ITJ | The International Tax Journal

Designing a Test Battery for Health-Related Physical Measurements as a Tool for Selecting Students for Sports Teams

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Abstract---The sports selection process is a systematic, scientific endeavour with an objective foundation that considers athletes' morphological, physiological, psychological and environmental aspects, with the aim of identifying individuals who are most compatible with the requirements of sports activities. Selection is based on physical and health measurements that predict an individual's physical abilities and direct them towards the sports specialisation that best matches their potential. This process comprises integrated stages, including preliminary, specific, and qualifying selections, supported by leading scientific models such as the Gimbel, Drake, and Barr-Or models, which provide precise execution guidelines for selection programmes. Individual differences among athletes result from the interaction of genetic and environmental factors that determine structural and functional traits, directly influencing physical and psychological performance during training and competition. This article uses the example of a football player to highlight the essential qualities required for optimal performance, integrating physical, technical, and psychological requirements. Elements of physical fitness, such as endurance, muscular strength, speed and agility, form the basis for developing motor skills and enhancing overall sports performance. Effective sports selection integrates modern scientific knowledge and field application to ensure the identification and development of promising talent in a balanced training environment. This contributes to building a strong sports foundation capable of competing and achieving long-term success.

How to Cite:
Benabid, A., & Tahar, Z. M. (2025). Designing a test battery for health-related physical measurements as a tool for selecting students for sports teams. *The International Tax Journal*, *52*(6), 3126–3138. Retrieved from https://internationaltaxjournal.online/index.php/itj/article/view/309

The International tax journal ISSN: 0097-7314 E-ISSN: 3066-2370 © 2025

Submitted: 06 February 2025| Revised: 19 August 2025| Accepted: 24 October 2025

Keywords---Sports selection, physical measurements, physical fitness, individual differences, sports performance.

Introduction

Today, the world is experiencing an unprecedented technological and cognitive revolution, the effects of which are evident in various fields, particularly sports. This era is characterised by a massive explosion of knowledge and significant scientific and technological advancements, which are having a direct impact on the research, educational and training processes in physical education and sports. These processes are now facing new challenges that necessitate a re-evaluation of their components and essential elements. In this context, developing research, education and sports training is imperative to keep pace with ongoing scientific and technological acceleration (Mohamed Al-Daem, 2011, p. 211).

Algeria is one of the countries that has shown a particular interest in sport, striving to achieve a leading position in a variety of disciplines. School sports have received significant attention as they represent the main source of young talent that will form the foundation of national teams in the future. Within this framework, the Algerian education system has sought to integrate physical education into the broader education system, instilling cultural and social values akin to those of other subjects. This approach aims to nurture generations of active citizens capable of fulfilling their roles in various areas of life.

Given the competency-based approach adopted by the Algerian education system, which puts learners at the centre of the educational process, physical and sporting activities are important as they provide opportunities for cooperation, creativity and self-expression while taking into account each learner's physical, psychological, motor and cognitive abilities. In this context, school sports are considered the foundational building block through which sporting talent can be identified and gifted children with the necessary abilities to excel in specific sports disciplines can be selected based on their performance, physical capabilities, and technical skills.

The sports selection process involves choosing individuals who possess the attributes necessary for success in a specific sporting activity. It is a dynamic and continuous process involving exploration, refinement and purification through successive stages, guided by structured scientific training. The aim is to build a high-level athletic champion. Thus, the theory of sports selection represents a scientific approach and thoughtful plan for selecting individuals capable of achieving future success. An abundance of material and human resources does not guarantee the desired results unless they are directed towards individuals with the right physical, physiological and psychological attributes; otherwise, the time, money and energy expended will be wasted.

Physical measurements are among the most important scientific tools for assessing health and physical condition, providing accurate data on body composition and fat and muscle distribution. These measurements include various indicators such as weight, height, body fat percentage and BMI. To ensure the accuracy and reliability of these measurements, it is crucial to design a comprehensive test battery that defines suitable goals, metrics, and criteria for each age group.

Designing this battery involves identifying a set of essential measurements that provide a comprehensive picture of the physical condition. It also requires selecting precise, well-calibrated tools for each measurement and adjusting testing protocols to determine the optimal conditions for conducting the tests, including factors such as timing, fasting state and execution methods. Training the specialists who will conduct these tests is also critical to reducing human error and ensuring data accuracy. The battery should be applicable in various environments and help select the most competent students for school sports teams.

In this context, the aim of this study is to design a test battery for health-related physical measurements to identify the most suitable physical indicators for use in selecting student athletes. The research is divided into theoretical and applied aspects, with a preliminary section addressing the study's problem, hypotheses, objectives, key concepts and terminology, as well as reviewing and discussing previous studies.

Given the importance of selecting athletes for sports teams, the issue of excessive reliance on traditional methods of evaluating physical ability becomes evident, as this may limit the accuracy of talent selection. Adopting a scientific test battery based on health-related physical measurements appears essential to establishing objective and fair selection criteria.

To what extent do health-related physical measurements improve the accuracy of the sports selection process for students?

1. Selection:

1.1 The concept of selection:

Selection is the process of choosing suitable things and individuals. The term 'selection' is used in various fields of human activity, including work, technology, professions, nature and sports. In the context of sports, it is defined as "the selection of individuals who possess the qualities necessary for success in a specific sporting activity".

It is one of the most fundamental concepts in many areas of human activity, including education, work, technology, nature and sports. It generally refers to the process of choosing the most suitable things or people from a range of alternatives based on criteria that ensure the best possible results are achieved.

In sports, selection is defined as a systematic, scientific process of choosing athletes with specific abilities and readiness that align with the requirements of a particular activity, with the aim of predicting their potential for future excellence (Taha, 2011, p. 21).

Selection is also viewed as the process of identifying latent abilities in individuals, conducted across a large pool of candidates to select those who demonstrate the highest levels of these abilities, thereby enabling the highest levels of athletic performance to be attained (Hammad, n.d., p. 1).

Selection is defined as 'the process of choosing the best players from the available group by conducting an in-depth study of all aspects influencing athletic performance, based on modern scientific foundations, principles and methods' (Al-Qat, 2002, p. 2).

These definitions make it clear that sports selection is a complex process combining scientific and predictive elements. It does not merely focus on selecting outstanding individuals at the present moment; it also aims to predict their capacity for future development and improvement. This makes it a crucial step in building athletic champions and preparing highly competent teams.

1.2 The importance of the selection process and its objectives:

The sports selection process is one of the foundational pillars of physical education and sports. It is primarily aimed at selecting the best athletes for specific sports activities and ensuring that the highest competitive levels are achieved. This process is important because of the natural variation in psychological, physical and mental abilities among individuals, making it essential to direct each athlete towards an activity that aligns with their characteristics from an early stage in their sporting practice (Suleiman, same reference).

The essence of the selection process lies in the ability to make accurate scientific predictions about the impact of future training on the development of these abilities and readiness, allowing the player to achieve continuous progress and enhanced performance in their sports specialization. Thus, selection is viewed as the scientific foundation for preparing athletic champions and forming local and national teams, as well as being an effective tool for planning training programs and directing efforts toward maximizing the available potential with the highest efficiency.

Researchers in this field have identified a set of fundamental objectives for the sports selection process. These can be summarised as follows (Al-Namki, 2001, p. 1):

- Early identification of talented youth, enabling long-term planning of their athletic development and facilitating their rapid advancement to and sustained performance at high levels.
- Guiding young athletes from an early age towards sports that align with their abilities, inclinations and orientations.
- Identifying the optimal traits required for each specialised sporting activity to contribute to the establishment of precise selection criteria.
- Rationalising the effort, time and money spent on preparing players and sports teams by focusing on individuals with the greatest potential for success.
- Directing the training process to develop players' physical and psychological abilities in accordance with the demands of the sport.
- Effectively guiding young athletes towards activities that match their innate and acquired abilities to enhance their chances of success and continuity in sport.

It is clear, therefore, that sports selection represents a strategic, scientific approach that seeks to maximise athletic performance through early identification and appropriate guidance, thereby serving national objectives in developing generations of athletes who can compete and achieve success at local and international levels.

1.3 Responsibilities Associated with the Sports Selection Process:

The sports selection process is a precise operation that requires comprehensive scientific organisation to choose individuals who are the best fit for the specific sports activity. The main responsibilities and duties associated with this process can be summarised as follows:

*** Defining the ideal traits for each sports activity:**

This step involves identifying the optimal physical, skill-based and psychological characteristics necessary for each sport, by creating reference models of the best athletes in various disciplines. This contributes to the accuracy and effectiveness of the selection process.

*** Predicting future abilities:**

Prediction is one of the most critical tasks in the selection process, as it involves recognising latent abilities that may not be apparent in the early stages of athletic development. This prediction is essential to ensure the early identification of talent and its optimal development towards future athletic excellence.

*** Improving the effectiveness of selection:**

This can be achieved by conducting specialised scientific studies and research that contribute to the development of selection standards and methods, thereby enhancing the accuracy and quality of selecting suitable athletes.

*** Organising the selection process:**

Systematically organising the sports selection process is a fundamental step, as the process should be based on a comprehensive set of scientific principles that cover physical, psychological and skill-based aspects, in order to ensure the results are comprehensive and accurate (Al-Namki, pp. 21–22).

1.4 Types of Selection in Sports:

Based on the scientific literature, sports selection can be classified into three main types:

*** Selection for Sports Guidance:**

This involves guiding young individuals towards the sport that best aligns with their natural abilities and readiness, ensuring they meet the requirements of the chosen activity.

*** Selection for forming homogeneous teams:**

This method is used to select players with complementary physical, psychological and skill-related traits to achieve harmony and integration within a sports team.

*** Selection for national teams:**

This involves selecting elite or distinguished youth athletes of a high level to represent national teams in local and international competitions (Al-Namki, 2012).

1.5 Stages of Sports Selection:

The sports selection process is an integrated operation involving several interconnected stages. These stages are aimed at choosing individuals who are most suitable to participate in a sports activity. This selection is based on precise scientific foundations that consider the physical, skill-based, psychological and social characteristics of young people. The main stages can be identified as follows:

*** Preliminary Selection Stage:**

This stage is the primary entry point for the selection process and aims to encourage as many talented children and young people as possible to participate in various sports activities. This is achieved by organising competitions and sports events, as well as conducting various tests to measure physical growth and basic motor skills. This stage targets the 6- to 8-year age group, where initial capabilities are assessed using scientific methods.

- Organised educational observation
- Physical and skill tests
- Competitions and experimental trials
- Psychological studies and assessments.

Medical and biological examinations.

The main objective at this stage is to identify children who meet the basic criteria for further specialised sports training.

*** In-depth assessment stage:**

This stage follows the first stage by three to six months and aims to provide a more in-depth evaluation for young people who have expressed a desire to specialise in a particular sport.

Young people are selected to join training centres affiliated with clubs and sports schools based on the results of previous tests. The same assessment tools used in the preliminary stage are employed here, but in a more precise and specialised way to determine an individual's readiness for the required sports specialisation.

*** Sports Guidance Stage:**

This stage is considered one of the most important in the selection process and encompasses young people aged 12 to 15. During this period, individuals undergo long-term study using the same assessment tools to identify the most suitable sports specialisation for them, based on their abilities and characteristics. This stage is particularly critical in individual sports such as swimming and gymnastics, which require talent to be detected and developed early.

*** National Team Selection Stage:**

This stage marks the end of the selection process, where the most exceptional young athletes are chosen to represent their country. Aged 15 to 18, athletes are evaluated using the same methods as before to determine their physical, skill-based and psychological readiness for high performance. It is important that athletes have accumulated sufficient experience and training to compete at an advanced level.

Dr. Yahya Al-Sayed Al-Hawi indicates that the sports selection process passes through three main stages, which can be summarised as follows:

- First Stage: Preliminary Selection

This stage aims to accurately assess the general health status of the young people through comprehensive medical examinations of all vital body systems, as well as identifying physical characteristics, functional abilities and personal traits.

- Second Stage: Specific Selection:

This stage involves selecting the most suitable young people from those who have successfully passed the first stage and directing them towards the sports activity that matches their capabilities. Candidates must have undergone a training period of no less than one year to allow for the assessment of their technical and physical development.

- Third Stage: Qualifying Selection

This stage aims to identify individuals capable of reaching high levels of performance. It involves developing the specific readiness required for each sport, as well as measuring psychological and social aspects such as self-confidence, leadership skills, and decision-making ability (Al-Hawi, pp. 11–21).

1.6 Psychological Factors and Their Role in the Sports Selection Process:

Psychological factors play a fundamental role in the selection of talented athletes because athletic excellence is not limited to physical or skill-based abilities alone. It also requires psychological, mental and emotional traits that enable athletes to utilise their physical and motor potential to the fullest.

The success of the selection process hinges on the athlete's capacity to adapt psychologically, regulate their emotions, and preserve mental equilibrium during training and competition.

1.6.1 The Role of Psychological Factors in Sports Selection:

Psychological factors enable individuals to utilise their physical and functional capabilities in accordance with the requirements of their sport. Given the variety of sports, each has specific psychological demands that distinguish it from others in terms of motor skills, decision-making ability and the level of mental focus and attention required.

Mental abilities such as intelligence, perception, attention, anticipation, and reaction speed enhance motor performance and improve emotional responses during competitions. Moreover, optimally using these abilities increases the level of effort exerted in training and competition (Khaled Mansour, 'The Selection Process in Sports', Youth Al-Huda website).

In the various stages of selection, psychological data are used to predict future performance and determine an athlete's readiness to achieve sporting accomplishments. Psychological traits are considered to be an indicator of a talented athlete's future potential and their ability to cope with competitive pressures and situations.

1.6.2 Psychological characteristics influencing selection:

Psychological factors and traits that affect the selection of sports can be classified into the following categories:

*** Athletic personality traits:**

Despite similarities in certain aspects, each athlete has a unique personality that distinguishes them from others. Talented athletes are characterised by a set of traits that demonstrate their psychological balance and ability to adapt to various situations, both during and outside of competition.

*** Cognitive and mental traits:**

These include mental abilities such as general intelligence, visual, auditory and motor perception, the ability to analyse situations and sound judgement when making sports-related decisions. These traits are essential for developing technical and tactical performance.

*** Emotional and affective traits:**

Relating to emotional responses and performance motivations, these traits include qualities such as self-confidence, boldness, perseverance, self-control, and the ability to overcome difficult situations. These traits are also linked to positive attitudes towards sports activities and a desire for achievement.

*** Willpower and strong motivation:**

Willpower is a fundamental component of athletic success, enabling individuals to persist in training and withstand physical and psychological pressures. The stronger an athlete's internal motivation, the greater their perseverance and ability to overcome fatigue and boredom, positively impacting their performance and progress.

1.6.3 Objectives of Psychological Measurements in Selection:

Psychological data are used at various stages of the selection process to achieve the following fundamental objectives:

*** Predicting the speed of motor performance progress:** A high level of psychological maturity indicates rapid skill acquisition.

*** Guiding psychological and training preparation programmes:** these should align with the characteristics of the young people and the requirements of the sporting activity.

*** Improving the effectiveness of psychological diagnosis:** This is achieved by comparing results from different stages to determine the development of psychological traits.

1.7 Scientific principles and foundations of the sports selection process:
Researcher Melinkov (1987) emphasises a set of principles that must be adhered to in order to ensure the accuracy and objectivity of the selection process. These principles include:
*** Scientific basis for selection:** The selection process should be based on a clear scientific system with established criteria relying on precise measurement and diagnosis. This will help to avoid common errors that may arise from relying on personal judgement or randomness.
*** Inclusiveness of evaluated aspects:** The selection process must consider all physical, morphological, psychological and social aspects, as focusing on only one aspect can lead to inaccurate results.
*** Continuity of measurement and diagnosis:** selection is an ongoing, dynamic process that requires continuous monitoring and periodic assessment of athletes' physical and psychological characteristics throughout their training journey.
*** Relevance of selection measures:** Measurement tools should be flexible and adaptable to accommodate changes in performance levels and competition requirements at different stages.
*** The human dimension of selection:** Objective scientific methods protect athletes from excessive physical and psychological burdens and reduce frustration resulting from failure or poor sports guidance.
*** Practical return of selection:** Selection processes should be economical in terms of time, effort and cost, ensuring the feasibility of regularly repeating assessments and utilising their results to enhance athletic performance.
*** Educational value of selection:** The results of assessments contribute to improving the effectiveness of training, physical preparation and psychological preparation programmes, as well as aiding the development of teaching and competition methods that promote the holistic development of athletes.

1.8 Determinants of the Sports Selection Process:
The determinants of selection encompass a range of interrelated factors that affect the accuracy with which athletes' abilities can be predicted, including:
*** Biological determinants:**
These relate to the physical and functional factors that determine an individual's potential for growth and athletic development.
*** Psychological determinants:**
These include psychological and emotional traits such as motivation, confidence and stress management.
*** Specific readiness:**
This refers to characteristics associated with a particular type of sports activity, which may be biological or psychological.
These determinants interact with each other, with each element being influenced by training factors and the athlete's surrounding environment (Qassem Hasan Hussein and Fathi Al-Mahshash, p. 212).

1.9 The appropriate age for selection in football:
Studies indicate that the most suitable age to begin selection in football is between 8 and 12 years old. This stage allows young people to master basic skills and build a solid technical foundation.
Athletic preparation usually takes place over a period of 8 to 10 years to ensure complete skill maturity is attained, and the selection and review process continues until the end of the youth stage, at the age of 18.

1.10 Key factors in selecting athletes:
According to Hahn (1982), the selection process should consider factors that determine future performance. These include:

- Anthropometric data (height, weight and body density).
- Physical fitness characteristics (e.g. aerobic capacity, strength, speed, reaction time).

- Motor technical abilities (balance, control and rhythm).
- Cognitive and perceptual abilities (focus, motor intelligence, creativity).
- Emotional factors (psychological stability, anxiety resistance, stress management).
- Discipline and training consistency

1.11 The Scientific Approach to Selection and Its Advantages:
Despite the significant benefits that the scientific approach offers, including reducing the time needed to reach the highest level of performance, some coaches still rely on personal experience and subjective observation.
- Reducing the time needed to reach the highest level of performance.
- enabling coaches to work with the best available talent.
- Providing exceptional training opportunities for talented young people.
- Enhancing self-confidence and team cohesion.
Increasing the effectiveness of training programmes and overall performance (Hammad, 1998; Saad, 2004).

1.12 Benefits of Sports Selection:
The benefits of selection extend beyond merely choosing the best athletes, encompassing the overall development of sports. Selecting the right players reduces time and economic waste, ensuring that talents are directed towards activities that match their abilities.
Scientific selection also contributes to improving the quality of performance, reducing technical errors, and minimizing psychological fatigue, leading to a higher level of competition and sustainable achievement in sports.

1.13 Models of Youth Selection Programmes:
Due to the differing physical, skill-based, and psychological requirements of different sports, a unified model suitable for all sports cannot be adopted. In this context, a programme refers to the sequence of stages followed systematically to accomplish the sports selection process, regardless of the type or nature of the sports activity.
Below is a presentation of the most prominent models that have addressed youth selection programmes based on previous studies and research.
A/ Gimble Model:
The German researcher Gimble is one of the most prominent figures in the field of youth selection. He emphasises the importance of analysing the characteristics of young people through three main elements:

- Physiological and morphological measurements.
- Trainability.
- Psychological motivations.

Gimble believes that the sports selection process requires a comprehensive analysis of the internal and external factors affecting youth performance, involving the following steps:

- Identify the physiological, morphological and physical elements that influence athletic performance.
- Conducting physical and physiological tests within educational institutions and using the results to design training programmes suited to each young person's capabilities.
- Implementing a specialised sports education programme lasting from 12 to 24 months, during which time the young person's performance is tracked and analysed to measure progress.
- Conducting predictive studies to estimate the likelihood of each young person's future success in specialised sports based on positive and negative indicators derived from evaluation stages (Hammad, previous reference, p. 307).

B/ Drike Model:

Drike proposed a three-stage model for selecting young people, focusing on the integration of health, psychological and social aspects. It can be summarised as follows:

First stage:

This involves conducting a series of detailed measurements, including:

- General health status;
- Academic achievement.
- Social circumstances and level of social adaptation.
- Body type.
- Mental abilities.

Second stage (theoretical stage):

The morphological and physical characteristics of young people are compared with the distinctive requirements of a specialised sport to determine how well they align with the criteria for optimal performance.

Third stage:

This stage involves preparing for the implementation of a pre-season training programme. During this programme, the performance of the young athletes is monitored in terms of their physical condition, skills, tactics and mental state, in order to evaluate their ability to adapt to the demands of training and athletic effort (Hammad, previous reference).

C/ Bar-Or Model:

Bar-Or presented a comprehensive model consisting of five main steps for selecting young athletes. These steps are:

- Evaluating young people based on their morphological, physiological, psychological characteristics and physical performance variables.
- Comparing individual weights and heights with growth charts related to biological age to ensure an accurate assessment.
- Designing short-term, high-intensity training programmes to study how young people respond to training and analyse their potential for development.
- Studying the morphological and athletic characteristics of the young person's family members to identify potential genetic factors affecting performance.
- Subjecting all previous steps to comprehensive scientific analysis in accordance with established sports performance models (see Hammad, previous reference, pp. 308–309).

2. Measurement in the Sports Field:

2.1 Definition of measurement:

Measurement is considered one of the fundamental pillars of scientific research, both in general and in the field of sports. It answers the question 'How much?' by determining the quantity of the property or characteristic being studied using fixed standard units of measurement, such as centimetres for height or kilograms for weight.

Savert defines measurement as 'a process in which certain properties of groups, objects or events are aggregated according to specified rules'. Meanwhile, Mohamed Nasr El-Din (1997, p. 21) views measurement as 'the estimation of objects and levels according to graded scales'.

The researcher notes that the nature of the characteristic being measured influences measurement. Some traits, such as physical dimensions, can be precisely controlled and measured, while traits like mental or emotional factors are more difficult to accurately control due to their complexity and susceptibility to subjective influences.

Symbolic Al-Ghareeb suggests that measurement is an organised process of collecting quantitative information that can be analysed statistically. The results of measurement are numerical values that only acquire meaning when interpreted in light of specific standards or comparison groups.

2.2 Objectives of measurement:

Mohamed Sobhi (2001, pp. 37–38) clarifies that measurement is used to achieve several scientific objectives, including:

- Determining differences between individuals by comparing their results with those of their peers.
- Identifying differences within the same individual by comparing different aspects of their personality or performance.
- Establishing differences between professions and activities based on the required abilities and aptitudes.
- Analysing differences between groups by examining the distinctive characteristics of each group.

2.3 Types of Scales:

Scales can be classified into several types according to the nature of the characteristic being measured. These include:

- Ratio scales: These are the most precise type of scale, characterised by equal units and an absolute zero. Examples include measuring height, width and chest circumference.
- Interval scales: These are used to measure quantitative differences between individuals without the need for an absolute zero.
- Ordinal scales are used to rank individuals or objects according to the level of a trait, such as 'tall – medium – short'.
- Objective scales are based on precise quantitative indicators, such as the number of correct performances or the distance covered.
- Estimation scales: Used to evaluate technical or skill performance, as in gymnastics and diving.

2.4 Characteristics of Measurement:

- Measurement is quantitative: it expresses individuals' levels of physical, mental or psychological attributes in a quantifiable manner that can be analysed.
- Measurement can be direct or indirect. Some characteristics, such as height and weight, are measured directly, while mental or emotional traits are measured indirectly through standardised tools.
- Measurement reveals individual differences, highlighting variations among individuals or within the same individual — the essence of the need for scientific measurement.
- Measurement is a means of comparison. Its results are not interpreted in isolation from collective standards that define the meaning of the obtained numerical value.

2.5 Factors Influencing Measurement:

The accuracy of the measurement can be affected by several factors, including:

- The nature of the characteristic or phenomenon being measured.
- The intended objectives of the measurement process.
- The type of tool or scale used, and the unit of measurement.
- The method of application and the experience of the person conducting the measurement.
- Factors relating to the subjects being tested, such as their psychological and physical state during the test.

2.6 Physical measurements:

2.6.1 Weight:

Weight is defined as the amount of matter that makes up the human body. It is one of the most important indicators of athletic performance as it can have a positive or negative effect on the type of physical activity.

In sports such as wrestling, weight is used to classify athletes into categories, whereas in sports that require agility, excess weight may become a burden.
Ideal weight is defined as proportionate to height and is estimated by taking the number of kilograms equal to the number of centimetres exceeding the first metre for males, reduced by 2–5 kg for females. However, this estimate does not apply precisely to athletes due to their muscle development.

2.6.2 Height:

Height is defined as the distance between the highest point of the head and the point at which the body makes contact with the ground. It is a critical factor in many sports, such as basketball and volleyball, where it gives players a competitive advantage in aerial performance. However, excessive height can hinder performance in sports that require balance, such as weightlifting.
Studies have shown that height is associated with various factors, including age, weight, agility, balance and motor precision (Shahata & Yareq, pp. 26–27).

2.7 Reasons for Individual Differences Among Athletes:

Mohamed Lotfi (2002, p. 34) believes that the differences in behaviour and performance between athletes are fundamentally due to the interaction of genetic and environmental factors according to specific laws.
Heredity is the process by which traits are transferred from parents to offspring through genes. It influences structural and organic characteristics, such as the nervous, muscular and endocrine systems. To varying degrees, it determines an individual's physiological and mental capabilities.
Conversely, the environment encompasses all factors surrounding the individual, including natural and social influences, family relationships and sporting contexts. These factors contribute to shaping behaviour and performance.
The principle of sports selection relies on measuring these individual differences in order to identify those most suited to the requirements of the sporting activity.

2.8 Characteristics and Physical Requirements of a Soccer Player:

Football is one of the most complex sports in terms of its physical, technical, tactical and psychological demands. Optimal performance on the field necessitates a balanced integration of these aspects. An exceptional player possesses high physical efficiency, which translates into successful technical and tactical performance, supported by positive psychological capabilities. If there is a deficiency in one area, this can be compensated for by developing others.
In this context, the article focuses on the physical demands placed on footballers, drawing on the results of field studies and physiological research into motor performance before, during and after matches.

2.9 Physical Requirements in Football:

Physical requirements form the foundation of the concept of overall fitness for a footballer.
A match requires players to sprint to gain possession of the ball before their opponents and to move continuously throughout the match, which often lasts for 90 minutes or more. They must also be able to change direction and position quickly while maintaining balance and performing technical and tactical tasks efficiently.
Therefore, it is essential for players to be highly physically fit in order to execute skills, participate actively in both offence and defence, and contribute to team cohesion.

2.10 Physical Preparation in Soccer:

Physical preparation is considered one of the most important elements of training, forming the basis on which skills, tactics and psychology are built.
Al-Basati (1990, p. 70) defines it as 'all processes directed towards improving the general and specific physical capabilities of the player, and enhancing the functional efficiency of body systems to achieve performance integration'.
Physical preparation is implemented throughout the sporting season as part of the daily training programme and can be divided into two main types:

- General physical preparation: aims to improve overall fitness and strengthen vital body systems.
- Specific physical preparation focuses on developing motor capabilities directly related to the demands of football.

2.11 Elements of Specific Physical Fitness for Footballers:

*** Endurance:** The ability to resist fatigue and return to a normal state quickly. It is one of the most important components of fitness as it enables players to maintain high performance throughout a match without experiencing a noticeable decline in physical or mental efficiency.
*** Muscular strength:** Muscular strength is pivotal for athletic performance and is defined as a player's ability to overcome or confront various resistances. It is related to most other physical requirements and is essential for activities such as jumping to head the ball, shooting towards the goal and executing precise passes. It is also significant in situations involving physical clashes and contact with opponents to gain or defend possession of the ball.
Al-Basati (1990, p. 111) notes that muscular strength enables players to overcome their own body weight during sustained performance throughout a match.
*** Speed:** Hassan and Abdul Jabbar (1984, p. 48) define speed as a player's ability to perform movements at maximum speed over a short period of time. Speed is a critical element in football, as a player's success in many situations depends on how quickly they can start and respond to the ball.
*** Speed endurance:** Abu Abda (2001, p. 39) defines speed endurance as a player's ability to perform at a high intensity during repeated runs or successive movements throughout a match. This trait is essential for repeated accelerations and transitions between offence and defence without a decline in performance.
*** Agility:** Agility is one of the most important motor qualities that distinguish a successful footballer, as it is directly associated with the ability to change direction quickly and adapt to changing situations on the pitch.
Hussein and Abdul Jabbar (1984, p. 20) define agility as the ability to move quickly and flexibly, adapting rapidly to spatial and movement changes during performance.
Al-Alaoui (1994, p. 10) defines agility as the ability to perform complex motor tasks and adjust performance speed according to the demands of the sporting situation. This involves a combination of strength, speed, balance, and neuromuscular coordination.
Clearly, a successful footballer achieves excellence through integrating physical, technical, psychological and tactical qualities. Physical fitness, comprising endurance, strength, speed and agility, is fundamental to developing integrated skills and tactical performance. Therefore, developing these elements through scientific, well-planned training programmes is fundamental to elevating the competitive level of players and sports teams alike.

Conclusion

In light of the concepts and analyses presented, it is evident that the sports selection process is one of the most significant scientific foundations on which modern athletic performance is built. It is not merely a selective process reliant on superficial observation or immediate results, but rather a comprehensive system with precise scientific foundations that consider the athlete's various physical, functional, psychological and environmental aspects. Understanding these dimensions ensures the selection of individuals most compatible with the requirements of each sport.

Additionally, recognising individual differences among athletes is crucial for successful selection, as these differences arise from the complex interaction between genetic factors determining an individual's structural and functional characteristics, and environmental factors refining and directing these abilities. From this perspective, the sports selection process is essentially a scientific endeavour aimed at

diagnosing and predicting the latent potential of individuals and directing it optimally towards a sport that suits their physical, mental and psychological capabilities.

The success of sports selection is reflected in the accuracy of health-related body measurements, which enable the determination of ideal standards for each sport. This contributes to enhancing training effectiveness and improving future performance levels. Furthermore, scientific research and systematic planning are pivotal in developing and refining selection tools that align with modern practice requirements. Therefore, it is evident that designing comprehensive scientific test batteries capable of measuring various physical, functional and psychological indicators associated with athletic success is important.

Effective sports selection can therefore only be achieved through collaboration between science and practice. Coaches and specialists should adopt precise scientific programmes at all stages of selection, from identifying emerging talent and evaluating their abilities to selecting individuals to compete in championships and represent sports teams. Integrating theoretical knowledge and field practice ensures the highest levels of athletic performance are achieved and contributes to building a qualified, sustainable human resource base that supports clubs and national teams, enhancing the status of sports locally and internationally.

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