UNIVERSITI TEKNOLOGI MARA

THE EFFECTIVENESS OF FITNESS TRAINING PROGRAMME ON HEALTH-RELATED FITNESS AND MOTOR SKILL COMPETENCE AMONG OBESE CHILDREN

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Thesis submitted in fulfilment
of the requirements for the degree of
Doctor of Philosophy
(Sports Science and Recreation)

Faculty of Sports Science and Recreation

May 2022

ABSTRACT

This study examined the effectiveness of a fitness training programme (circuit training) on health-related fitness (HRF) and motor skills competence (MSC) among obese children in a primary school. Two hundred thirty-two (232) obese children from Year 2 (8-years-old) and Year 5 (11-years-old) were randomised into an experimental group (n=58) and a control group (n=58) for both ages. Both groups underwent training three times a week for eight weeks during the physical and health education (PHE) classes. The control groups had the standard PHE training syllabus. In contrast, the experimental groups utilised the circuit training programme, which comprised eight exercises based on HRF and MSC components. Before and after the fitness training, all participants were measured through National Physical Fitness Standard protocols for Malaysian School Children (SEGAK) for body composition, flexibility, cardiovascular endurance, muscular endurance, and muscular strength. Meanwhile, Test of Gross Motor Development (TGMD-2) was used to measure running, kicking, jumping, and throwing skills. Paired sample t-tests and Analysis of Covariance (ANCOVA) were employed to compare between the control and experimental groups for HRF and MSC components. When examining the effectiveness of the intervention towards HRF and MSC among obese children, the circuit training had enhanced the cardiovascular endurance ($t(57) = 4.63$, $p<0.05$), muscular strength ($t(57) = 5.39$, $p<0.05$), and muscular endurance ($t(57) = 6.00$, $p<0.05$) of obese children aged eight years. For 11 years old, there was a significant improvement ($p<0.05$) in all the components. As for MSC, all components were significant ($p<0.05$) among 8 years old obese children, but significant result could only be found in running ($t(57) = 4.73$, $p<0.05$), kicking ($t(57) = 4.73$, $p<0.05$) and jumping ($t(57) = 3.65$, $p<0.05$) among the obese children aged 11. Nonetheless, when comparing the differences between HRF and MSC based on age, the result showed that cardiovascular endurance ($t(57) = 8.23$, $p<0.05$) and flexibility ($t(57) = 2.05$, $p<0.05$) were significant among eight years old obese children. However, for 11 years old, only flexibility ($t(57) = 3.63$, $p<0.05$) was significant. All components exhibited a significant difference between the pre-tests and post-tests in the 8-years-old obese children group in MSC. On the other hand, obese children aged 11 years displayed a significant enhancement in running ($t(57) = 3.96$, $p<0.05$) and throwing ($t(57) = 2.66$, $p<0.05$). The relationship between HRF and MSC was investigated using the Pearson product-moment correlation coefficient. This research discovered that for 8-year-old obese children, two components of MSC were present: running ($r(115) = 0.34$, $p<0.05$) and throwing ($r(115) = 0.27$, $p<0.05$) revealed a low but significant correlation to cardiovascular endurance. Flexibility ($r(115) = 0.26$, $p<0.05$), however, demonstrated a significant and higher correlation with jumping for 11-year-old obese children. For obese children aged 8 years, there were a significant correlation between cardiovascular endurance to running and throwing, while for 11 years old, there were a significant correlation between flexibility to jumping after the intervention. As the conclusion, these results highlighted the potential benefits of integrating circuit training into the PHE of primary school, especially for the development of both selected components of HRF and MSC.

ACKNOWLEDGEMENT

First, I would like to thank God for giving me the chance to embark on my PhD and complete this long and challenging journey. My thanks and gratitude go to my supervisor, Assoc. Professor Dr. Tan Chee Hian, my associate supervisor, Assoc. Professor Dr. Ong Tah Fatt, and Assoc. Professor Dr. Hosni Hassan, respectively.

My appreciation also goes to the teachers and administrators of Sekolah Kebangsaan Raja Muda and Sekolah Kebangsaan Bandar Anggerik, Shah Alam, Selangor, who have supplied me with the sampling facilities and help. A special thank you to my friends and colleagues for helping me with the completion of this research.

Finally, for the vision and determination that have educated me, this thesis is dedicated to my loving wife, Asmah and my children, Afiq, Aqif, and Aqil, and the memories of my very dear late father. This winning piece is dedicated to all of you. Alhamdulillah.

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CHAPTER ONE
INTRODUCTION

1.1 Research Background

A sedentary lifestyle and changing dietary habits have significantly increased childhood obesity (Hoe, 2013). Obesity is defined as "abnormal or excessive accumulations of fat that harm health" (Ismail et al., 2002). This problem has influenced the World Health Organization (WHO) to accept childhood obesity as one of the 21st century's most significant global issues (Daniels et al., 2005). The same adverse reports on unhealthy lifestyles, poor eating habits, the prevalence of inactivity, inexperienced teachers teaching Physical Education (PE) classes, and limited time for PE classes were not only found to affect school children in the subject area, but also in line with the Malaysian scenario (Hoe, 2013), which contributed to the problem of obesity.

Based on these factors, the number of obese children aged 6 to 12 years between 2002 and 2008 increased from 20.7% to 26.4% (Ng et al., 2014; Noradilah et al., 2016). Studies by Naidu et al. (2013); Suzana et al. (2012) supported the claim that one out of five children in Malaysia is obese among Southeast Asia countries. Studies conducted in Malaysia by Castetbon and Andreyeva (2012); Rengasamy (2012); Zalilah et al. (2006) reported that 44% of 75 children led a sedentary way of life. Additionally, it was related to the issue or scenario of child fitness in Malaysia, which showed many cases of obesity, particularly among schoolchildren (Ting et al., 2017).

As a fact, obesity has many causes and is a very complex phenomenon. The rise in obesity stems from the imbalance between energy intake and spending, insufficient physical activity (PA), excessive sedentary time, and unhealthy eating behaviours has been widely accepted. Such facts make up an unhealthy lifestyle. Moreover, many variables have shown to affect children's PA, such as parent and peer support, preferences for PA, behavioural intentions, programme and facility access (Loprinzi et al., 2015; Sallis et al., 1997).