4. STRATIFICATION OF BIOMOTORS IN A GYMNASTIC (no 4)

by Endang Rini

STRATIFICATION OF BIOMOTORS IN A GYMNASTIC TALENT SCOUTING EARLY CHILDHOOD

Endang Rini Sukamti

The performance test was implemented by the stratification identification to evaluate the biomotor component of the students even though the test could potentially harm the students either physically. This research was conducted to overcome the emergence of the problems (physical). during the biomotor component test of the school students. This study is a descriptive quantitative research that uses five variable – the biomotor component profile divided by flexibility, strength, power, agility, and balance. The observation guidelines consist of enthusiasm, excitement, and discipline. All of these aspects were used as the instrument of data collection. The objective of the research is to determine the biomotor component profile of the school students. in this research, the biomotor component profile is assessed using observation guidelines to avoid the profile. Based on the observation guidelines, the results of the research shows that the biomotor component male profile is as follows: (1) very talented (1 %), (2) talented (12.1 %), (3) average talented (66.2 %), (4) not talented (17.2 %), and (5) very poor talented (3.5 %). The results of the second, biomotor component talented in scouting talent are as follows: (1) power (29.172 %), (2) balance (19.635 %), (3) agility (17.875 %), (4) strength (10.630 %), and (5) flexibility (7.103 %). According to the results of the research, and based on the observation guidelines, it can be concluded that the biomotor component profile of the assessed school students is average.

Key Words: Biomotor Component profiles; student school; gymnastic

INTRODUCTION

In the stage of peak performance achievement required regular, structured, measurable and programmed exercises. Breeding and scouting talent needs to be done as early as possible because to print the athlete achievement takes a long time. The target of breeding is elementary school children ranges from 6-12 years old. This age group needs to be given continuous, uplifting and continuous training from the talent / seedling scouting, forming, sports branches and performance improvements. The process is divided into several stages: short term, medium term, and long term. Bompa (2009) states that for artistic aged gymnastics ages begin training for daughters between the ages of 6-8 years and 8-9 year olds, a specialization stage between the ages of 9-10 years for girls and 14-15 years for the son while the age of achievement achievers at the age of 14-18 years for the daughter and at the age of 22-25 years for the son.

The dominant elements in talent scouting include several aspects: anthropometric, biomotor, and psychological aspects. Aspects of anthropometry related to weight, height, chest circumference, pelvic circle and so on. Biomotor aspects include strength, flexibility, balance, agility, power and so on. Each sport in talent search (talent scouting) has standards for every aspect. As with gymnastics

---

* Sport science Faculty of Yogyakarta State University, Indonesia, *E-mail: endang_fik@uny.ac.id*

there are major criteria in anthropometry that distinguishes it from other sports. Bompa (2009) adds that the basic components of biomotor include strength, robustness, speed, coordination and flexibility. The other components are a combination of several components so as to form one term itself, such as power is a combination or product of strength with speed; agility is a combination of speed and coordination. Here is a chart that shows the interconnection between biomotor capabilities. In equilibrium, coordination, agility and poweer are needed, reaction speed is also needed in gymnastics, while speed is needed but very little (Corbin, Welk & Corbin, 2009). Sleeper, Kenyon, Casey (2012) suggests that speed, strength, endurance, agility, flexibility, balance and strength are physical abilities that play a role in the success of a competitive gymnast. Individual tests for flexibility, strength, endurance, and strength have been proposed as a useful tool for measuring potential in gymnastics.

Similarly, the biomotor aspect is a criterion that should be owned by athlete gymnastics. Of the various studies that have been done have not found biomotor stratification (strength, flexibility, balance, power, and agility) in the gymnastics branch. Therefore the research intends to conduct research on biomotor stratification in the early artistic gymnastics talent scouting.

RESEARCH METHODS

(A) Materials and methods

This study is a descriptive research to determine the independent variable value (either one or more variables) without comparing or relating the variables (Sugiyono, 2004, p.11). The variable of this research is the Biomotor component profile.

The subjects of this research were 198 students school. This was a census research because every subject was used as a research sample. Therefore, there was no generalization in this research, and the result was applicable only to student School in special region Yogyakarta, which was the subject of the research.

The instrument that was used to collect the biomotor component data from the School students was a non-test, which includes the observation guidelines that consist of five aspects such as flexibility, strength, power, agility, and balance. Each aspect has five descriptors. The instrument that was used to evaluate the technique of descriptive quantitative with percentage was used as the data analysis technique for this research (Suharsimi, 2006, p.215). Because there was no hypothesis in this research, the analysis was directed to answer the problem formulations. The analysis steps were as follows: (1) the aspect score of each student was summed, (2) the total aspect score of each student was divided by the total aspect observed, (3) the quotient result was converted to the assessment standard, (4) and the biomotor component score of a student was converted into percentage in talent scouting.

RESULT AND DISCUSSION

Stratification of Biomotor Dominant Factor in Scouting Artistic Gymnastics Early Age Gymnastics. Analysis of dominant factor of biomotor test in scouting artistic gymnastics talent early child son, in this research done with steps as follows: 1). Determine the best test results from biomotor, including: a. Specifications: sit and reach , right front split, and bridge (bridge); b. Strengths, including : push-ups, sit-ups, and chin-ups; c. Power jump without prefix; d. Agility; e. Balance; Calculate the z-score value of the data. 2). Calculate the value of t-score based on z-score value. 3). Calculating the average t-score of the test results of the formation and strength; because the two tests consist of several tests. 4). Five t-scores were obtained from the five tests. 5). Determine the score categories based on the t-score score, into 5 categories. 6). Summing up the t-score and categorizing the score into 5 categories: very talented, talented, gifted, gifted, and very talented. 7). Regression analysis. 8). Seeking relative donations and the effective contribution of each predictor. 9). Analysis from point a to point g, with the help of Microsoft Excel, the results can be seen in the attachment. The results are summarized in the following table.

TABEL 1: CATEGORY RESULT TEST BIOMOTOR SCOUT GYMNASTICS ARTISTIC TALENT EARLY AGE SON

Biomotor	Category Scores	Frequency	
		f	%
Flexibility	Very Good	0	0,0
	Good	19	9,6
	Average	149	75,3
	Poor	24	12,1
	Very Poor	6	3,0
Strenght	Very Good	3	1,5
	Good	37	18,7
	Average	112	56,6
	Poor	37	18,7
	Very Poor	9	4,5
Power	Very Good	12	6,1
	Good	50	25,3
	Average	72	36,4
	Poor	32	16,2
	Very Poor	32	16,2
Agility	Very Good	11	5,6
	Good	45	22,7
	Average	88	44,4
	Poor	21	10,6
	Very Poor	33	16,7
Balance	Very Good	21	10,6
	Good	33	16,7
	Average	72	36,4
	Poor	71	20,7
	Very Poor	31	15,7

The final result of scouting talent in early childhood sons, are shown in the following table.

TABEL 2: END RESULT ARTISTIC GYMNASTICS ARTIST EARLY AGE CHILDREN

Talent Category	Category Scores	Frequency	
		f	%
Very Talented	22 – 25	2	1,0
Talented	18 – 21	24	12,1
Average	13 – 17	131	66,2
Poor Talented	9 – 12	34	17,2
Very Poor Talented	5 – 8	7	3,5
Total	198	100,0	

From the results mentioned above, then analyzed with regression analysis to know the contribution of each independent variable (biomotoric) to the dependent variable of artistic gymnastics artistic of early child age. The results of multiple regression analysis, are summarized in the following table.

TABEL 3: RESULTS OF MULTIPLE REGRESSION ANALYSIS (MULTIPLE REGRESSION) ARTISTIC GYMNASTICS FACTORS EARLY CHILDHOOD GYMNASTICS

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.919[a]	.844	.840	.273

a. Predictors: (Constant), Balance, Flexibility, Agility, Strenght, Powerb. Dependent Variable: Scouting Talent

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	77.645	5	15.529	207.993	.000[a]
	Residual	14.335	192	.075		
	Total	91.980	197			

a. Predictors: (Constant), Balance, Flexibility, Agility, Strenght, Powerb. Dependent Variable: Scouting Talent

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	-.260	.125		-2.083	.039			
	Flexibility	.258	.034	.218	7.566	.000	.326	.479	.216
	Strength	.193	.026	.221	7.346	.000	.481	.468	.209
	Power	.249	.020	.415	12.462	.000	.703	.669	.355
	Agility	.185	.020	.298	9.189	.000	.599	.553	.262
	Balance	.205	.017	.356	11.962	.000	.551	.653	.341

a. Dependent Variable: Talent Scouting

The result of multiple regression analysis, in the above, obtained by double correlation coefficient (R) equal to 0,919; coefficient of determination (R^2) 0.844; and Fregresi 207,993 with significance (sig.) or p-value 0,000. It is evident that the significance is less than the specified significance level, ie 5% ($p < 0.05$); then Freigo is significant, which means that the multiple correlation coefficients are significant. Judging from the beta coefficient (â) are all positive, it can be concluded that there is a positive and significant contribution of biomotor test results on giftedness in early childhood of men.

This contribution is 0.844 or 84.4% and furthermore, to know the contribution of each biomotor factor to giftedness in early child age, data analyzed with SPS 2005 software aid, relative contribution (SR%) and donation effective (SE%) of each of the predictors summarized in the following table.

TABEL 4: SUMMARY OF PREDICTOR CONTRIBUTION WEIGHT (BIOMOTOR) AGAINST MEN'S EARLY CHILDHOOD GIFT

No.	Predictors (Independent Variable)	Relative Contributions (SR) %	Effective Contributions (SE) %
1.	Flexibility	8,415	7,103
2.	Strength	12,592	10,630
3.	Power	34,558	29,172
4.	Agility	21,175	17,875
5.	Balance	23,260	19,635
	Total	100,000	84,415

From the table as presented in the table above, it can be explained that giftedness in early child of male sex is determined by power factor (29,172%); followed by balance (19.635%); agility (17.875%), strength (10.630%) and flexibility (7.103%). Thus the greatest biomotoric factor contributing to giftedness in early childhood is the power and balance.

CONCLUSSION

Based on the results of data analysis research, hypothesis testing and discussion, can be drawn some conclusions as follows: The results of this study indicate that the stratification of biomotor in scouting talent artistic gymnastics early son 1.0% very talented, 12.1% gifted, 66.2% talented enough, 17.2% not talented, and 3.5% very not talented. Biomotor biomotor talent in scouting artistic gymnastics talent of early age is determined by power factor (29.172%); followed by balance (19.635%); agility (17.875%), strength (10.630%) and flexibility (7.103%).

References

Baechle, T.R. Earle, R.W. (2014). Weight training steps to succeed. United States: Human Kinetics.

Bompa, T.o & Haff, G.G (2009). Theory of periodization and training methodology. Fifth Edition. Canada: Human Kinetic.

Bompa, T.O. and Buzzichelli, C. (2015). Periodic training for sports. United States: Human Kinetics.

Clowes, Hannah., Knowles, Zoe. (2013). Exploring the effectiveness of pre-performance routines in Elite Gymnasts: Mixed Investigation Method. Journal of Gymnastics. Vol 5 pp 27-40.

Corbin, C.B, Welk, G.J., & Corbin, W.R. (2009) The concept of fitness and wellnes. Toronto: McGraw Hill. Company.

Irfan, M. (2012). Physiotherapy for the Stroke Person. Yogyakarta: Graha Ilmu.

Jenni, Monem., Sands, William A., Friemel, Francoise., Stone, H. Michael., Cooke, B. Carlton. (2006). Any effect of gymnastics training on upper body and lower body aerobics and power components in national and international male gymnasts? .Journal of Strength and Conditioning Research. Vol 4 pp 899-907.

Kahle, Nicole and Tevald A., Michel. (2014). Strengthening of core muscles improves balance performance in adults living in community: Pilot Study. Journal of Aging and Physical Activity 22 (1) pp 65-73.

Karter, K. (2007). Stable Stability Stability Exercises for Core Strength and Carved Body. Canada: Webcom.

Knudson, D. (2007). Fundamental of Biomechanics 2nd Ed. USA: Springer.

Mutohir, T.C., Muhyi, M. Fernanlampir, A. (2011). Character with exercise. Exercising with character. Surabaya: PT. Java Library Group.

Dallas, Goerge., Kirialanis, Paschalis. (2013). The effect of two different conditions of the whole body vibration on flexibility and performance jumps on the artistic gymnast. Journal of Gymnastics. Vol 5 pp 67-77.

Dwyer, G.B. and davis, S.E. (2008). A Guide to the assessment of physical fitness related to ACSM health. American College of Sport Medicine: USA.

Ricotti. L. (2011). Static and Dynamic Balance on Young Athletes. J. Hum. Sports Exercise. Vol. 7 (2) March / April 2008. pp 1-20.

Scott Sue. (2008). Reliable body balance training. United States of America. Human Kinetics.

Sheppard J.M and Young W.B. (2007). Agility literature review: Classification, Training and Testing. Journal of Sport Science, September 2006; 24 (9): 919-932.

Sleeper, Mark D., Kenyon, Lisa K., Casey, Ellen. (2012). Measuring Fitness in Female Tournaments: Gymnastics Functional Measurement. Journal of Physical Therapy of International Sport. Vol 7 Number 2 pp 124-138.

Sugiyono. (2004). Method of administrative research [Administration of research methods] (issue 11). Bandung: Alfabeta.

Suharsimi. (2006). Research procedure: A practice approach [Research procedure: Practical approach] (8th ed.). Jakarta: Rineka Cipta

Sukadiyanto and Dangsina, Muluk 2011. Introduction to theories and physical reasons. Bandung: CV Lubuk Agung.

Werner W. K. H. and Sharon A. H. (2010). Principles and laboratories for physical fitness. Wadsworth: United States.

4. STRATIFICATION OF BIOMOTORS IN A GYMNASTIC (no 4)

4. STRATIFICATION OF BIOMOTORS IN A GYMNASTIC (no 4)

FINAL GRADE

/100

GENERAL COMMENTS

Instructor