Research on Youth Basketball Training Under the Environment of National Fitness

Jinghong Wang[1, a] , **Changcheng Xin**[2,b] **and Wenwu Hu**[3, c *]

[1]Yunnan sports vocational and technical college,3 haigeng tianyuan road, kunming city, yunnan province, China

[2]JoseRizalUniversity, 80 ShawBlvd,MandaluyongCity,MetroManila, 1552,Philippines

[3] Kunming University, 2 puxin road, kunming economic and technological development zone,guandu district, Kunming, Yunnan China

[a]310173289@qq.com, [b]xincc888888@gmail.com, [c]wenwuhu85@gmail.com,

Key words: National Fitness,Youth Basketball Training,Problem Countermeasures,DA - PB Algorithm

Abstract. With the vigorous development of sports for all and the continuous improvement of people's health awareness, people pay more and more attention to fitness, so nationwide fitness trend is set off. Especially teenagers as the key object of comprehensive fitness is also concerned. The youth's physical activity training is the most important part of the overall fitness, which always affects the overall effect of the national fitness. As a basic item in sports, basketball has always been loved by people, and now it is more concerned in the comprehensive fitness environment. However, the effect of youth basketball training in China is low, which has a negative effect on the continuous development of national fitness. Therefore, it is particularly important to study the problems existing in youth basketball training under the environment of national fitness. Based on the da-pb algorithm, this paper takes the lead in analyzing the problems in youth basketball training under the national fitness environment, and then proposes a series of solutions to these problems, which plays a positive role in promoting the efficiency of youth basketball training.

1.Introduction

Strong sports make China strong. There is a close link between the prosperity of a country and the quality of its people. With China's emphasis on sports, people's attention to health is gradually deepening, more and more people through fitness to enhance the body. The demand of the masses for fitness is growing day by day, which has set off a nationwide fitness trend throughout the country [1]. "National fitness program " puts forward that teenagers should be the focus of national fitness. Therefore, it is necessary to popularize youth sports activities, improve their physical fitness and help them form a good habit of fitness. Therefore, various sports activities of teenagers under the background of national fitness have attracted much attention [2-3]. Basketball, as one of the most basic sports items, has always been concerned by people, and basketball is also loved by the masses in our country. On this basis, youth basketball training naturally becomes the focus of people's attention [4-5]. At present, there are many problems in China's youth basketball training, which hinder the implementation of national fitness. Therefore, it is urgent to study the youth basketball training under the national fitness environment.

At present, domestic and foreign scholars have also conducted a large number of studies on youth basketball training, such as the exploration of effective methods of youth sports basketball training, the research on the innovative model of youth basketball training, and the relevant research on the scientific concept of youth basketball training [6]. To some extent, these studies provide positive and beneficial guidance for the basketball training of teenagers. However, it should not be ignored that the promotion background of these studies is not put in the environment of comprehensive fitness, which is more or less incompatible with the current sports environment and

may have some exclusion [7]. Therefore, under the special environment of national fitness, there are few researches on youth basketball training.

Blank in order to make up for this study, based on the DA - PB algorithm on the basis of the national fitness problem of youth basketball training conducted a series of in-depth study, it is concluded that the present youth basketball training some of the key problems, such as the low level of the coaches, youth basketball training purpose is not clear, backward training methods and so on questions, and puts forward many countermeasures to solve these problems, mainly has more practical training, and training concept transformation, basketball training and new technology with the combination of several programs [8-9]. It plays a great role in promoting the improvement of China's youth basketball training level, promoting the continuous implementation of national fitness, contributing to the sustainable development of China's sports cause, and has a strong guiding significance for China's future research on relevant aspects [10].

2.Method

2.1DA-PB Algorithm.

BP neural network is a multi-layer feedforward neural network composed of input layer, hidden layer and output layer. If the input dimension and output dimension of BP network are m and 1 respectively, and the hidden layer is p, then the mapping mathematical expression of BP neural network is as follows:

$$x_{i+1} = f(X_i) = \frac{1}{1 + \exp(-\sum_{j=1}^{p} c_j b_j + \varepsilon)} \quad j = 1,2,...,p \quad （1）$$

Where, f is the excitation function of hidden layer; Epsilon is the threshold of the output layer; Cj and bj are respectively the connection weight of the hidden layer to the output layer and the output of the hidden layer node. On this basis, the BP neural network model is initialized and the network structure is determined. According to the data samples, the number of layers, the types of transfer function and training function and the number of nodes in each layer of BP neural network were determined. The evaluation data of youth basketball training were read and preprocessed, and the data were divided into training set and test set. DA algorithm adopts real number encoding and encodes the connection weight cj and the threshold constant as a whole. The search space dimension of the algorithm is m. If the number of nodes in the input layer, the hidden layer and the output layer is R, S1 and S2, then the encoding length S can be expressed as:

$$S = RS + S_1 S_2 + S_1 + S_2 \quad （2）$$

After the relevant coding length is obtained, DA algorithm parameters are initialized: population size N, maximum iteration number T. Let the current number of iterations t=1, input the training set into BP, and calculate the fitness of basketball training of all survey samples according to the function formula. According to the fitness obtained, this paper summarizes the problems existing in Chinese youth basketball training under the national fitness environment.

2.2 DA-PBAlgorithm for Youth Basketball Training.

(1) The level of coaches is relatively low.In the youth basketball training, the coach plays a key role, the actual commander of the coach training, shoulder to help all players to adjust to the best training state, for the whole team to develop practical tactics and so on. But at present, our country's youth basketball coach team has some problems. First of all, the level of youth basketball coaches is uneven, many coaches are not basketball professional background, lack of systematic basketball training knowledge, training experience is relatively small. Therefore, the level of coaches is generally lower. In addition, due to the low salary and not enough emphasis on basketball training school, some youth basketball coaches treat youth basketball training also lack high positive attitude, so no further this can make a lot of training the guidance of the basketball training level, the player's skills have not been effective promotion.

(2) The purpose of basketball training is not clear.Present many out of the ultimate goal of youth basketball training, some teachers think that training evaluation, to can pass in the late open completely ignore the training is the purpose of increasing adolescents constitution, such training can let teenagers coping strategy in the basketball training, may even make teenagers lose enthusiasm for training. In terms of the training content, the actual situation of each teenager was not fully considered. There were loopholes in the design of the training content, and the teenagers with relatively poor foundation could not keep up with the design of the training content, and finally the training was even more negative.

3.Experiment

Step1: data collection and preprocessing. Questionnaire survey and web data search were used to collect and record the data. High-quality data determines high-quality mining results. Before data analysis, sample data should be preprocessed first. The quality of the data is determined from the three dimensions of accuracy, consistency and credibility. Record valid data in questionnaire survey and web search, eliminate invalid data and classify valid data.

Step2: data encoding. The link weights were encoded and substituted into the relevant formulas to obtain the relevant youth training group Numbers. The group codes are classified and recorded, and the group Numbers are calculated by the formula.

Step3:DA algorithm parameter initialization: population size N, maximum number of iterations T. Let the current number of iterations t=1, input the training set into BP, calculate the fitness of basketball training of all survey samples according to the function formula, sort them, and record the current optimal solution. After recording the data, we classified and sorted out the current problems of youth basketball training.

4. Discuss

4.1 Analysis of Experimental Results.

According to the experimental results of DA - PB algorithm, we can conclude the current youth basketball training national fitness environment still exist many problems, such as the low level of the coaches, youth basketball training purpose is not clear, backward training methods and so on, these are one of the important reasons for the inefficient youth basketball training, for China's national fitness has also had a negative impact. Above, only two major questions were selected for analysis. The specific problem data are shown in table 1. The data in the table are obtained after the survey questionnaire and da-pb algorithm.

Table 1. Data table of youth basketball training problems

	Training Concepts	Training Methods	Training Techniques	Coach
Teacher	37.89%	42.57%	37.96%	38.24%
Student	46.52%	51.26%	41.39%	56.73%
Parent	44.32%	33.99%	52.14%	53.97%
School	56.98%	43.26%	53.77%	51.40%
Government	65.31%	57.62%	59.60%	52.14%
*Data came from sorting of algorithm results				

4.2 Strategies for Youth Basketball Training.

(1) Change the concept of basketball training.Changing the concept of basketball training plays a key role in raising the level of youth basketball training. The main body of the society should change the concept of learning, attach importance to basketball training, let the youth fully experience the fun of basketball training, reasonable distribution of learning and training, achieve a win-win result. In basketball training, we should pay special attention to team spirit and promote the

mutual cooperation between the teams. We should not neglect the cooperation with other team members in order to show our personal style and affect the overall performance of the team. Basketball spirit in addition to the emphasis on teamwork, but also need to check out the unremitting, basketball training should pay attention to make adolescents learn to encourage themselves in the face of difficulties and setbacks, through constantly overcome difficulties, beyond themselves, realize the success is not easy, so that the youth will gradually hone.

(2) Combine basketball training with new technology

The training of basketball is boring, and the training repeated for a long time will reduce students' interest in learning. Therefore, new forms should be constantly changed during basketball training, and effective use of multimedia equipment, such as basketball training by watching video. Basketball is a basic sport in the field of sports, and basketball video has abundant resources. Combining vivid video with basketball training can not only deepen their understanding of basketball, but also cultivate their interest in basketball training and promote the improvement of basketball training effect.

(3) Strengthen practical training

The traditional training and the actual combat are completely separated. After repeated training for a long time, the competition will not form the team consciousness. In the actual combat, the players will lack tacit understanding and good coordination, which will lead to the lack of confidence and low training efficiency. Training in the usual practice of contact, adolescents can make full use of every training opportunity, maintain high training enthusiasm, and practical training can help them quickly find their own training gap, miss to make up, so that the training effect is greatly improved.

On this basis, the author also investigated the prospect of youth basketball training under the background of national fitness through questionnaire survey. The specific results are shown in figure 1. The data in the figure is the result of investigation and collation by the author.
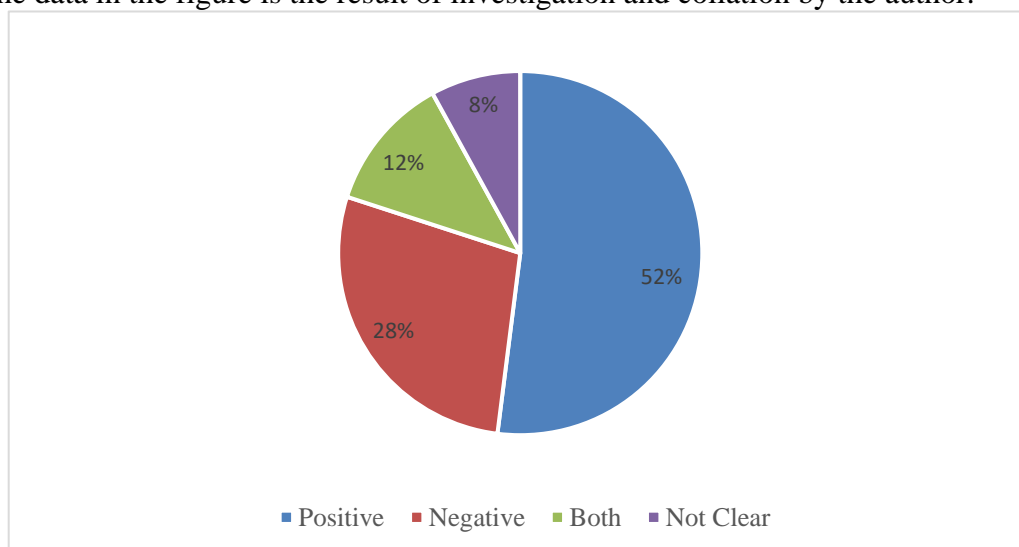

Figure 1. People's survey on the prospect of youth basketball training in the future

5.Conclusion

The method of basketball training is related to the effect of training. Therefore, scientific training concept must be set up in the youth basketball training. Guided by the physical characteristics of adolescents, training is conducted according to their preferences and personal growth needs. This can not only improve their basketball skills, but also promote the development of various physical functions. As people a more profound research on youth basketball training of juvenile basketball training also presents many improved methods, teachers should according to the characteristics of the differences of that teenagers take appropriate methods, improve the effect of youth basketball

training, so as to improve our country's youth basketball movement level, promote the national fitness continues.

References

[1] Conte D, Favero T, Niederhausen M, Effect of Number of Players and Maturity on Ball-Drills Training Load in Youth Basketball[J]. Sports, 2017, 5(1):1-11.

[2] Moraes H, Aoki M S, Freitas C G, SIgA response and incidence of upper respiratory tract infections during intensified training in youth basketball players[J]. Biology of Sport, 2017, 1(1):49-55.

[3] Lupo C, Tessitore A, Gasperi L, Session-RPE for quantifying the load of different youth basketball training sessions[J]. Biology of Sport, 2017, 34(1):11-17.

[4] Owoeye O, Palaciosderflingher L M, Emery C A. Prevention of Ankle Sprain Injuries in Youth Soccer and Basketball: Effectiveness of a Neuromuscular Training Program and Examining Risk Factors.[J]. Clinical Journal of Sport Medicine, 2018, 28(2):1.

[5] Difiori J P, Güllich A, Brenner J S, The NBA and Youth Basketball: Recommendations for Promoting a Healthy and Positive Experience[J]. Sports Medicine, 2018, 48(1):1-13.

[6] Clemente F M. Small-Sided and Conditioned Games in Basketball Training: A Review[J]. Strength & Conditioning Journal, 2016, 38(3):49-58.

[7] Reed K E, Parry D A, Sandercock G R H. Maturational and social factors contributing to relative age effects in school sports: Data from the London Youth Games[J]. Scand J Med Sci Sports, 2017, 27(12):2070-2079.

[8] Doma K, Leicht A, Sinclair W, The impact of exercise-induced muscle damage on performance test outcomes in elite female basketball players.[J]. Journal of Strength & Conditioning Research, 2017, 32(6):1.

[9] Rohmat H D N, Rismayadi A, Mustaqim R, Physical and Technical Profiles of Garuda Basketball Club's 17 to 18 Years Old Male Group[J]. 2017,12(4):121-126.

[10] Mingjun G U, University W S. Research on Problems Exist in Youth Basketball Training[J]. Guide of Science & Education, 2015,25(32):236-248.