Identifying of Talented Students at Elementary Schools Using Volleyball's Talent Identification

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Abstract. Volleyball is an interesting sport that can be played by many people in the world. Recently, volleyball matches have become an interesting spectacle that can be seen directly or through television program or youtube channels. Therefore, it is necessary to search for talented volleyball players. The purpose of this study was to implemented the talent identification model to identify young talented students in volleyball. Subjects of this study were 300 elementary students who active in the physical education with minimum height 150 cm, aged between 11 to 13 years olds. All subjects were measured for body mass, height, sitting height, standing reach, spam arm, and leg length. Subjects were also tested for vertical jump with 1 leg, vertical jump with 2 legs, shuttle run, multistage fitness test, flexibility, throw and catch tennis ball. Volleyball talent identification equation model's by Kusnanik 2014 was used to analyzed the data. Results of the study showed that there was 23 students who were identified as young students elementary school in volleyball (9 female students and 14 male students). It can be concluded that model of talent identification in volleyball can be used as an alternative method to identify young talented students in volleyball.

Keywords: Talent Identification · Volleyball · Talented Students · Elementary Schools

1 Background

Nowdays, the rapid progress of sport science and technology has an impact on various sports progression. Sophistication in the field of measurement and evaluation with the discovery of instruments that can be used to predict an athlete's achievement, encouraging sport coaches to work effectively in identifying and selecting talented athletes [1]. Especially in economic situations and conditions such as the current global crisis,

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it is required to use more efficient resources in fostering sports achievements in order to recruit outstanding athletes who have competitive advantages.

There is no doubt how big the role of sports science and technology in supporting the success of achieving peak athlete achievements starting from the massing and talent scouting stages, the training process and organizing sports championships. Identification and selection of talented athletes must be carried out scientifically (reliable, objective and valid) so that the results can be used to predict athlete achievement more effectively and efficiently [2]. Athletes who have been identified and selected using standard instruments are expected to have comparative advantages to be able to compete at the international level. Previous studies have conducted talent identification in some sports including sprinter and soccer [3, 4].

By doing physical activity, students who are really talented in sports will show their potential. With the right technique and training places, gifted sports students can be placed early to get appropriate sports coaching immediately [5]. So far, talent scouting in Indonesia has been done by practitioners such as sport coaches and physical educations teachers by taking athletes who win in a sports competition without special analysis and tests. In developed countries, talent scouting programs for talented athletes have been developed and implemented with the support of adequate resources from the government, the community, and experts through a cross disciplinary and scientific approach. The study and development of science and technology in scouting and developing talented athletes has been carried out with advanced technology.

Curently, the achievements of East Java volleyball athletes and the national volleyball team in Indonesia are experiencing ups and down. The achievements of the Indonesian volleyball team in several sporting events at the Asian level are still not very encouraging, especially at the world level sporting events. The lagging achivement of national athletes compared to other countries has prompted the need for structuring a national sports coaching system, including a talent identification and talent development system.

The regeneration of talented Indonesian volleyball athletes needs to be continuously pursued so that the achievements that have been achieved by senior athletes can be maintained and even further improved. One of the causes of lagging achievements in Indonesian volleyball players is due to lack of attention to the search for talented athletes as an effort to regenerate athletes in the future.

Talent identification that is carried out for volleyball have been done in some countries, the subjects who are used for talent scouting are elite volleyball athletes. The characteristics of these elite athletes are used as a reference to identify the talented of volleyball athletes [6]. The parameters of talent identification in volleyball players including body height, the length of upper extremities (anthropometrics), power and agility (biomechanics), motivation and self confidence (psychological), special of endurance (physiological: anaerobic and aerobic) smash and service (techniques) were found as the main and the weighted of criteria in talent identification of volleyball [7]. Talent identification programs in Indonesia have not been implemented systematically and continuously. Talent identification model especially to identify volleyball players has been found by measuring anthropometrics, testing phyiological and biomotorical. This model also equipped with software that can be applied easily and quickly in identifying talented athletes, so the talent identification model is more effective and efficient

[8]. Therefore, the purpose of this study is to apply the talent identification model to identify students of Elementary School in volleyball.

2 Methods

This study was a quantitative with description analysis approach. This research was conducted at 20 elementary schools in Gresik East Java Indonesia. The subjects were 150 female students and 150 male students with a total of 300 students. Criteria of the subjects must have be active in physical education, have a minimum body height of 150 cm, and aged between 11 until 13 years old.

Instruments of this study using test and measurement of volleyball's TID such as height (H), sitting height (SH), body mass (BM), spam arm (SA), leg length (LL), standing reach (StR), vertical jump 1 leg (VJ1L), vertical jump 2 legs (VJ2L), shuttle run (SR), multistage fitness test (MFT), flexibility (F), throw and catch tennis ball (TCTB). Data was analyzed by using equation model discriminant factor of volleyball talent identification:

$$\begin{aligned} D = & -48.522 + (0.139\,H) + (0.223\,SH) - (0.075\,BM) \\ & + (0.058\,SA) - (0.020\,StR) + (0.084\,LL) \\ & - (0.065\,TCTB) + (0.093\,F) - (0.072\,SR) - (0.181MFT) \\ & + (0.029\,VJ2L) + (0.056\,VJ1L) \end{aligned}$$

3 Results and Discussions

Results of the research showed that about 7.67% of elementary students identified as talented students in volleyball. It was found that 9 female students and 14 male students with the total of 23 students from 300 students can be categorized as young students who have talented in volleyball. On the other hand, there were 277 students who identified as students with talented in non volleyball (141 female students and 136 male students). The results of this study were presented in Fig. 1.

As can be seen from Fig. 1, it can be said that female students were less identified as talented volleyball compare to male students. However, female students were higher than male students in identifying as non volleyball talented students.

Body height is very important for volleyball players, it can be used as one of key determinant for success in volleyball. Athletes who have high body height can play the volleyball's techniques such as block, smash and jump serve properly. Volleyball athletes with higher body height will be able to do high vertical jump [8]. Body height and jumping ability were found to be a crucial talent identification as well as the process of selecton in young volleyball players [9]. Volleyball athletes with high standing reach will have opportunity to reach and get the ball above the volleyball net. Standing reach in volleyball athletes significantly different between the level of the matches [10]. Small increasing body mass and body size in some of sport can have impact in sport performance significantly. Assuming in constant of body composition, increased of body mass can increase in both of energy demand and energy supply in various of sport activities

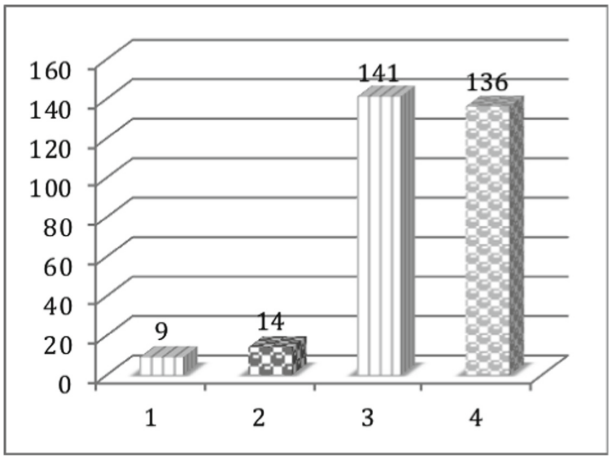

Fig. 1. Identification of elementary schools' students in volleyball and non volleyball.

[11]. In volleyball games, it will be difficult to win the competition if the players do not play the services' technique efficiently [12]. The efficiency of jumping service has correlated with the speed of service [13]. Therefore, in volleyball games, athletes must have legs length to support the palyers to play the volleyball match well including jump service, smash and block.

As an intermittent kind of sport, volleyball games need to have higher anaerobic energy system. It can be analyzed that volleyball athletes often playing some quick vertical jump movements. In addition, volleyball athletes during the match must be fast and quick to catch the ball in many positions. Volleyball is one of agility sport that it depens on athletes' ability in jumping parcially [14]. The volleyball athletes who have longer lower limbs have better in vertical jumps and higher in anaerobic power [6]. The shuttle run test had the best of ratio in positive likelihood which indicates that the utility of testing in identification type of volleyball players [15].

Volleyball talent identification model is easy to be implemented in some schools, therefore, physical education teachers, parent of students, and volleyball coaches can apply this model to identify some students with aged between 11 to 13 years olds who have potential talented in volleyball.

4 Conclusions

Model of talent identification in volleyball can be used as one of an alternative methods to identify young talented students in volleyball. All students who are identified as talented students in volleyball will be develop their talent in junior volleyball clubs.

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