

THE DEVELOPMENT OF EXERCISE MODEL TO INCREASE MOTOR ABILITY OF INDONESIAN CEREBRAL PALSY FOOTBALL TEAM PLAYERS

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Abstract

This research was based on the reality that there is no motor ability exercise model for football players with cerebral palsy. The coach has difficulty in handling the physical/motor ability issues, such as falling more easily, difficulty reversing and changing the direction quickly, less balance, and poor coordination. The main research problem is how to develop Motor Ability Exercise Model with Circuit Method for Indonesian CP football team. The research purpose was to produce a special circuit training model for CP football. The study design was used quasi experiment. The research subjects included 12 players of the Indonesian CP Football team for APG Malaysia 2017. The data collection technique used a modification of motor ability test and development (Research and Development). The research was started from November 2016 and has been completed in June 2017. The research result was the development of a motor ability exercise model with the Circuit Method for the Indonesian CP football team, which effectively improved the motor ability of the Indonesian CP Football Team in National Training for the 2017 ASEAN Paragames Malaysia. This included (1) a motor ability exercise model with circuit model for flexibility, (2) a motor ability exercise model with circuit model for strength (3) a motor ability exercise model with circuit model for balance and (4) motor ability exercise model with circuit model for coordination.

Keywords: Exercise model, motor ability, Cerebral palsy Football

Introduction

CP Football or 7 a-side-football is a Paralympic football sport specifically for Cerebral Palsy (CP) athletes. It is a good team sport which is fun and can be played as a recreational activity or contested at international events, and provides opportunities for achievement. Eligible players within a team consist of 7 cerebral palsy athletes ranging from 5th to 8th grades. In total 14 players can be included in the team’s player list. Athletes who compete in Paralympic sports have the disruption leading to competitive losses in sport.

Requirements to become a CP Football player are classified into four classes, namely FT5, FT6, FT7 and FT8. The explanations of each class are as follows: (1) Class FT 5 is an athlete who has hypertonia or spasticity or stiffness in both lower limbs and to some degree in both upper limbs. The players have difficulty walking, turning and stopping because of limited activity in the lower limbs. (2) Class FT 6 is an athlete affected by coordination and balance problems in all four limbs and torso. FT6 players usually have difficulty in dribbling the ball when walking, accelerating and stopping. (3) An FT7 class is an athlete or hemiplegia player, meaning that only one side of their body is affected, causing the player to walk and run with a limp. In addition to these disorders the athlete may have a balance problem, so often his legs are disturbed when used to shoot the ball. (4) The FT8 class is an athlete who meets the minimum requirements for disorder in CP Football. Not seen the impact of the decline when watching athletes run or control the ball. However, unconscious and hesitant muscle contractions before explosive movements are a limitation of activity compared to able-bodied players (IPC: 2014: 14-15).

For CP Football players, the lack of motor ability is the dominant physical factor in terms of movement. Motor ability is the capacity of a person related to the implementation of physical ability to be able to perform a movement (Widiastuti: 2011: 165).

The evaluation results from a field study on Indonesian CP football team of 7th 2015 Singapore APG obtained data which showed that (1) motor ability of Indonesian team player category is “less” (table 1), (2) coaches in the training process has not developed specific exercise models in improving the motor ability of CP football players, (3) the coaches lack references in developing exercise models to improve special motor skills for CP football players.

Table 1: Motor ability data of Indonesian CP Football Player of 7th 2015 Singapore APG

Nama	Provinsi	Kelas CP	20 m		Arrow H		SBJ		Hop 10		Vo2 Maks		Hasil Akhir			
			T	H	Kanan	Kiri	T	H	Terbaik	H	Lyon	T	H			
													3m & Balke			
			T	H	T	H	T	H	T	H	T	H				
SONY	JABAR	CP/FT5	3,45	C	6,75	K	6,64	K	1,82	C	23,05	B	45,40	C	1,8	K
FADLI	NAD	CP/FT6	3,40	C	6,38	C	6,68	K	1,67	C	21,80	K	41,10	K	1,5	K
SIGIT	JABAR	CP/FT7	3,14	B	5,86	B	6,21	C	2,05	B	17,70	K	48,55	B	2,5	B
MARYONO	JATIM	CP/FT7	3,74	K	6,62	K	6,77	K	1,80	C	16,60	K	41,10	K	1,2	K
SOBIRIN	JAMBI	CP/FT7	3,31	B	6,46	C	6,29	C	1,67	C	19,60	K	41,10	K	1,8	K
I GEDHE	BALI	CP/FT7	3,56	C	6,74	K	6,61	K	1,45	K	14,60	K	43,45	K	1,2	K
PUTRA	RIAU	CP/FT7	3,31	B	6,20	C	6,55	K	1,55	C	15,65	K	46,89	C	1,8	K
ADI	JATENG	CP/FT7	3,61	K	6,34	C	6,54	K	1,65	C	15,75	K	41,50	K	1,3	K
HABIB	JATENG	CP/FT8	3,11	B	6,22	C	6,21	C	2,40	B	20,20	C	45,40	C	2,2	C
AMIN	JATENG	CP/FT6	3,79	K	6,19	C	6,15	C	2,07	B	23,75	B	43,45	K	1,8	K
Rata-Rata			3,44	C	6,38	C	6,47	C	1,81	C	18,87	K	43,79	K	1,7	K

Ability Data of Indonesian CP Football Player of 7th 2015 Singapore APG

A science and technology approach to improve the ability of Indonesian CP football player needs to be undertaken. Based on the background research of “Motor skills exercise model for Indonesian CP Football Team”, the research purpose was to develop a model exercise to improve the motor ability of the Indonesian CP Football team for APG Malaysia 2017.

Theoretical review

Cerebral palsy is a non-progressive lesion or brain injury and caused a decrease in coordination, hearing and muscular strength with the result of a person’s inability to maintain normal body position and perform normal movements (Joseph P. Winnick & Francis X. Short: 2014).

Table 2: Types of CP Football Athlete Disorders (IFCPF : 2015 : 2)

Type of Disorder	Description of decrease in each value based on ICF and Sanger et al, 2003, 2006 & 2010
Hypertonia	Muscle tone rises
• Spasticity	Spasticity is the speed of resistance hanging from stretched muscle
• Dystonia	Dystonia is intentionally changed in the pattern of muscle activation during conscious movement or maintain sustainable body position or intermittent muscular contractions
• Rigidity	Rigidity is resistance against passive movement and not dependent on body position and speed of movement. Rigidity unspecific for task or certain body positions.
Ataxia	Unconscious motion control
<i>Athetosis/Chorea</i>	Deliberate muscle contraction

Motion is essential in everyone’s life. In human motion, the term motor ability is used to underlie biological and mechanical factors that influence movement. William H. Edwards stated, “motor ability: a trait that specifically supports the performance of motor skills.” (William H. Edwards: 2011: 295-296).

Football is a sport game with a relatively high complexity of movement, so to skillfully play requires motor skills that support the skills of playing football. The foundation or base of football fitness consists of several components: flexibility, balance, strength, power, speed, agility, and endurance (Greg Gatz: 2009: 1) The UMAC-CPF Practice Model (Umar Motor Ability Circuit-Cerebral Palsy Football) is an exercise model that contains various physical component including of as flexibility, strength, balance, coordination, speed, power, agility, and endurance packed in a circuit exercise method.

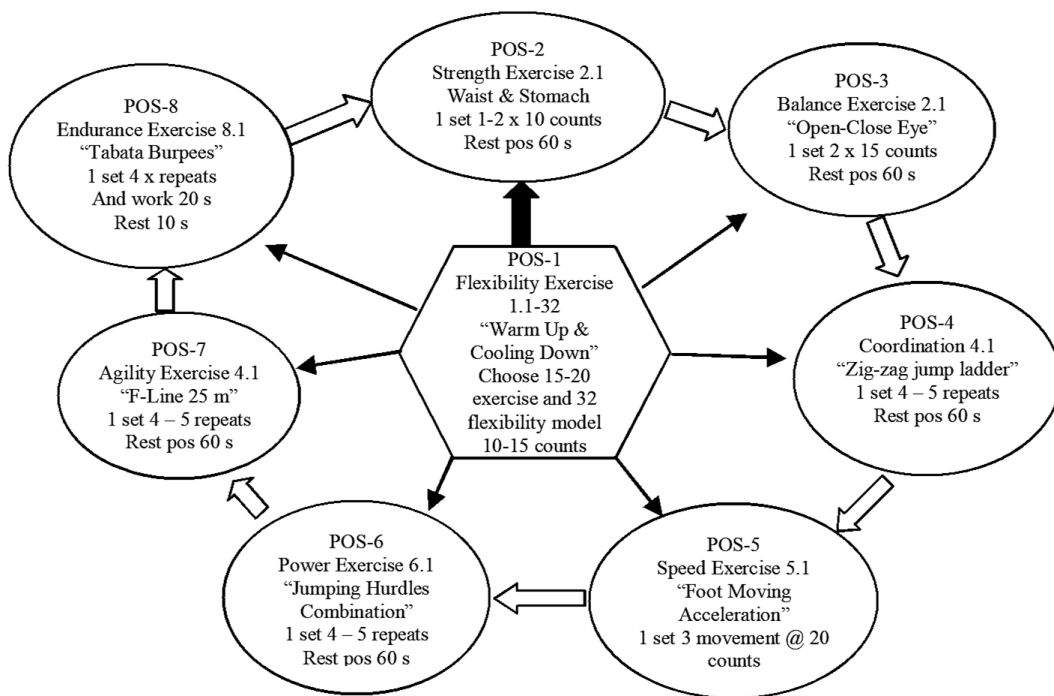


Figure 1: UMAC-CPF 1 Circuit Program.

The circuit exercise model is an exercise that consists of several stations or posts arranged in a circle so that the muscle groups are working sequentially from station to station. Wastcott Wayne was stated circuit exercise is an exercise model that involved a series of different exercises are carried out sequentially and continuously in one round or circuit (Wayne Wastcott: 2003: 173).

Research Approach

The research approaches were both qualitative and quantitative. The research subjects included 12 Indonesian CP Football team players in National Training for the 2017 APG Malaysia. Research into the motor ability exercise model development for Football players with cerebral palsy with Circuit Method used the research and development model approach from Borg and Gall (1983) consisting of ten steps, including the following:

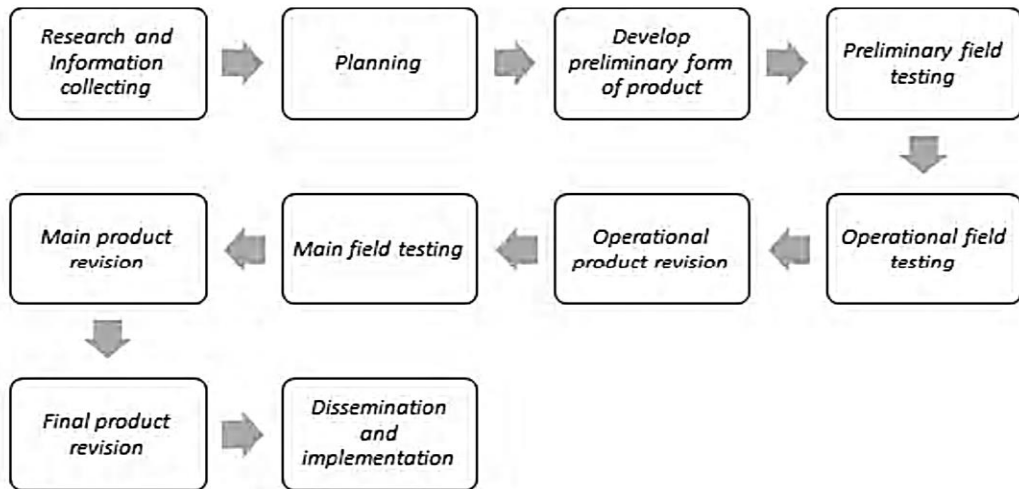


Figure 2: Borg and Gall's research and development model

Research Results and Discussion

Descriptions of pre-test and post-test result of motor ability of cerebral palsy football player used motor ability test instrument are as follows:

The research results indicated differences in motor ability test results after treatment in the form of application of motor skills exercise model for football players with cerebral palsy with the circuit method on the Indonesian CP Football players of National Training for ASEAN Paragames Malaysia 2017. When referring to the average value before and after treatment then there is an increase in the average value of motor ability test score of 70.08; that is, from a pre-test of 432.25 to a post-test of 502.33.

The increasing motor ability of football players with cerebral palsy can be seen in the motor ability category as follows.

Table 3: Summary of category of motor ability for football players with cerebral palsy with circuit method

No	Test Results	Category	Frequency	Percentage
1	<i>Pretest</i>	Good	0	0.00%
		Enough	5	41.67%
		Less	7	58.33%
2	Post-test	Good	6	50.00%
		Enough	6	50.00%
		Less	0	0.00%

From Table 3, it can be seen that there is an increase in the number of football players with cerebral palsy who fall into the category of motor skills “good”. Previously no athletes were in the good category. This increased to 6 athletes or 50%. In the motor skills category “moderate” there are 5 players or 41.66%, then after exercises using motor skills exercise model there are 6 players in the motor ability category “moderate”, or 50%. Whereas in the

category “poor” which previously there are 7 players or equal to 58.33% after exercises used motor skills exercise model no player who entered in the category “poor”. The result of motor ability test before and after being treated by using motor ability model of football players with cerebral palsy with circuit method (UMAC-CPF) can be seen in the following graph.

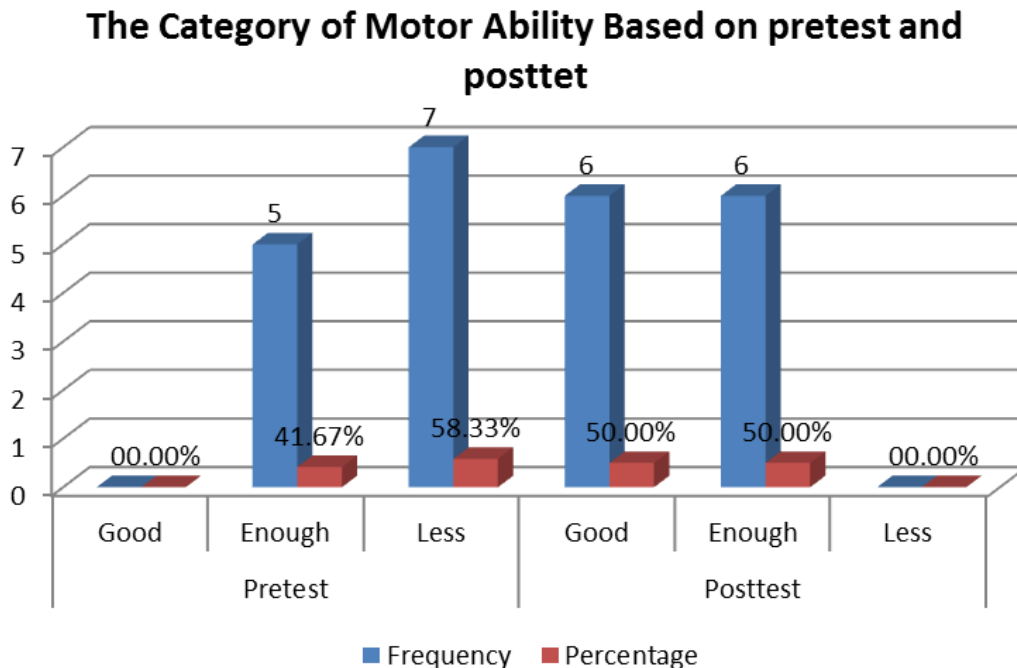


Figure 3: Graph of Category of Motor ability Test Results
(Source: Modified Analysis from Researcher)

Based on test results and motor ability test measurements developed by researchers in accordance with the needs of football players with cerebral palsy, each study has only examined one dominant component of exercises model from the various motion components required by cerebral palsy. To improve the motor skills (motor ability) of football players with cerebral palsy we need a model with a comprehensive exercise covering all components of motor abilities, such as exercises for flexibility, strength, balance, coordination, speed, power, agility, and endurance.

Conclusions

This research produced a motor ability exercise model of football players with cerebral palsy using the circuit method, consisting of: (1) motor skills ability model for flexibility, (2) motor skills ability model for strength (3) motor skills ability model for balance and (4) motor skills ability model for coordination. Based on the results of the research and discussion the following conclusion may be drawn.

This research and development was the result of a motor ability training model for football players with cerebral palsy in the form of motion exercises consisting of: (1) 32 forms of flexibility exercise model; (2) 8 forms of strength exercise models; (3) 8 forms of balance exercise model; (4) and 8 forms of coordination exercise models. This will be followed up with further research to test the effectiveness of the resulting models.

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