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Effective application of computer evaluation system in various sport's strength training

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ABSTRACT

The computer evaluation system plays a positive role in the strength training of athletes and benefits for the development of strength. In this paper it makes lots of studies about the path that constructed the computer aided training modes to effectively extend the input of data, which provides auxiliary help for the strength training. Meanwhile, applying the structure of computer aided training system to analyze the basic elements of strength training and find out the key factors that needed in the process of training. Then sorting out the shortcomings of training modes to comprehensively analyze the data. Through positive evaluation, the computer evaluation system can play a fundamental role in daily training of athletes and provides technological support for the training management. In this paper the clear objective exerts a positive effect on the training indicator and the long term plan of athletes and coaches. And the effective application of this system can be promoted to improve the training quality finally.

KEYWORDS

Computer; The evaluation system; Strength training; Aided role.



INTRODUCTION

From the perspective of evaluation, scientific strength training can promote the training quality, which can be evaluated by the construction process of computer evaluation system. However, the aided training system comes the first in the evaluation system that it can represents the scientific and advanced nature of this evaluation system. In this paper, it chooses this approach to make a further study.

THEORETICAL STUDY

The Process of Computer Aided Training Mode

The application of computer can affects the daily training of athletes. The training process can be changed by the management. In the traditional training process the computer can be regarded as an aided training method, which can propel the daily training and its quality, the concrete flow figure can be seen in Figure 1.

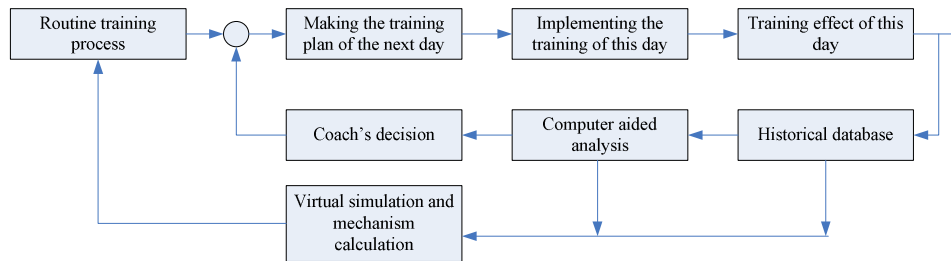


Figure 1 : The process of computer aided training mode

The computer aided training system can be constituted by the inner circle and outer circle from the Figure above. The inner circle provides the negative feedback circuit while the outer circle is an indirect fragmented feedback circuit. But these two circles cooperates effectively that they make the whole computer aided training system have the traditional and scientific characteristics. However, they are different in nature, that is, there are historical database and computer aided analysis in inner circle, which are shown in the two modules. The so-called historical database records the daily training data to analyze while the computer aided analysis module is used to analyze the concrete indicator, training strength and burden based on this database. During this process the indicator is needed to be chosen, which is the main foundation for analyzing athlete's physical condition by the coach.

But the outer circle is a new part, which can effectively give back information. The routine training process is a vague concept, mainly including the training plan, training method, the training process referred to relative technical activities that based on the athlete's physical condition. In the process of virtual simulation and mechanism calculation, they should be constructed effectively to acquire the data. The virtual simulation module is applied to change the training process to promote athlete's quality and ability in a qualitative way and break through the local minimum value. However, the process is not successive but intermittent.

The Structure of Computer Aided Training System

In the process of construction of this structure, firstly the main part should be listed, including data storage, data analysis, data display and data simulation as described in Figure 2.

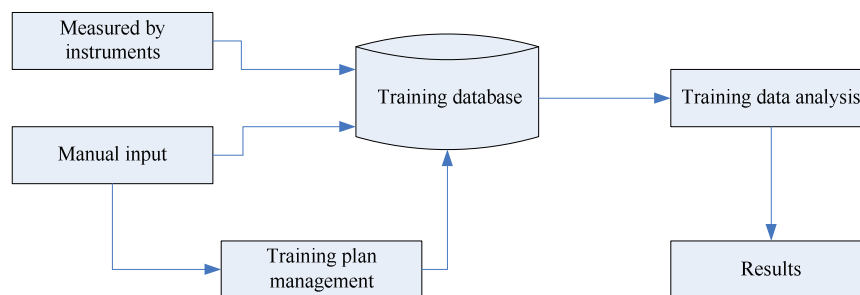


Figure 2 : The figure of functional module

For the input data in this system, it contains several parts, of which the most important is the training result and then the second is athlete's biochemical indicators recorded by related recorder. These data can be input through the computer or by human and finally uploaded to the database by network.

In addition, according to the difference between structures the structure of this system can be classified into several parts, which can be applied to effectively describe this system. The first part, including data input and data display, can be regarded as the subsystem of database and the daily training plan management is used for scientifically managing the data and information of daily training while the next part, as the subsystem of computer aided system, is applied to analyze athlete's biochemical indicator so that the coach can supervise athlete's physical condition and his training. The third part illustrates the data policy, which is the important part that constructed the computer nuclear system to propel the coach to optimize the training elements. But the database, the key part of the whole computer aided system, subordinates the training management system and it aids the coach to effectively give back the information, which can keep pace with the record system in outer circle.

The advantages of computer aided training

In Figure 1, the inner circle can effectively establish the negative feedback circuit that it can make the traditional training keep a high immunity. To the new training mode, the effective analysis module of athlete's physical indicator can take the modern training methods and the biochemical elements into the daily training. Thus once the coach can not know well about athlete's physical condition and quality, they also can avoid the empirical error in the training.

In historical database there records the previous training performance, which results in the different results among different athletes even in the same condition and at the same time t. The analyzed process can show the difference effectively and the data analysis can meet individual's demand. It also means that according to athlete's historical data the coach can match the training mode with requirements to promote athlete's performance.

However, in the theory of the optimization of sport's training, many coaches usually apply the method of simulate anneal arithmetic to reflect the maximum optimized value. Directly speaking, the method can optimize the local training process to express the optimized value in the highest degree. But in daily training, the gradual optimized method will devote to the bottleneck in the competitive level of athletes, which propels coaches change the concrete training method and requirements to help athletes promote their performance. But the method that coaches applied exists immeasurable risk, that is, athletes will be injured once the technical action changed so that they will need more time to recover. However, if the computer is introduced to solve this problem, it will analyze athlete's training condition and data, which can be used to simulate a new training mode. Thus the training results can be obtained in actual condition and the injuries of athletes will be lowered to the lowest. The computer aided system can integrate the disperse study and can be fully used to improve athlete's performance.

THE DESIGN OF SYSTEM FUNCTION STRUCTURE

When referred to the measurement of athlete's training burden, it can be discussed from two aspects and the classification of data can be seen in the following Figure 3.

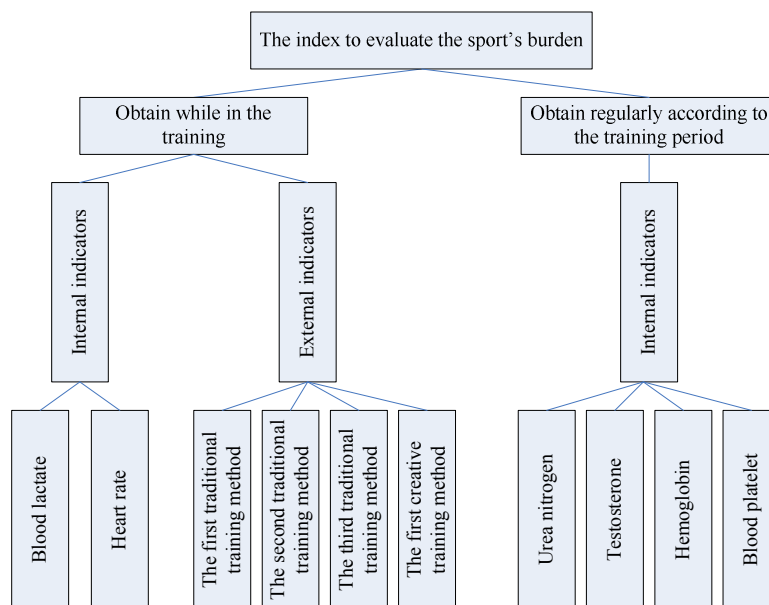


Figure 3 : The structure of sport's burden index

In the study some information, the external reflection of training burden indicator in athlete’s daily training and obtained in the training site, mainly includes the heart rate and the content of lactic acid, which can be applied to detect athlete’s sport’s strength. But for the training plan, the data is about the methods coaches applied in daily training and the input process should be flexible so that the diversity of training method can be input effectively. However, for the input function of data in the computer, apart from the training method, the training method made by coaches can provide some possibilities and reference. The content of lactic acid and heart rate can not only reflect the concrete strength in the training but also show the positive role the methods played and motivate the athletes in the training site.

INTRODUCTION ABOUT VB TECHNIQUES

The interface tools of operational database in VB are DC (Data Control), DAO (Data Access Object), RDC (Remote Data Control), RDO (Remote Data Access Object), ODBC (Open Database Connectivity), ODPC API (Access to the database through the function API in Windows database).

Of which, the DC is the easiest. The principle is to bind the data with the control and to use the Jet to display or update the database without writing any codes. However, it will be restricted in function, such as, it can not be controlled by program and the information can not be retrieved.

RDC can be realized without writing any codes to permit the client to operate the database.

DAO is more complicated than DC in programming because it needs lots of aggregations and objects and every object includes its attribute and method and many attributes can develop into objects. Owing to the access method it used is to program and it is so flexible that it is introduced to write the high-efficient application to operate database in actual developing process.

Jet

Jet engine provides the basic method for VB and the interface of database. It can create, modify and delete table, index and inquiry, verify the integrity of data, support SQL (Structured Query Language) and repair, compress and research the database.

Except the common data in Jet engine, it also includes binary type (image processing) and OLE type (object linking and embedding). Jet is a middle tier with all databases from DBase to ODBC (Oracle and SQL Server) accessed to data resource (Shown as Figure 4).

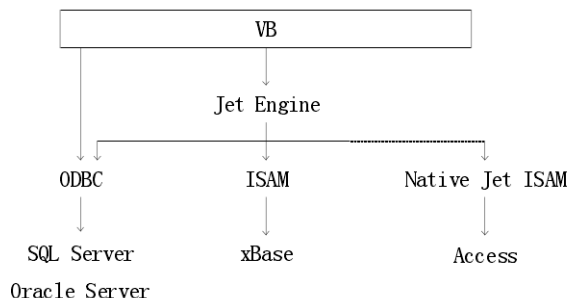


Figure 4 : The structure of database interface in VB

ISAM (Indexed Sequential Access Method) is used to handle database, table, index and data type and can be introduced to drive Jet.

ODBC will make no requirements about the database type of server in another side and either FoxPro or Oracle can drive this program.

DAO

Through DAO, the users can easily and conveniently access the actual information in database, that is, VB can access Jet through a serious of DAO and the structure of DAO can be seen in the following Figure.

DAO and DC all apply the Jet engine to operate data by use of easy VB command. RDO is recommended to access the ODBC data resources because it does not apply Jet, which will become slow when operating the non-MS Access database.

On database there are two objects, DBEngine and Workspace, namely Jet engine, including a aggregation Workspace with a database aggregation DataBase, which is composed by DataBase object. The DataBase object is developed in the time of creating and opening the database, of which the Connect attribute ensures the type or format of database, that

is, linking string, such as, Access database and Name attribute includes the complete database path or the name of file for Access database.

DESCRIPTION AND REALIZATION OF DIFFERENT FUNCTION MODULES

In the training of athletes and referring to the application of computer aided system, coaches should pay attention to the following aspects: firstly they should know well the physical condition of athletes and make effective evaluation comparison for the advantage and disadvantage of the physical condition. Then on basis of the correct results they can make training plans. During this process above, they should do related measurement and analysis. The main function and the construction path of sprint training management subsystem are as the following Figure 5.

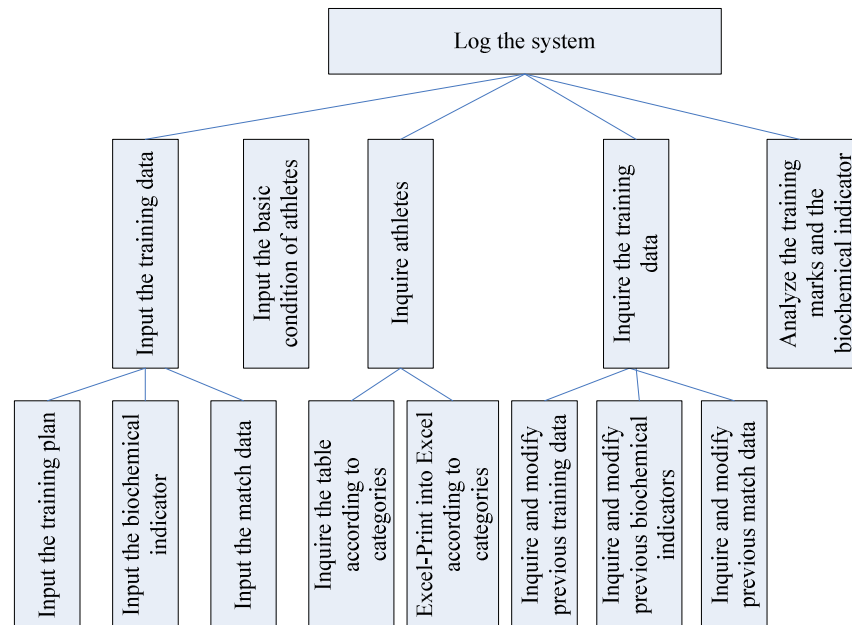


Figure 5 : The structure of system

CONCLUSION

All above is about the application of computer evaluation system on the strength training and it explores the computer aided function to fully exert the value of computer evaluation system. Under the guidance of these theories, the study is proceeded scientifically and reasonably.

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