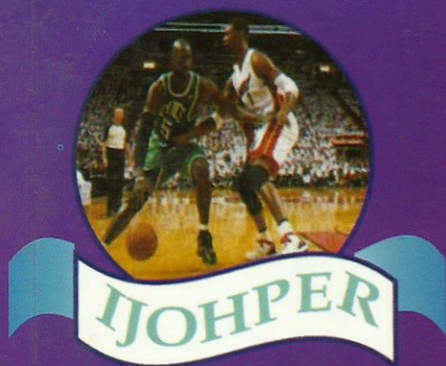




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This journal with its international outlook will assist students and researchers by providing them with first-hand information through well researched articles and empirical presentations contained in this current issue of the journal.

It is envisaged that this publication will constitute an invaluable resource to students, teachers and researchers in Human Kinetics Education and related fields in Nigeria and beyond.

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1. Abstracts (in English) not exceeding 250 words should be included. The Abstract should give concise information on the study, methodology adopted, summary of findings and conclusion. Literature citing and abbreviations should be avoided.
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ANALYSIS OF MOTOR PERFORMANCE PROFILE OF ELITE FEMALE HANDBALL PLAYERS IN WEST AFRICAN UNIVERSITIES

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Abstract

The relationship between motor variables and sports performance is an important element to analyse. Studies have also established that body composition and some anthropometric variables provide advantage in certain sports. This study therefore focused on analysis of anthropometric and motor performance profile of elite female handball players in Nigerian universities. The ex-post facto research design was adopted; thirty six (36) elite female handball players were purposively selected from three universities namely: University of Benin, University of Ilorin and NnamdiAzikiwe University using purposive sampling technique. The following instruments were used for measuring motor variables of the participants; flexibiliometer scale and measuring tape, they were validated with the assistance of experts in exercise physiology from the Department of Human Kinetics Education, University of Ilorin. The identified motor variables examined were speed, leg power, shooting ability, abdominal muscle endurance, agility and flexibility. The data were analysed using descriptive statistics of mean, standard deviation and range for the research question, while One way Analysis of variance (ANOVA) was used to test the formulated hypotheses at 0.05 alpha level. The results of this study revealed that there was no significant difference among elite female handball players in Nigerian universities in speed, flexibility, leg power and shooting ability but there was significant difference in abdominal endurance. Also, Scheffe post hoc tests on motor performance showed that female handball players from NnamdiAzikiwe University recorded significant difference in abdominal muscle endurance compared to female players from University of Benin and Ilorin.

The implication of this study is that anthropometric and motor variables had impact on athletes' performance, therefore more team trainers should direct more attention to the motor performance indicators and note the strong relationship that exist between anthropometric variables and motor performance as this may be helpful in identifying potential players and to make training programme more effective.

Key words: motor performance profile, elite female handball players, West African Universities

Introduction

The identification of relevant motor characteristics in particular sport contributes significantly to success in sports contest, it is also a key factor that brings the differences in performance of athletes during contest. Sports performance is based on a complex and intricate diversity of variables, among which are physical (general and specific conditions), psychological (personality and motivation) and body (body morphology and motor composition) factors (Campos, Daros, Mastrascusa, Dourado&Stanganelli, 2009). Therefore, the relationship between motor variables and sports performance is an important element to be analysed.

Handball is a complex, intermittent game played over sixty (60) minutes duration. It requires efforts of maximum intensity in a short period of time. During play, the players run, jump and throw the ball at a high velocity, followed by low intensity recovery periods. Researchers (Ziv&Didor, 2009, Moncef et al. 2012) have made strong submissions that due to the physical demands required in playing the game, there is need for advance training in the aspect of physical preparation in order to compete successfully with other teams.

Studies have also established that motor performance variables are essential factors that guarantee success in sports and games (Ostojic, Mazic&Dikic, 2006; Van den &Ettema, 2004). It is believed that physical fitness is a trainable factor; literature has also established that motor variables provide advantage in certain sports (Van den, Tillar&Ettema, 2004; Gabbett et al. 2006). However, training at competitive level is influenced by motor abilities of children and adolescents (Gorostiaga, Izqueido, Iturralde, Ruesta&Ibanez, 1999).

Performance in sports is a product of player's potentials and physical profiles such as strength, speed, agility, endurance and other body properties which all combined for excellent output (Carter, Ackland, Ker & Staff 2005). It has been scientifically proved that physical characteristics of players have impact on successful skill execution during play. According to Ling (2007), excellent skill execution is a result of functionality and inherent development of the physical variables required for good performance which brings about success in sports.

It has been established that some physical characteristics like speed, agility, strength and power are dependent on the level and type of competition (Ziv&Lidor, 2011). This implies that physical characteristics are inversely proportional to excellent performance of skills in ball games. In order to attain excellence in sports, Cardoso, Gouzales and Badillo (2006) affirmed that players have to meet increasingly high standard of greater force of muscular strength that enables athletes to move quickly, avoid accidents and increased skills and tactics necessary for higher rating in sports during play/competitions.

Mendeiros, Palao, Marcelino&Mesquita (2014) identified the following performance factors among others as having significant contribution to excellent performance; they are agility, balanced body composition, reaction time, strength, endurance and flexibility. This study therefore compares and evaluates motor performance variables (speed, leg power, shooting ability and agility) of female handball players in West African Universities.

Statement of the Problem

Sports scientists have directed specific attention towards identification, enhancement and maintenance of performance variables such as agility, speed and mobility to mention few among the factors that promote excellence in sports. Although, extensive studies conducted by researchers have identified the aforementioned characteristics across various sports in Nigerian setting (Olaitan, 2012; Dominic, 2006 and Igbunugo&Ajayi-Vincent, 1995).

There have been extensive studies on the physical characteristics and motor abilities of players in different ball games (Michelle 2004), research findings have also revealed that physical performance variables also affect athletic performance. Information from scientific investigations and analysis lay emphasis on the on the relevance of motor skill parameters in relation to physical skills, techniques, physical and physiological parameters to good performance in ball games especially handball (Visnapuu, 2009; Vikram& Vijay, 2010).

Therefore motor abilities need to be properly investigated in order to ascertain its significance to handball game. Analysis of motor variables that contribute to improved performance in competitions attract the interest of the researchers, hence the need to analyse and evaluate the motor attributes that contribute to good execution of skills and performance outcome in the game of handball.

Research Question

What are the identified motor performance variables among university female handball players in West Africa?

Hypothesis

There is no significant difference in motor performance variables among elite female university handball players in West Africa

Methodology

The Ex-post facto research design was adopted for this study, the variables being measured are already in existence and they were measured and reported exactly the way they appeared. This was considered appropriate for the study because the researchers were not interested in manipulating any of the variables under measure. The population for this study comprised of all elite female university handball players that took part in the finals of the 13th West African Universities Games (WAUG) held at the University of Ilorin.

Purposive sampling technique was adopted to select female handball players from six universities that took part in the championship. There were three female handball teams from three universities namely University of Benin, University of Ilorin and NnamdiAzikiwe University, Awka. The three teams presented twelve handball players each to make thirty-six (36) players that were sampled.

Instrumentation

The following instruments and materials were used:

1. Stop watch: Casio automatic stopwatch (telemeno30) graduated to 1/10 of a second was used for timing
2. Measuring tape: non-elastic tape (butterfly trade mark) graduated in millimeters was used for measuring distances to the nearest m/cm.
3. The University of Ilorin handball court was used for all skills measurement
4. Handball: ball made according to International Handball Federation specification for female was used
5. Shooting, throwing and catching abilities of the participants were measured in the gymnasium hall of University of Ilorin
6. Plain sheet: used to record measurements
7. Other motor performance variables of speed, leg power and agility were assessed on the handball court, University of Ilorin.

Reliability of the Instrument

A pilot study was conducted using female handball players from Ilorin who were not part of the University team. This helped to familiarize the researchers with use of the instruments and likely challenges that may occur during the actual study. The instruments are already standardized; however the researchers consulted experts in the field of exercise physiology from the Department of Human Kinetics Education University of Ilorin. Thereafter they compared the results obtained with established norms to ascertain the validity of results obtained.

Test Locations

All motor performance measurements were carried out in the Exercise Physiology Laboratory of the University of Ilorin. Throwing and catching, vertical jump and shuttle test skills were conducted at the University of Ilorin handball court and gymnasium, while dribbling test were conducted at the University handball courts.

Administration of the Test

The training of research assistants preceded the administration of the test; five research assistants were used for the study. The training lasted for two days; they were trained on the procedure for taking participants' measurement. Ethical clearance was obtained from the University Ethical Review Committee. Informed consent of the participants was obtained prior to test administration. The forms were signed by the participants individually after giving them adequate information on the nature, purpose importance and benefits of the study.

The measurement of the participants lasted for four days. Speed (shuttle run), leg power (vertical jumps), shooting ability (throwing and catching) were the first set of tests administered, this was followed by agility (T-shuttle run). To facilitate best performance from the participants, five minutes of rest period was allowed between the tests.

Measurement of motor variables

Measurements were taken in accordance with standard procedures (Zang, 2010; Visnapauu, 2009), the following tests were used for motor performance variables:

Speed (seconds)

30m run sprint was used to measure the speed of participants. The venue was the handball court; each participant adopted the standing start position behind the starting line. At the command 'Go' the participant ran 30 metres as fast as possible through to the finishing line. The time of completion was recorded to the nearest 0.01 second. Each participant has two trials the best of time was taken for analysis. The recovery time between the races was two minutes.

Leg Power (M): Vertical Jump

Procedure: the participant puts the hands on the hip from a standing position, legs in semi-squat position, arms placed on the hips. From this position participant performed three jumps with recovery time of two minutes between each jump. Participants were encouraged to jump as high as possible. The jumps were recorded in centimetres and the highest was used for data analysis.

Shooting Ability: speed and accuracy (reps)

Equipment: a line was drawn on the floor 3 metres from the wall and a line 40x40 cm square drawn on the wall with the lower side measuring 180 cm from the floor.

Procedure: adapted from Zang (2006), participant stands behind the line to execute the shooting a comfortable position and starts shooting with the dominant hand at the target on the wall with maximum speed for 30 seconds. Only shots that accurately lands on target were counted and recorded, the best of two trials was used for the study.

Procedure: Illinois agility run test adapted from Zang (2006)

Participant stands on the equipment with the shoes off, raise up both hands above the head. Participant gradually goes down without bending the knee until the middle finger tip makes contact with the measuring box. Participant pushes the box downward with the head tucked in, until they reach limit. During this procedure the finger must be parallel to each other with the knee straight. Each participant has three trials; the best performance is picked and recorded to the nearest centimetre.

Agility Test: T-shuttle runs

Equipment: three lines were drawn on the floor with a distance of five metres apart, and labelled as A, B, C and D respectively.

Procedure: adapted from Zang (2010), participant starts from point A (timer starts), moves very fast to point B and touches the ball with one hand and returns to point A. this is followed by running from point A to C, touches the ball at point C and runs back to point A. finally participant moves from point A to D. the time spent in completing the procedure is recorded to the nearest second. Each participant attempts the test twice with a rest interval of two to three minutes; the best of two trials is used for analysis.

Abdominal Endurance Test

Purpose: to evaluate the abdominal endurance

Equipment: mats, timer

Procedure: each participant has two trials of twenty sit-ups. Starts with 106 supine position with legs straight, torso raised to a sitting position, touching both feet with two hands and then return to the initial position. Three sets of timed 20 sit-ups, with rest interval of 2 minutes, the best two out of three trials were used for analysis.

Method of Data Analysis

Descriptive and inferential statistics were used to analyse the data collected for the study. Mean, standard deviation and range were used to analyse the research question, while t-test and one way Analysis of Variance (ANOVA) statistics were used to test the formulated hypotheses at 0.05 alpha level.

Results

Table 1: Descriptive statistics showing mean and standard deviation on motor variables of female West African university handball players

Variables	University of Benin			Nnamdi Azikiwe			University of Ilorin					
	N	X	Sd	N	X	Sd	N	X	Sd	N	X	Sd
Speed (secs)	12	3.65	.63	12	3.58	.51	12	3.58	.51	36	3.61	.54 3-4.5
Flexibility (cm)	12	13.50	5.77	12	17.90	4.89	12	14.73	4.09	36	15.37	5.17 7.8-22.5
Agility (secs)	12	16.93	.47	12	16.84	.61	12	16.65	.44	36	16.81	.51 16-18.00
Abdominal endurance (reps)	12	36.66	4.99	12	46.75	10.43	12	39.16	4.51	36	40.86	8.21 28-63
Leg power (cm)	12	2.37	.13	12	2.47	.14	12	2.48	.13	36	2.44	.14 2.19-2.70
Shooting (reps)	12	34.83	9.87	12	30.92	5.17	12	31.08	5.04	36	32.27	7.10 11-45
Total	36											

Table 1 presents mean and standard deviation on motor variables of female university handball players. There were variations in the values recorded; speed (3-4.5), flexibility (7.8-22.5), agility (16-18.00), abdominal endurance (28-63), leg power (2.19-2.70) and shooting ability (11-45 reps). This could suggest that the game could be played by individuals with variations in motor variables as shown in the result reported.

Table 2: ANOVA Summary on Motor Performance Variables of Female University Handball Players in Nigeria

Variables	Source	Sum of squares	df	Mean square	F cal. Ratio	F crit.val.	remark
Speed (secs)	Between	0.36	2	0.18	0.57	3.32	Ho not rejected
	Groups	10.203	33	0.309			
	Within	10.239	35				
	Groups Total						
Flexibility (reps)	Between	123.636	2	61.818	2.502	3.32	Ho not rejected
	Groups	815.207	33	24.703			
	Within	938.842	35				
	Groups Total						
Agility (secs)	Between	0.518	2	0.259	0.990	3.32	Ho not rejected
	Groups	8.628	33	0.261			
	Within	9.146	35				
	Groups Total						
Abdominal endurance	Between	661.722	2	330.861	6.443	3.32	Hot rejected
	Groups	1694.583	33	51.351			
	Within	2356.306	35				
	Groups Total						
Leg power (m)	Between	.086	2	0.043	2.357	3.32	Ho not rejected
	Groups	.604	33	0.018			
	Within	.690	35				
	Groups Total						
Shooting (reps)	Between	117.722	2	58.861	1.179	3.32	Ho not rejected
	Groups	1647.500	33	49.924			
	Within	17652.222	35				
	Groups						

In table 2, no significant difference was found among elite female university handball players in speed ($F_{cal.} = 0.57 < 3.32$), flexibility ($F_{cal.} = 2.50 < 3.32$), leg power ($F_{cal.} = 2.357 < 3.32$) and shooting ability ($F_{cal.} = 1.179 < 3.32$) but there was significant difference in abdominal endurance ($F_{cal.} = 6.443 > 3.32$). Therefore the hypothesis as stated is accepted.

Variables (units)	Indep	Team	Mean differences	Standard error	Sig.
Abdominal endurance	Dep(2)		7.58*		
	Nnamdi Azikiwe		10.08*	2.92	.047
	University of Ilorin			2.92	.002
	University of Benin				

Table 3 shows that handball players from Nnamdi Azikiwe University recorded significant difference in abdominal endurance compared to the other two universities.

Discussion

Based on the result of this study, the mean speed (3.61 secs) of the female university handball players was lower compared with different levels of young team handball players (6.03+0.31) as reported by Zapartidis, Vareltzis, Gouvali & Kororos (2009). Nesser, Latin, Berg and Prentice (1996) postulated that quick start and rapid acceleration, strength of the knee flexors propel the body forward and the capacity of these muscles to rapidly contract and produce force are important in sports like handball. Also, sprints for short distances (20-30m) are fundamental in handball game during a fast break or while returning to defence after losing possession of the ball (Lidor, et. al 2005). In essence, the nature of handball requires a motoric characteristic which demands that players increase their reaction time and recurrence of movement.

On flexibility, the results of the study showed that the players exhibit similar flexibility. It has been proved that flexibility in relation to handball is specific and not a general trait that cuts across the body as there are differences in body proportions. Sport specificity and age have also been found to play significant role in flexibility (Maffuli et.al 1994). Therefore a high degree of flexibility in one joint of the body does not necessarily translate to flexibility in another part of the body. The result on mean agility of the players was similar to the report of Waghmare, Bondale and Surdi (2002) in a study on 30 male handball players aged 15 to 25 years selected from universities, state and national level. From this discussion it was clear that in the game of handball, agility is a crucial factor for an athlete to make a fast, precise and accurate decision during game. Furthermore Ajayi-Vincent & Adeshina (2002) noted that quick start, stops and changes in direction which are all attributes of agility are fundamental to good performance in ball games.

The Scheffe post hoc analysis on abdominal endurance confirmed that there was a significant difference among the players. It showed strong similarities among University of Ilorin and University of Benin female handball players while those from NnamdiAzikiwe were significantly different from others. This result differs from the findings of (Mohammed et.al 2009; MacDougall et. al 1991). They submitted that a stronger athlete will have greater absolute endurance with heavy loads, but less relative endurance. Amusa&Onyewadume (2001) concluded in their study that lactate tolerance is an important factor in endurance ability and in sports performance. They observed that the build-up and concentration of lactate vary from one athlete to another even for the same sport.

The result of this study also revealed that there was no significant difference in the leg power/strength of the elite female university handball players. All the players had relatively the same leg power/strength (24.4cm) which ranged from 21.9-27.0cm. The findings corroborates with that of Igbunugo&Ajayi-Vincent (1995), the authors stressed that the need for muscle strength varies for various sports hence players in certain sports require higher leg power strength than others. Handball game requires a combination of strength and speed to attain peak performance. It has also been stressed that the product of strength and speed is muscular power, also referred to as anaerobic or explosive power. Therefore, handball players have been found to possess higher leg power/strength compared to non-athletes and endurance trained athletes (www.physicalactivityonline.com, 2013; www.coachr.org, 2013).

It was also revealed from the findings of this study that all the elite female university handball players had relatively the same shooting ability. This could be ideal situation for elite players. The result obtained is however different from shooting ability of male and female young handball players' velocity who presented a higher value. Van de Tillar (2004) and Gabbett, et al. (2006) affirmed that throwing velocity in handball and rugby is dependent on the ability to produce power which is important for success. It has also been observed that combination of ball velocity and throwing accuracy are most crucial factors and plays a decisive role in scoring ability. The analysis on motor performance variables of abdominal endurance and flexibility showed that University of Benin ranked highest, followed by NnamdiAzikiwe University with University of Ilorin trailing.

The result further revealed that University of Ilorin female handball players recorded the highest values in leg power and agility. NnamdiAzikiwe University and University of Ilorin exhibited significant difference in speed, flexibility, agility, leg power/strength and shooting ability. The overall performance of the teams in the competition showed that University of Benin emerged as champion despite being ranked second in the variables measured which may be attributed to other variables that were not measured in this study. This line of thought supports the submissions of Agbonjimi (1995) and Dominic (2006) who explained that sports performance is based on a complex and intricate diversity of variables.

Conclusion

Based on the result of this study, motor performance variables of elite female university handball players were assessed and compared. This study has provided data from athletes who played at top level in the Nigerian University competitions and has provided reference values regarding characteristics and motor performance capacity of female handball players. By implication, motor variables impact on athletes' performance.

Recommendations

Based on the findings of this study, coaches and physical trainers should focus more attention on integrating motor development training regimen that will improve performance of their athletes. Furthermore, attention should be directed to the motor performance indicators by team coaches because of the strong relationship with performance indicators as this may be helpful in identifying potential players and to make training programme more effective.

References

- Agbonjimi, A. P. (1995). Lower limb anthropometric characteristics and endurance running performance time in young male adults. *Nigeria Association of Sports Science and Medicine (NASSM)* 2,16-20.
- Ajayi-Vincent, O. B. (1996). A comparison of selected physical characteristics and body composition of elite male Badminton and tennis players in Ondo State. *Journal of Educational Theory and Practice*, 2 (1&2), 112-118.
- Ajayi-Vincent, O. B. & Adesina, M. O. (2002). Anthropometric somatotype of Nigerian University male Judokas. *Health and Fitness Journal International*, 3(1): 1-6.
- Amusa, L. O. & Onyewadume, I. U. (2001). Anthropometry, body composition and somatotype of Botswana National Karate players: A descriptive study. Department of Physical Education, Health and Recreation, University of Botswana Gaborone, Botswana
- Bencke, J. Damsgaard, R., Saekmose, A., Jogensen, P. & Klausen, K. (2002). anaerobic power and muscle strength characteristics of 11 years old elite and non-elite boys and girls from gymnastics, team handball, tennis and swimming. *Scandinavian Journal of Medicine and Science in Sports* 12(3), 171-178
- Carter, J., Ackland, T., Ker, A. & Staff, A. (2005). Somatotype and size of elite female basketball players. *Journal of Sports Science*, 23: 1057-1063.
- Campos, F.A. D., Daros, L. B., Mastrascusa, V., Dourado, A. C. & Stanganelli, L. C. R. (2009). Anthropometric profile and motor performance of junior badminton players. *Brazilian Journal of Biometry* 3(2) 146-151
www.brjb.com.br

- Dominic, O. L. (2006). The relationship between physical characteristics and shooting ability of Kwara State basketball players. *Journal of Educational Research and Development*.
- Dominic, O.L. (2011). Kinetic analysis of arm motion during jump shot in Nigerian female basketball players. Unpublished Ph. D Thesis, Ahmadu Bello University, Zaria, Nigeria.
- Gabbett, T., Georgieff, B., Anderson, S., Cotton, B., Savovic, D. & Nicholson, L. (2006). Changes in Skill and Physical Fitness following Training in Talent-identified Volleyball Players. *Journal of Strength and Conditioning Research*, 20(1), 29-35.
- Gorostiaga, E.M, Izquierdo, M., Iturralde, P. Ruesta, M & Ibanez, J. (1999). Effects of heavy resistance training on maximal and explosive force production, Endurance and Serum Hormones in Adolescent Handball Players. *European Journal of Applied Physiology*, 80(5), 485-493.
- Igbanugo, V. C. & Ajayi-Vincent, O. B. (1995). A Comparative Study of Performance Variables between Elite Male Badminton and Tennis Players. In Igbanugo, V. C. (Ed). *Research in Physical Education, Health, Sport & Dance. Proceedings of the 10th Nigeria Association of Sports Science and Medicine*. 16-73.
- Ling, G. (2007). Physical and event specific physical activity of young female volleyball athletes in China. *Journal of Physical Education*, 14, 113-116.
- MacDougall, J. D., Wenger, H.A. & Green, H. J. (1991). Physiological testing of the high-performance athlete. Champaign, Illinois: Human Kinetics
- Michelle, M. (2004). Characteristics and talent identification in sports. 118, 715-726
- Mohammed, V. R., Matthy, S., Multael, M., Lefevre, J., Lenoir, M. & Ippaerts, R. (2009). Anthropometric and performance measures for the development of a talent detection and identification model in youth handball. *Journal of Sports Sciences*, 27:3.

- Nesser, T.W., Latin, R. W., Berg, K. & Prentice, E. (1996). Physiological determinants of 40 meter sprint performance in young male athletes. *Journal of Strength and Conditioning Research*, 10(4), 263-267.
- Olaitan, O. L., Bakinde, S. T., Ajayi-Vincent, O. B. & Adeshina, M. O. (2012). Comparing Physical Characteristics and Health-related Fitness Levels of Female Basketball and Volleyball Players of University of Ilorin, Nigeria. *International Journal of West African University Games (IJWAUG)*
- Sibila, M., Bon, M., Mohoric, U. & Pori, P. (2011). The relation between per cent body fat and measures of running speed, jump power and Vo2max consumption in Slovenian junior elite handball players. EHF Scientific Conference, Austria.
- Talabi, A. E. (1992). The predictability of squash playing ability from selected physical, motor and skills performance of male national squash players. *Unpublished Ph. D Thesis*, Department of Physical and Health Education University of Ibadan.
- Toriola, A. (1999). Protocol on Table-tennis, Tennis, Badminton, Handball, Judo, Volleyball. *SISA Protocols*: Pretoria, South Africa.
- Van-den-Tillaar, R., Ettema, G. (2004). Effect of Body Size and Gender in over-arm throwing performance. *European Journal of Applied Physiology*, 91(4), 413-418
- Vikram, S. & Vijay, P. (2010). Comparison of Selected Motor Fitness Variables among Male Basketball, Volleyball and Handball Players: *Journal of All India Council of Physical Education*.
- Visnapuu, M. (2009). Relationships of anthropometrical characteristics with basic and specific motor abilities in young Handball Players. *Ph. D Dissertation* www.physicalactivityonline.com retrieved 06/07/2016
www.coachr.org retrieved 06/07/2016

- Waghmare, A. R., Bondale, A. K. & Surdi, A. D. (2002). Study of flexibility, agility and reaction time in Handball players. *Indian Medical Gazette*.
- Zapartidis, I., Skoutfas, I. Vareltzis, T. Christodoulidis, T. T. & Korros, P. (2009). Factors influencing Ball throwing velocity in young female Handball players: *The open Sports Medicine Journal* (3), 39-43
- Zhang, Y. B. (2006). Modern training method of physical ability, Beijing. Beijing Sports University Press.

