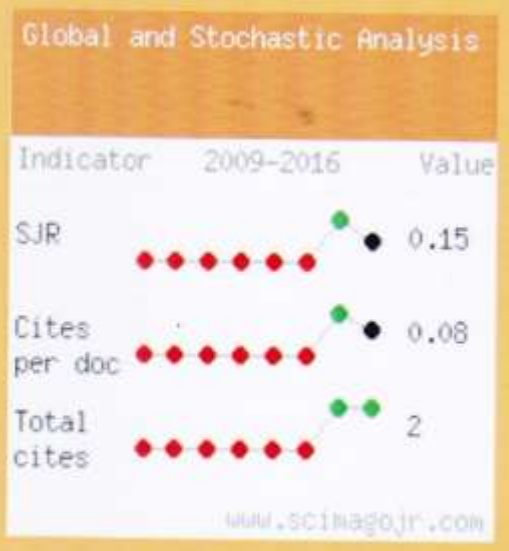
ISSN : 2248-9444

This title is indexed in Scopus

Editor-in-Chief
Yuri E. Gliklikh

GLOBAL AND STOCHASTIC ANALYSIS (GSA)

Volume 5 Number 8 Year 2018



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Global and Stochastic Analysis
Vol. 5 • No. 8 • 2018

MUK PUBLICATIONS

APPLICATION OF BASIC STATISTICAL ANALYSIS FOR GYMNASTICS TALENT SCOUTING

ENDANG RINI SUKAMTI, SISWANTOYO AND OKKY INDERA P

Abstract: The purpose of the research is to define evaluate the biomotor component of the students even though the test could potentially harm the students either physically.

Material and Methods :This study is a descriptive research, with research sample childhood students participated (n=194). Data collecting with test and measurement, and data analysis by descriptive quantitative.

Results : It is presented the Based on the observation guidelines, the results of the research shows that the biomotor component female profile is as follows: (1) very talented, (7,7 %), (2) talented, (19.1 %), (3) average talented, (42,8 %), (4) not talented, (14.9 %), and (5) very poor talented, none (15.5 %). The results of the second, biomotor component talented in scouting talent are as follows: (1) power, (24.589 %), (2) agility (22.075 %), (3) balance, (17.942 %), (4) strength, (10.885 %), and (5) flexibility (7.795 %). 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

Conclusions: the most dominant factor in artistic gymnastics Talent Scouting is good with children, namely daughter-sex power with other components of the biomotor follow. This defined the need for synergy from the Regent Office, teachers, coaches, and teachers to improve ability of biomotor which has an important role in the sport of gymnastics for a long term training program within the scope of the achievement

Introduction

Article 21 of the Act of the Republic of Indonesia number 3 the year 2005 about national sports System mentions that coaching and sports development is carried out through the introduction of sports, scouting, monitoring, as well as the development of talent and increased achievement. In addition to Act 3 the year 2005 Number Republic of Indonesia mentions that the Government and the local government is obliged to do coaching and sports development in accordance with the authority and responsibility. This means the construction of sports especially sports achievements be shared responsibility in order toward achievement.

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

Key Words: Biomotor Component profiles; student school; gymnastic

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 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 athletes 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

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 thebiomotor component profile.

The subjects of this research were 194 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. Trainers have to focus attention on those qualities, abilities and components of training which are directly connected with efficiency of game activity. As experts note (Zhelezniak, Portnov, &Savin, 2001; Raiola, 2012; Korobeynikov, Korobeynikova, Iermakov, &Nosko, 2016). Specialists of this problem (Baginska, 2017; Kolumbet, 2017) note close interrelation between coordination abilities and technical and tactical skills and point that they are in one factor of athlete's achievements – "technique coordination". However, as some authors note

Other authors (Khudolii, Ivashchenko, Iermakov, & Rumba, 2016) recommend to use widely in training process of young athletes a method of the connected influence to simultaneous improvement of coordination abilities and technical and tactical skills. In practice the young athlete has the high level of development and master technique of motor action in standard conditions. But can't optimum apply them in variable situations. The positive interference (transfer) of one more integrated factor (abilities) can consider this phenomenon as result on another – less integrated (technique of a game) (Liakh, 2006; Zimmerman, 1988)

Other authors (Sadovskij, 2003; Liakh&Vitkovskij, 2010; Pion et al., 2015) prove that purposeful development and improvement of coordination abilities of young athletes will allow:

- to acquire much quicker and more rational the various physical actions;
- to acquire new programs at the more qualified level and to reconstruct old training programs;
- to move ahead to the heights of sports skill quicker and to remain longer in professional sports;
- to improve successfully the sports technique and tactics;
- to cope easier with tasks which demand high level of psychophysiological functions' development in the sensomotor and intellectual spheres;
- to acquire the skill to spend own energy resources rationally and economically;
- to adapt quicker to the new rivals, partners and conditions of competitive activity

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

2. Calculate the z-score value of the data
3. Calculate the value of t-score based on z-score value
4. Calculating the average t-score of the test results of the formation and strength; because the two tests consist of several tests.
5. Five t-scores were obtained from the five tests
6. Determine the score categories based on the t-score score, into 5 categories.
7. Summing up the t-score and categorizing the score into 5 categories: very talented, talented, gifted, gifted, and very talented
8. Regression analysis
9. Seeking relative donations and the effective contribution of each predictor

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 Statistica analysisTest Biomotor Scout Gymnastics Female Artistic Talent

Biomotor	*Category Scores*	*Frequency*	
		f	%
Flexibility	Very Good	0	0,0
	Good	26	13,4
	Average	134	69,1
	Poor	27	13,9
	Very Poor	7	3,6
Strenght	Very Good	3	1,5
	Good	28	14,4
	Average	119	61,3
	Poor	35	18,0
	Very Poor	9	4,6
Power	Very Good	15	7,7
	Good	37	19,1
	Average	83	42,8
	Poor	29	14,9
	Very Poor	30	15,5
Agility	Very Good	6	3,1
	Good	53	27,3
	Average	77	39,7
	Poor	23	11,9
	Very Poor	35	18,0
Balance	Very Good	14	7,2
	Good	25	12,9
	Average	84	43,3
	Poor	47	24,2
	Very Poor	24	12,4

Tabel 2
End Result Artistic Gymnastics Artist Early Age Children

CATEGORY	*Category Scores*	*Frequency*	
		f	%
Very Talented	22 – 25	15	7,7
Talented	18 – 21	37	19,1
Average	13 – 17	83	42,8
Poor Talented	9 – 12	29	14,9
Very Poor Talented	5 – 8	30	15,5
Total	194	100	

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.

Table 4
Incorelation Matric

r	*x1*	*x2*	*x3*	*x4*	*x5*	*y*
x1	1.000	0.134	0.318	0.268	0.174	0.465
p	0.000	0.029	0.000	0.000	0.007	0.000
x2	0.134	1.000	0.214	0.232	0.287	0.497
p	0.029	0.000	0.002	0.001	0.000	0.000
x3	0.318	0.214	1.000	0.437	0.102	0.657
p	0.000	0.002	0.000	0.000	0.077	0.000
x4	0.268	0.232	0.437	1.000	0.168	0.654
p	0.000	0.001	0.000	0.000	0.009	0.000
x5	0.174	0.287	0.102	0.168	1.000	0.527
p	0.007	0.000	0.077	0.009	0.000	0.000
y	0.465	0.497	0.657	0.654	0.527	1.000
p	0.000	0.000	0.000	0.000	0.000	0.000

p = One-Tail.

Table 5
Beta Coeficient and Parsial Correlation

X	*Beta (b)*	*Stand. Beta (ß)*	*SB(b)*	*r-parsial*	*t*	*p*
0	-0.282617	0.000000				
1	0.187455	0.167459	0.035930	0.356	5.217	0.000
2	0.209570	0.218886	0.030620	0.447	6.844	0.000
3	0.240042	0.374491	0.021996	0.623	10.913	0.000
4	0.219695	0.337394	0.022165	0.586	9.912	0.000
5	0.232256	0.340402	0.021527	0.618	10.789	0.000

Galat Baku Est. = 0.298

Corelation R = 0.913

The results of multiple linear regression analysis (multiple regression), mentioned above, the correlation coefficient obtained dual (R) of 0.913; the coefficient of determination (R^2) 0.833; and Fregresi 187.369 with significance (sig) or p-value 0.000. It is evident that the significance is less than the specified significance level, i.e. 5% ($p < 0.05$); then the Fregresi signfiikan, which means the correlation coefficient the significant double. Seen from asking the coefficients (β) are all positive, thus it can be concluded that there is a positive and significant contribution test results against biomotorik on the early childhood-sex daughter.

The magnitude of the contribution of 0.833 or 83.3% and further to know the contribution of each of the factors biomotorik in early childhood the son-sex, the data were analyzed with the help of the SPS software 2005, may expressed also the relative contribution (%) and contributions effective SR (SE%) of each Predictor summarized in the following table.

Table 6
Summary of Predictor Contribution Weight (Biomotor)

No.	*Predictors (Independent Variable)*	*Relative Contributions (SR) %*	*Effective Contributions (SE) %*
1.	Flexibility	9,359	7,795
2.	Strength	13,069	10,885
3.	Power	29,524	24,589
4.	Agility	26,505	22,075
5.	Balance	21,543	17,942
	Total	100,000	83,287

From the table as presented in the table above, it can be explained that giftedness in early child of female sex is determined by power factor (24,589%); followed by agility (22.075%); balance (17.942%), strength (10.885%) and flexibility (7.795%).

Conclusions

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 7.7% very talented, 19.1% talented, 42.8% average talented, 14.9% not talented, and 15.5% very poor talented.Biomotor talent in scouting artistic gymnastics talent of early age is determined by power factor (24,589%); followed by agility (22.075%); balance (17.942%), strength (10.885%) and flexibility (7.795%).the most dominant factor in artistic gymnastics Talent Scouting is good with children, namely daughter-sex power with other components of the biomotor follow. This defined the need for synergy from the Regent Office, teachers, coaches, and teachers to improve ability of biomotor which has an important role in the sport of gymnastics for a long term training program within the scope of the achievement

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