to know the various problems experienced by mentally retarded children. The problems that want to be researched are related to the development of movement experienced by mentally retarded children, as well as related to matters relating to their physical condition, so that they need movement training in an effort to improve their static and dynamic balance abilities.

METHOD

Research This research is quantitative research with experimental methods. According to (Sugiyono, 2016: 107) experimental research methods can be interpreted as research methods used to find the effect of certain treatments on others under the same conditions. The research design used in this research is a two factor design. The two-factor design is commonly called 2x2. The design plans in this research are as follows.

Table 1. 2x2 Factorial Design

Game Practice	Zigzag game A1	Englek Game A2
Weight		
Obese Body Weight (B1)	A1B1	A2B1
Normal Body Weight (B2)	A1B2	A2B2

This research was carried out in the SDLB field in Demak Regency for 6 weeks. The data collection procedure stage uses static and dynamic balance pretest and posttest: 1) Static balance test using a measuring instrument (Balance Test) and dynamic balance test using a measuring instrument (Modified bass test dynamic balance).

The sample used in this study was 20 with 10 for obese body weight and 10 for normal body weight. The data collection technique used pretest and posttest static balance and dynamic balance.

Prerequisite tests use the Wilcoxon normality test and homogeneity of variance Marginal homogeneity test. Hypothesis testing using analysis of variance (MANOVA) is a research data analysis technique with a two-factor factorial design.

RESULTS AND DISCUSSION

There is Effectiveness of the Zig Zag and Crank Game Training Method on Static and Dynamic Balance in Children with Special Needs and Mentally Impaired in SLB Demak Regency

Table 2. Description of Manova Test Results Training Method

Multivariate Test					
Dependent Variable : Stability					
Source	value	F	Hipotesis df	Error df	Sig.
Training Method	.879	267.683	2.000	74.00	.000

Based on table 2 of the Multivariate Test, the hypothesis test for the training method obtained a significant value of 0.000 and the value of $f_{count} (267.683) > f_{table} (4.493)$ so that the first hypothesis was accepted, so in the hypothesis test for the training method it was stated "there is effectiveness of the Zig-zag and crank game training methods on balance. static and dynamic balance".

DISCUSSION

Children are said to have special needs if there is something lacking or even more in them (Suharlina and Hidayat, 2010). With the treatment of the traditional game Zig-zag and engklek for children with special needs, mentally retarded children in physical education learning at special schools in Demak Regency, this is a successful treatment of the traditional game Zig-

zag and engklek in improving static and dynamic balance in the learning age at school. The increase in static and dynamic balance is due to regular exercise and is able to increase strength, endurance and nerve control in the spinal and abdominal areas, so that the muscles of the upper extremities can improve when carrying out various dynamic movements (Khamooshi et al, 2016; Permana , 2012). According to Dekayati et al (2014) at the school age stage there will be significant biological, psychosocial, cognitive and spiritual growth as capital for a child to enter the next stage. Children aged 6-12 years already have the ability to observe and have the same assumptions as adults. These motor movements require good coordination, so that complex movements will be formed that support a person's ability to carry out daily activities. Motor activities such as walking and running in intellectual disorders

show a decrease in balance and agility (Pandia, OJ, Sumartiningsih, S. 2022). This is in line with what was stated by Setiawan et al (2014), at this age period it will cause the supporting muscles to be more developed, the growth in leg length is faster than the upper limbs. Reaction and coordination of movements are good so that he remains sturdy and does not fall when making a movement. With the traditional game of engklek, mentally retarded children in special schools in Demak Regency can achieve maximum static and dynamic balance considering that balance is very important because balance is a complex integration of the somatosensory (visual, vestibular, proprioceptive) and motor (musculoskeletal systems, muscles, soft tissue joints) whose overall work is regulated by the brain to the body's internal and external responses or influences (Hastuti et al, 2016). The increase in static and dynamic balance is due to regular exercise and is able to increase strength, endurance and nerve control in the spinal and abdominal areas, so that the muscles of the upper extremities can improve when carrying out various dynamic movements (Khamooshi et al, 2016; Permana, 2012). According to Dekayati et al (2014) at the school age stage there will be significant biological, psychosocial, cognitive and spiritual growth as capital for a child to enter the next stage. This is in line with what was stated by Setiawan et al (2014), at this age period it will cause the supporting muscles to be more developed, the growth in leg length is faster than the upper limbs. This is what has an effect on static and dynamic balance in children when playing the traditional games Zig-zag and engklek.

CONCLUSION

The results of the research can be concluded as follows: 1). There is the effectiveness of the Zig-zag training method on the static and dynamic balance of children with special needs who are mentally retarded in physical education learning at SLB Demak Regency. 2). There is effectiveness of the crank

game exercise on the static and dynamic balance of children with special needs, mentally retarded children in physical education learning at Demak Regency SLB.

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