Eight Weeks of Basketball practice Can Significantly Alter Body Composition and motor proficiency in primary school children Who Are Overweight

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Abstract: The purpose of this study was to determine the efficacy of an 8-week basketball practice on body composition and motor proficiency in primary school Children who were Overweight and obese. Twenty-four children (age=10±1.5 years, height=142.8 ±2.3 cm, body mass=54.3 ± 1.8 kg) participated in this study. Basketball practice program were used for 8 weeks in sessions conducted 3 times a week, the session lasted approximately 90 minutes and included of a variety of basketball skills with different objectives. The equations were used to calculate body mass index (BMI), fat mass (FM) and Percent body fat (%FM). The Bruininks-Oseretsky Test of Motor Proficiency Short Form (BOTMP-SF) was used to evaluate the motor proficiency. All Measurements were made before and upon completion of the training program. After the training, there was a significant decrease ($p< 0.05$) in body weight (8%vs6%), BMI (12%vs5%), fat mass (10%vs5%) and percent body fat (3%vs1%), while there were no significant changes in height. A significant increase in total score of BOTMP-SF was found, mainly due to the improvement in gross motor skills (40%vs21%), fine motor skills (13%vs0.7%), gross &fine motor skills (8%vs1%), while there were no significant changes in Visual-Motor control subtest. Our results suggest that basketball practice program was able to reduced Body mass index, fat mass, and percent body fat. Additionally it was able to improve motor proficiency in children who were overweight. Therefore, the use of team sports especially basketball may be more beneficial to improve body composition and motor proficiency.
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1. Introduction

Childhood overweight and obesity are increasingly significant problems and are now considered the major public health problems (Thibault and Rolland, 2003). The increasing prevalence has health consequences likely to adversely affect the lives of a high proportion of children (Ehtisham and Barrett, 2004). Using the standard International Obesity Task Force definition of pediatric obesity, the prevalence of obesity in children and young people aged 5-17 years worldwide is approximately 2-3% (Lobstein *et al.,* 2004). Its impact on morbidity, mortality and quality of life has made childhood obesity the epidemic of the XXI century and a major public health problem (WHO, 2000). So the childhood overweight and obesity are to be addressed.

Alarmed with the dramatically spread of obesity cases among children, researchers feel the need to understand the actual causes of becoming overweight and obese in order to prevent children from experiencing the detrimental impact in the future. Apart from a genetic predisposition and poor diet, a positive energy balance is the primary cause leading to childhood obesity (Katzmarzyk, 2002). Traditionally, previous researchers (Pate et al., 2004; Foley *et al.,* 2008) viewed physical activities as the main variable, which affects body composition. Based on previous evidence, low energy expenditure is a consequence of less participation in physical activities and is a major contributor to obesity (Bouchard, 2000). Due to above reason, it has been suggested that excessive body weight may impair motor skills proficiency, which in turn may nurture inactivity, thus increases the risk of obesity and poor health later in life.

The development of motor skills proficiency during childhood is very important as it leads to better quality of daily life and sports activities (Houwen *et al.,* 2009). Given that motor skills proficiency serves as a foundation of more complex and specific motor skills (Bouchard, 2000; Catenassi *et al.,* 2007). Previous research (Ziviani *et al.,* 2009) proposed that motor skills proficiency influence the amount of children's physical activity engagement. Mastery of motor skills leads to improved proficiencies in complex skills, which in turn enhances participation of children in physical activities. The best definition of motor proficiency is the specific abilities measured by tests of running speed and agility, balance, bilateral coordination, strength, upper-limb coordination, response speed, visual-motor control and upper-limb-speed and dexterity (Venetsanou *et al.,* 2009). When evaluating

a child's level of motor proficiency, selected tasks are judged to be significant indicators of the level of development of these abilities.

One of the factors that play an important role in increasing training opportunities for motor skills and movement concepts is Physical activities and Games. The role of Games and physical activity on physical and motor development, seem to Games can be considered as effective factor for training programs (McKenzie *et al.,* 1998). The researchers believed that motor skills and daily physical activity during childhood and adolescence are related to each other (McKenzie *et al.,* 2004). So the author see that body composition and motor skills proficiency can be improved by specially designed exercise programs in physical education settings. Therefore, the researcher used an exercise program for basketball as a specialist program in the field of physical education, it was chosen because it is characterized by speed, and frequent changes in the direction and movements, especially since May 2000 when the rules were modified. Besides, Basketball is an intermittent sport where a large number of different activities, it is also one of the most practiced sports in world (McInnes *et al.,* 1995). The present study, is the first to examine the effects of an 8-week basketball practice on body composition and the motor skills proficiency in Children who are Overweight and obese. Therefore, the hypothesized of this study was that an 8-week of basketball practice would lead to significant improvement in Body Composition and motor skills proficiency, in primary school children who were overweight.

2. Material and Methods

Experimental Approach to the Problem

This study was undertaken to improve body composition and motor skills proficiency in overweight children using a basketball practice program. The study involved an 8-week training intervention for 24 children who were overweight and obese. All subjects participated in a basketball practice program (3 d_wk) for 8 weeks. The subjects were measured at baseline and after the training program for body composition, and motor skills proficiency. For all performance tests and training, the subjects were familiarized with the technique in a separate session.

Participants

The present study was conducted on 24 children were selected from primary school children who are overweight and obesity, aged 10 -11 years from two primary schools. The age of each subject was calculated from the date of birth as recorded in his school. They were dividing into two equal groups. All the individuals included in the study and their parents agreed to participate in the study, and all children and their legal guardians were informed of the experimental risks and signed a consent document before the start of the study.

Measurements

Anthropometric and body composition measurements

Anthropometric measurements of body height and body mass were determined using standard procedures at weeks 0 and 8. Body mass was measured on an electronic scale (Tanita BC 418, Japan) to the nearest 100 g, and body height was determined with a wall-mounted stadiometer (SECA 213,Germany) to the nearest 1 cm, with children wearing lightweight clothing and no shoes. All anthropometric measures were carried out by the same investigator. From weight and height, body mass index (BMI) was calculated as weight (kg) divided by height squared (m2) (Dezenberg *et al.,* 1999). Overweight and obesity status were determined by the International Obesity Task Force (IOTF) reference. The equations of Dezenberg *et al.,* were used to calculate fat mass (FM) and Percent body fat (%FM). The equations are as follows:

FM (kg) = 0.56×body weight – 8.17 (R^2=0.90)

%FM = FM ÷ body weight × 100

Assessment of Motor Proficiency

The Bruininks-oseretsky Test of Motor Proficiency-Short Form (BOTMP-SF) (Figure 1) was used to assess the motor proficiency levels of the subjects. The BOTMP-SF is widely used in adapted Physical Education and is useful in assessing the motor proficiency of children aged 4.5 to 14.5. It is considered to be fun and interesting to children and the instructions and trials are useful in gauging the individual's understanding of the motor task to be assessed (Venetsanou *et al.,* 2009). The short form has been validated against the full scale and consists of 14 items taken from the 8 subtests that correlate highly with the subtest score and the total score. Four of these subtests evaluate gross motor skills (running speed and agility, balance, bilateral coordination, strength), one subtest evaluates both the gross motor and the fine motor skills (upper extremity coordination), and the remaining three subtests evaluate fine motor skills (response speed, visual-motor control, upper extremity speed and skill). A total of 14 items were used to asses both fine and gross motor skills drawn from 8 subtests that result in total motor composite which summarizes the child's overall motor proficiency. The result may be drawing, a number of objects or events, or a length of time. Raw score for each data was converted into point score based on the scale provided by manual of BOTMF. The assessment was conducted in the same order for all the participants, in order to ensure

consistency in results. Prior to the data collection, participants were familiarized with the testing procedures and allowed practice trials. Motor skills items were arranged into stations, to enable participants to cycle through each station in a specified order. The assessment was conducted outdoors within the school compound after the schooling time. The BOTMP-SF Test was administered one week prior to and following the training program to participants.

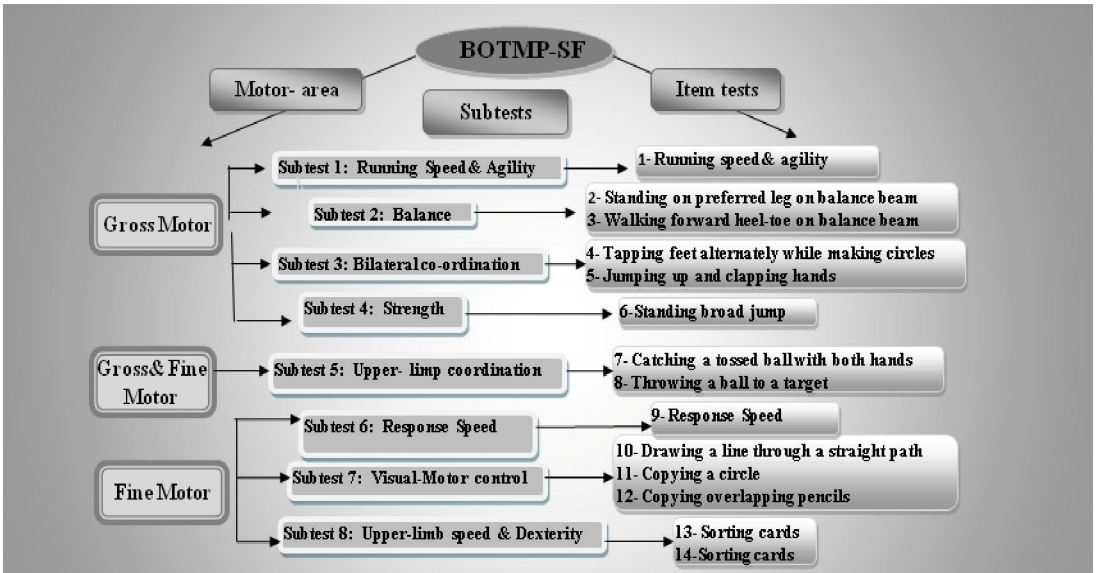

Figure 1: Diagram of the Bruininks-Oseretsky Test of Motor Proficiency- short form (BOTMP-SF)

Procedures

Experimental design

Basketball practice Program

After detailed information about the study protocol was given to the children and their parents, informed consent was obtained from the parents and additional verbal consent was given by every child. Training session was administered by the researcher 3 days per week for 8-week after the school day. Each session lasted approximately 90 minutes, and included a structured 10 minutes warm-up period of stretching, Jumping, Jogging, increasing velocities and moderate activity, followed by 40–70 minutes main part sessions which included a variety of basketball skills with different objectives (ball handling, dribbling, passing, foot work and small-sided basketball games), and finished with a cool down phase lasted about 10 minutes and included a low velocity and light activity. All skills performed during the training program were basketball specific. The basketball training was designed to keep the heart rate < 85% of maximum heart rate as confirmed by heart rate monitoring (S610i: Polar Electro, Oy, Finland). All children were encouraged by small prizes to attend 3 days a week to maintain their usual level of physical activity during the training period. The basketball specific training program sessions consisted of fundamental skills that were compiled by the author from the exercises that are commonly used for children. The activities were selected based on their safety, level of participant interest and enjoyment. The selected activities were not intended to promote skill development or competition. The training program (Table 1) was gradually increased with respect to difficulty of performance and it was consisted of varying training loads within each week of training as well as increasing intensity during the 8 weeks. The families of the participants were encouraged to attend all the sessions in order for them to actively support their children and to be directly involved in the study.

Statistical analyses

All statistical analyses were performed using the SPSS version 11.0 software (Statistical Package for Social Sciences; SPSS Inc., Chicago, IL, USA). All data were normally distributed (Kolmogorov–Smirnov test), and therefore, a 2-tailed paired sample t-test was used to detect differences for each test between the pretest and posttest in body composition, motor proficiency subsets and BOTMP-SF scores, to determine statistical significance. The level of significance was set at $P \leq 0.05$.

Table 1: ***Basketball Practice Program***

Week	Basketball practice (Sets x Reps)	Rest	intensity	week	Basketball practice (Sets x Reps)	Rest	intensity
Week 1	***Warm up (10m)***		low	**Week 5**	***Warm up (10m)***		Low
	basketball exercises(40m)				***basketball exercises(50m)***		
	-*Partner Pass Drill* (3×40s)	60s			-*Sharks & Minnows Game*(5×1)	90s	
	-*Triangle Pass& Receive* (1×6)	60s			-*Dribble Around Defenders*(3×4)	90s	
	-*Shuffle Pass Relay* (4×2)	60s			-*Space Man Drill* (3×3)	90s	
	-*Monkey in the Middle* (5×50s)	60s			-*catch the tiger's tail* (5×1)	90s	
	-*Passing Relay Race* (4×1)	60s			-*Sprint past the pack run*(6×1)	90s	
	-Pass it down the line drill (4×2)	60s			-*Gasers or line runs* (3×2)	90s	
	Cool down (10m)				***Cool down (10m)***		
Week 2	***Warm up (10m)***		Medium	**Week 6**	***Warm up (10m)***		high
	basketball exercises(50m)				***basketball exercises(70m)***		
	-*Righty-Lefty Dribbling Drill* (3×2)	90s			-*Partner Pass Drill* (5×60s)	120s	
	-*Dribble Around Cones Drill* (4×4)	90s			-*Triangle Pass & Receive* (4×8)	120s	
	-*3 player weave Drill* (4×2)	90s			-*Shuffle Pass Relay* (4×6)	120s	
	-*Sharks & Minnows Game* (5×1)	90s			-*Stuck in the mud drill* (5×60s)	120s	
	-*Dribble Around Defenders* (3×2)	90s			-*Box run relay* (6×1)	120s	
	-*Space Man Drill* (3×3)	90s			-*Sprint - jog run* (3×4)	120s	
	Cool down (10m)				***Cool down (10m)***		
Week 3	***Warm up (10m)***		high	**Week 7**	***Warm up (10m)***		Medium
	basketball exercises(60m)				***basketball exercises(60m)***		
	-*Partner Pass Drill* (3×60s)	120s			-*Dribble Around Defenders* (4×4)	90s	
	-*Triangle Pass & Receive* (2×8)	120s			-*3 player weave Drill* (4×4)	90s	
	-*Shuffle Pass Relay* (4×4)	120s			-*1 on 1 Dribbling Drill* (3×4)	90s	
	-*Dribble Around Defenders* (4×3)	120s			-*catch the tiger's tail* (7×1)	90s	
	-*Red Light, Green Light* (4×30s)	120s			-*Sprint past the pack run* (7×1)	90s	
	-*1 on 1 Dribbling Drill* (3×2)	120s			-*Passing Relay Race* (6×1)	90s	
	Cool down (10m)				***Cool down (10m)***		
Week 4	***Warm up (10m)***		Medium	**Week 8**	***Warm up (10m)***		low
	basketball exercises(60m)	90s			***basketball exercises(60m)***		
	-*catch the tiger's tail* (5×1)	90s			-*3 player weave Drill* (4×2)	90s	
	-*Sprint past the pack run (4×1)*	90s			-*Dribble around cones drill* (4×3)	90s	
	-*Gasers or line runs (3×2)*	90s			-*Stuck in the mud drill* (3×60s)	90s	
	-*Stuck in the mud drill (4×60s)*	90s			-*Box run relay* (4×1)	90s	
	-*Box run relay (4×1)*	90s			-*Monkey in the Middle* (5×60s)	90s	
	-*Sprint - jog run (3×2)*				-*Passing Relay Race* (5×1)	90s	
	Cool down (10m)				***- Cool down (10m)***		

3. Result

There were no reported training injuries or excessive muscle soreness at any stage of the training program. Mean age of the 24 children in this study was 10±1.5 years. All subjects completed at least 20 of the 24 training sessions. All the variables were normally distributed. The study subjects demonstrated significant improvement after the basketball practice 3 times per week for eight weeks.

Table 3: Means, standard deviations (SD) and significant differences between the two groups in pre and post-measurement for in body composition and Bruininks-Oseretsky Test of Motor Proficiency-Short Form (BOTMP-SF)

Variables		Pre-Test		T value	*P* value	Post-Test		T value	*P* value
		CON group	Exp group			CON group	Exp group		
Body Composition	Height (cm)	142.6±2.41	142.8 ± 2.35	0.30	0.76	143.70±2.01	143.79 ± 1.95	0.14	0.88
	Weight (kg)	45.20± 1.74	54.33 ± 1.88	0.23	0.81	51.33±1.80	49.95 ± 1.23	3.07	0.00
	BMI (kg/m2)	26.43± 1.06	26.65 ± 0.79	0.78	0.43	25.11±1.37	23.63 ±1.98	3.01	0.00
	Fat mass (kg)	21.88± 1.35	22.25 ± 1.05	1.06	0.29	20.72±1.33	19.80 ± 0.69	3.00	0.00
	% Fat	40.73± 0.81	40.94 ± 0.54	1.04	0.30	40.12±0.68	39.63 ± 0.40	3.03	0.00
BOTMP - Short Form Test	Gross Motor Subtests	22.87±1.80	22.79±1.64	0.16	0.68	27.75±1.42	32.08±1.47	10.37	0.00
	1. Running Speed& Agility	8.75±0.94	8.79±0.93	0.15	0.87	9.70±0.85	10.70±0.90	3.92	0.00
	2. Balance	5.12±1.03	5.04±1.04	0.27	0.78	6.70±0.62	7.87±0.74	5.90	0.00
	3. Bilateral Co-ordination	2.83±0.86	2.79±0.88	0.16	0.87	3.75±0.60	4.62±1.01	3.62	0.00
	4. Strength	6.16±0.70	6.16±0.70	0.00	1.00	7.58±0.77	8.87±1.03	4.89	0.00
	Gross and fine Motor	3.83±0.56	3.79±0.58	0.25	0.80	4.37±0.49	5±0.51	4.30	0.00
	5. Upper-limb co-ordination	3.83±0.56	3.79±0.58	0.25	0.80	4.37±0.49	5.00±0.51	4.30	0.00
	Fine Motor Subtests	22.70±1.42	22.54±1.21	0.43	0.66	23.62±1.17	28.29±1.80	10.62	0.00
	6. Response Speed	6.45±0.50	6.41±0.50	0.28	0.77	7.58±0.65	9.25±0.84	7.63	0.00
	7. Visual-Motor control	5.45±1.06	5.58±1.13	0.39	0.69	4.54±0.72	5.87±1.03	5.17	0.00
	8. Upper-limb speed & Dexterity	10.45±0.65	10.37±0.64	0.44	0.66	11.50±0.78	13.16±0.96	6.58	0.00
	BOTMP-SF (Total Score)	49.41±2.14	49.12±1.87	0.50	0.61	55.75±1.91	65.37±2.41	15.31	0.00

*** P< 0.05**

Table 4: Means, standard deviations (SD) and significant differences between pre and post-measurement for each group in body composition and Bruininks-Oseretsky Test of Motor Proficiency-Short Form (BOTMP-SF)

Variables		CON group		T value	*P* value	EXP group		T value	*P* value
		Pre-Test	Post-Test			Pre-Test	Post-Test		
Body Composition	Height (cm)	142.6±2.41	143.70±2.01	2.34	0.02	142.8 ± 2.3	143.7 ± 1.9	1.92	0.06
	Weight (kg)	54.20± 1.74	51.33±1.80	8.40	0.00	54.3 ± 1.8	49.9 ± 1.2	11.37	0.00
	BMI (kg/m2)	26.43± 1.06	25.11±1.37	7.24	0.00	26.6 ± 0.7	23.4 ±1.8	7.39	0.00
	Fat mass (kg)	21.88± 1.35	20.72±1.33	3.88	0.00	22.2 ± 1.0	19.8 ± 0.6	11.3	0.00
	% Fat	40.73± 0.81	40.12±0.68	3.71	0.00	40.9 ± 0.5	39.6 ± 0.4	11.2	0.00
BOTMP - Short Form Test	Gross Motor Subtests	22.87±1.80	27.75±1.42	9.65	0.00	**22.79±1.64**	32.08±1.47	25.55	0.00
	1. Running Speed& Agility	8.75±0.94	9.70±0.85	3.28	0.00	8.79±0.93	10.70±0.90	15.37	0.00
	2. Balance	5.12±1.03	6.70±0.62	5.89	0.00	5.04±1.04	7.87±0.74	12.40	0.00
	3. Bilateral Co-ordination	2.83±0.86	3.75±0.60	4.60	0.00	2.79±0.88	4.62±1.01	9.93	0.00
	4. Strength	6.16±0.70	7.58±0.77	5.56	0.00	6.16±0.70	8.87±1.03	18.27	0.00
	Gross and fine Motor	3.83±0.56	4.37±0.49	3.86	0.00	3.79±0.58	5±0.51	11.63	0.00
	5. Upper-limb co-ordination	3.83±0.56	4.37±0.49	3.68	0.00	3.79±0.58	5.00±0.51	10.13	0.00
	Fine Motor Subtests	22.70±1.42	23.62±1.17	2.22	0.00	**22.54±1.21**	28.29±1.80	21.77	0.00
	6. Response Speed	6.45±0.50	7.58±0.65	6.91	0.00	6.41±0.50	9.25±0.84	17	0.00
	7. Visual-Motor control	5.45±1.06	4.54±0.72	3.25	0.00	5.58±1.13	5.87±1.03	1.81	0.08
	8. Upper-limb speed & Dexterity	10.45±0.65	11.50±0.78	4.54	0.00	**10.37±0.64**	13.16±0.96	12.98	0.00
	BOTMP-SF (Total Score)	49.41±2.14	55.75±1.91	11.89	0.00	**49.12±1.87**	65.37±2.41	24.83	0.00

*** *P*< 0.05**

Statistically significant decreases were observed between the pretest and posttest for the various body composition measures except body height, which presented in Table 2, which means that 8 weeks of basketball practice were able to improve body composition in primary school children who were overweight. The percentage of improvement in body weight, body mass index (BMI), body fat mass (FM) and percent body fat (FM %) over time are presented in Figure 2 which ranged from 3% to 12%.

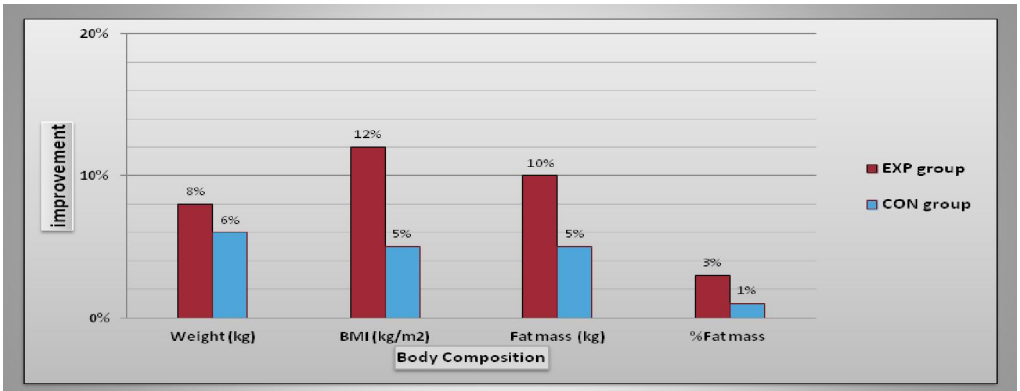

Figure 2: *Percentage of Improvement in Body Composition for two groups*

Results of the gross motor skills tests, both the gross motor and the fine motor skills tests, and only fine motor skills tests, all of which evaluate motor proficiency, are shown in Table 3. Mean scores for overall gross motor and gross motor subtests which includes running speed& agility, balance, bilateral co-ordination, and strength were significantly different between pretest and posttest. Mean scores for both the gross motor and the fine motor skills subtest, which include upper-limb Co-ordination were significantly different between pretest and posttest. On the other hand, mean scores in overall fine motor and fine motor subtests which includes response speed, and Upper-limb speed & dexterity were significantly different between pretest and posttest, While not shown any significant improvement in the visual-motor control subtest. Significant differences were found in BOTMP-SF total score between pretest and posttest in overweight children, which means that 8 weeks of basketball practice were able to improve motor proficiency in children who were overweight. The changes in subtests items to BOTMP-SF are presented in Figure3.

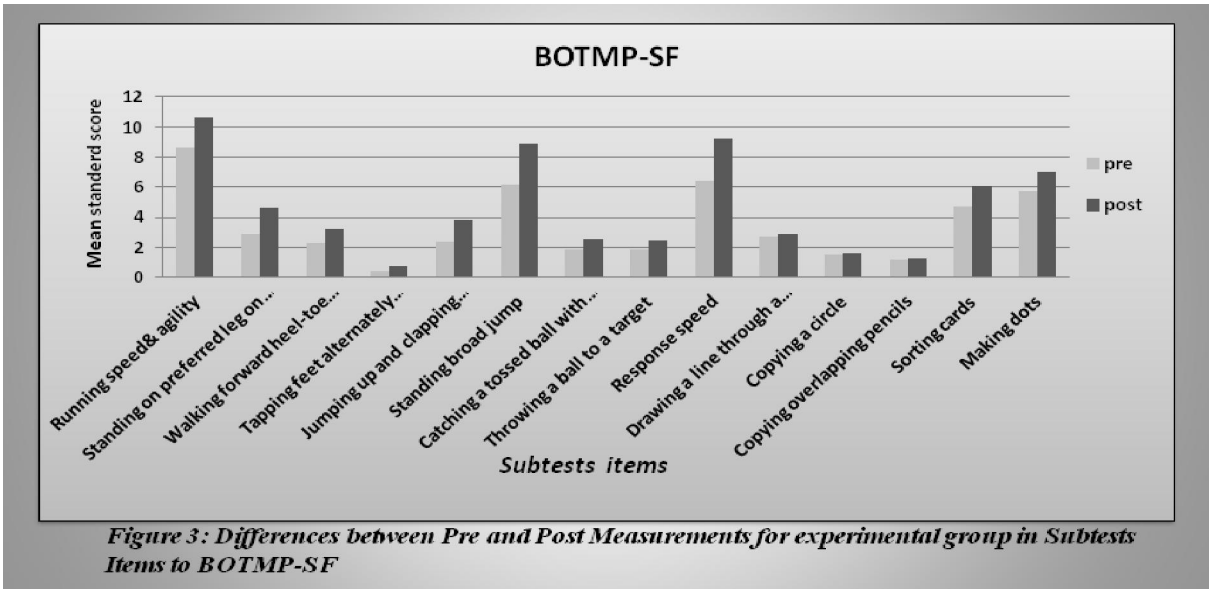

Figure 3: Differences between Pre and Post Measurements for experimental group in Subtests Items to BOTMP-SF

The overweight children were improved in the Running Speed& Agility test (23%), Balance test which includes Standing on preferred leg on balance beam (61%) and walking forward heel-toe on balance beam (42%), Bilateral Co-ordination test which includes Tapping feet alternately while making circles (93%) and Jumping up & clapping hands (60%), strength test which includes Standing broad jump (45%), Upper-limb Co-ordination test which includes Catching a tossed ball with both hands (36%) and Throwing a ball to a target (34%), Response Speed test (30%), Visual-Motor control test which includes Drawing a line through a straight path (4%), Copying a circle (5%) and Copying overlapping pencils (11%), Upper-limb speed &

Dexterity test which includes Sorting cards (28%) and Making dots (22%).

Discussion

The present study assessed the effect of eight weeks of basketball practice program in improving the body composition and motor skills proficiency in primary school children who are overweight. The results clearly demonstrate that the basketball practice program was able to produce significant changes in body composition and motor skills proficiency in children who are overweight, as well as being well tolerated by the participants. Significant body composition changes were seen in body weight, BMI, fat mass and percent body fat. The improvement in body weight (decreases of up to 8%), BMI (decreases of up to 12%), FM (decreases of up to 10%) and FM% (decreases of up to 3%) that were observed indicate that an 8-week basketball training program is sufficient time to produce significant and meaningful improvements in body composition in overweight children. Previous studies have shown small effects on body composition in children who were overweight across 6 weeks, and larger significant effects across 10 weeks. The present study has shown that 8 weeks is adequate to achieve significant favorable changes in body composition.

The findings of this study are consistent with study of Datar and Sturm (2004) which examined the effect of physical education instruction time on body mass index (BMI) change in elementary school, and found that one additional hour of physical education in first grade reduces BMI among girls who were overweight or at risk for overweight. Vamvakoudis *et al.* (2007) showed that the regular basketball training decreased body fat percentage of prepubescent boys. In addition to the studying Carrel *et al.* (2005) which aimed to determine whether a school-based fitness program can improve body composition in overweight children, their results demonstrated a significantly greater loss of body fat in the overweight children, and showed that the modification to the school physical education curriculum demonstrates that small but consistent change in the amount of physical activity has beneficial effects on body composition, fitness, in overweight children. However, the findings of the present study were inconsistent with the findings of Watts *et al.* (2005) who evaluated the effect of exercise training in obese children and adolescents on body composition, the results indicate that although exercise training does not consistently decrease body weight or body mass index, it is associated with beneficial changes in fat and lean body mass index. Nordine *et al.* (2007), which propose an additional physical activity in young children aged 6–10 years, The objective was to evaluate the effect of school-based physical activity on the body composition according to body mass index (BMI). The result demonstrated that in girls, physical activity intervention had significant effect on all anthropometric variables ($p < 0.05$ to $p < 0.001$), except on BMI. In contrast, in boys only BMI and fat-free mass ($p < 0.001$) were affected.

The findings of the current study also indicated that the 8-week long, three times weekly basketball practice program had a significant improvement in motor skills proficiency in primary school children who are overweight. This improvement in motor skills proficiency after training was approximately 40% in gross motor skills, 26% in fine motor skills, 32% in gross &fine motor skills, and 32% in total score of BOTMP-SF. This improvement may be due to the design of the basketball program, which focused on the performance of exercises specific for basketball that may have contributed in positive effects on motor proficiency, additionally improving physical fitness, which may be important part of improving motor skills. As mentioned by Magill (2007) one of the factors that influence the performance of motor skills was physical characteristics, thus, changes in physical characteristics influence the motor skills proficiency. The results of the current study are in line with other previous studies. Wrotniak *et al.* (2006) examined the relationship between motor proficiency and physical activity in 8-10 year old children, and reported that Motor proficiency is positively associated with physical activity, and inversely associated with sedentary activity in children. Okely *et al.* (2001) examined the relationship of participation in organized and non-organized physical activity with fundamental movement skills among adolescents, their results revealed that the Fundamental movement skills are significantly associated with adolescents' participation in organized physical activity. Ward *et al.* (2010) suggested that 90 min of weekly structured physical activity seems to be sufficient to achieve improvements in motor skills; however, a greater dose may be required to increase physical activity levels in children, possibly 30–45 min per day, 5–6 days per week. Mahdi *et al.* (2013) demonstrated that school Games program is more effective than current program in physical activity class to develop fine and gross motor skills and motor proficiency. Results of the present study indicate that eight weeks of basketball practice lead to significant improvement in Body Composition and motor skills proficiency, in primary school children who were overweight.

Conclusion

The results of this study highlight the potential of using basketball practice three times per week to improve body composition and the enhancement of motor proficiency especially in primary school children who are overweight. The motivation to continue with sport or any kind of physical activity is enhanced if motor proficiency levels are at an acceptable level therefore, seek to develop the motor proficiency in overweight children to help them on practice sports activities and thus improve body composition. Further research is required to determine whether these changes can be maintained over a longer period of time (i.e., greater than 8 weeks) and to determine the effects of long-term basketball practice programs, along with dietary interventions, in this population.

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