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Principles of Using Morphological Selection Criteria from the Perspective of Football Coaches for Players Under 13 Years Old

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Abstract:

This study investigates the role of morphological selection criteria in identifying young football talents under the age of 13, based on the perceptions of experienced coaches. A descriptive methodology was adopted, with data collected through a structured questionnaire. Results revealed that morphological characteristics such as height, weight, and body proportions are prioritized in the selection process, given their stability and influence on physical performance. While technical and tactical skills are considered important, they are perceived as trainable over time. The study also highlights structural challenges, including limited access to scientific tools. Findings support the need for a multidimensional, long-term selection approach integrating physical, technical, and developmental factors.

Keywords: Morphological selection; Football; U13 players.

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1. INTRODUCTION

By the mid-20th century, specialists in the field of sports sciences had begun to reach a well-established consensus: every sport possesses its own unique set of physical and physiological requirements, which distinguishes its athletes from those of other disciplines. This understanding marked a turning point in how talent was approached and developed across sporting domains. It became increasingly clear that successful performance in sport is not random but rather dependent on a complex interaction between innate biological factors and systematic training interventions tailored to each sport's specific demands.

In particular, the morphological profile of an athlete—encompassing height, body weight, limb proportions, muscular distribution, and other anthropometric indicators—was identified as a crucial determinant of performance. These features are less modifiable through training and thus serve as key initial indicators of suitability for certain sports. For instance, the physical requirements of gymnastics differ markedly from those of football or basketball. Consequently, the accurate identification of these requirements formed the scientific basis for what is known today as morphological selection or talent identification based on body structure.

The evolution of elite sport over the past decades has been driven by increasingly younger athletes achieving high-performance outcomes, often at international levels. This trend can largely be attributed to advancements in sports science, particularly in areas such as physiology, biomechanics, motor learning, and performance analysis. Yet, among these, the science of selection—specifically, the process of identifying children and adolescents with long-term athletic potential—remains a cornerstone of early specialization and talent development programs.

According to studies such as those by Omar (1978), Shafik (1982), Shibli (1984), and Halim (1991), it is the morphological aspect of the athlete that provides the most reliable initial basis for selection. These researchers underscored that the correct alignment between a young athlete's body composition and the demands of a given sport increases the probability of long-term success. For example, tall stature may favor certain positions in football (e.g., goalkeepers and center-backs), whereas low body fat percentage and agile limb length may benefit midfielders or wingers.

Furthermore, selecting athletes based on their morphological suitability proves to be economical saving time, effort, and financial resources. Training athletes who lack the fundamental body structure for a specific sport may result in wasted investment, both for institutions and families. It is therefore not surprising that many international talent identification models, such as those in the UK, Germany,



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or the Netherlands, place early physical profiling at the center of their development strategies.

As noted by Helmy (1975), studying the physical characteristics of elite athletes provides insight into ideal body types for each sport. This information serves not only to guide coaches in the selection of new talent but also to create reference standards or benchmarks for development. Today, many federations compile databases of elite-level athletes' anthropometric measurements to compare with aspiring players in early selection phases.

However, selection is not a static or one time decision; it is a dynamic and evolving process. Children and adolescents undergo profound changes as a result of biological maturation, training adaptations, nutrition, and environmental influences. Therefore, any effective selection program must be designed as a longitudinal, multi-phase process that monitors development over time and adjusts expectations based on maturity status not just chronological age.

Despite the scientific advancements in selection methodology, many youth selection programs especially in developing countries still rely on informal approaches, often driven by intuition, visual observation, or subjective opinions of coaches. While experienced coaching staff may identify potential through observation, the absence of standardized tools and validated criteria may result in missed talent or biased decisions. This is particularly problematic in contexts such as youth football, where competition is intense and early decisions can have long-lasting consequences on athletes' trajectories.

In the specific case of football, a sport with a broad range of physical and tactical demands depending on playing position, the use of morphological criteria is particularly relevant. The physiological profile of a goalkeeper, for instance, differs significantly from that of a midfielder or winger. Hence, understanding how to match a player's body structure with positional demands can greatly enhance performance outcomes and reduce injury risks.

The importance of anthropometric profiling in football has been widely documented in recent literature (Mehria, Aidi & Hachi, 2024). Studies by Peña-González et al. (2021) and Sarmiento et al. (2018) advocate for the systematic inclusion of physical testing (height, weight, BMI, limb length, etc.) in early-stage talent identification, particularly in categories under 13. This is a crucial developmental window when many long-term motor skills are consolidated and when players are most responsive to targeted training inputs.

Nonetheless, one must be cautious not to reduce the entire selection process to morphological factors alone. Talent in football, like in many other sports, is multidimensional encompassing not only physical traits but also technical skills, tactical understanding, psychological resilience, and motivation. A comprehensive talent identification model must therefore integrate all of these dimensions to ensure fair, inclusive, and effective decision-making.

In Algeria and other developing sporting systems, the challenge lies in balancing scientific precision with practical feasibility. Many clubs lack access to reliable measurement tools, qualified sports scientists, or structured development models. In such settings, empowering coaches with scientific knowledge and standardized evaluation protocols is essential to improving talent selection practices.

Given this context, the present study seeks to examine how morphological selection criteria are applied by football coaches working with players under 13 years of age. Specifically, it aims to understand how coaches perceive and prioritize physical characteristics during the selection process, and whether such practices align with current scientific recommendations.

So, the central research question was: what extent are morphological selection criteria essential in guiding the talent identification process in youth football (U13)?

This study further investigates how factors such as body weight, height, limb circumference, and shoulder width are used as practical benchmarks for assessing player potential, and whether these criteria are used systematically or informally. The findings will contribute to the ongoing discourse on youth talent development and may offer valuable insights for national sports programs seeking to improve their identification and training frameworks.

2. Methodology:

A pilot study was initially carried out with a sample of (11)z football coaches, utilizing a (16) item questionnaire. To ensure the quality of the instrument, both validity and reliability were assessed. The internal consistency proved to be satisfactory, with a Cronbach's alpha exceeding (0.73), indicating acceptable coherence among items. Furthermore, test-retest reliability confirmed the tool's temporal stability, with a correlation coefficient ($r > 0.70$), suggesting consistent responses over time.

Following validation, the main investigation was conducted on a larger sample of (41) coaches. Given the nature of the research topic, the descriptive method was adopted as the most appropriate approach for exploring current practices and perceptions. Data collection focused on identifying criteria used by coaches in the morphological selection of under 13 football players.

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For data processing, SPSS version 21 was employed. The statistical analysis included computation of Chi-square tests (χ^2) to examine relationships between variables and assess the significance of observed differences. This methodological framework ensured a scientifically robust examination of the selection practices under study.

Table 1. Khi test results

Item	χ^2 Calculated	Level of significance	Df	Signification
1	12.35	0.00	2	*
2	8.10	0.00	1	*
3	22.50	0.00	1	*
4	8.40	0.03	3	*
5	9.40	0.02	3	*
6	36.10	0.00	1	*
7	36.10	0.00	1	*
8	18.00	0.00	3	*
9	8.50	0.01	2	*
10	38.10	0.00	1	*
11	0.90	0.34	1	
12	3.60	0.06	1	
13	38.33	0.00	3	*
14	2.50	0.11	1	
15	4.90	0.03	1	*
16	12.1	0.00	1	*

3. FINDING AND PROPOSITIONS RESULTS

The results confirm the validity of the first sub-hypothesis, based on the analysis of the related questionnaire items.

Item 2 showed that 75.5% of coaches prioritized morphological structure as the most important criterion in the selection process, followed by technical-motor aspects at 31%, and tactical aspects at 12.5%. This prioritization stems from the belief among most coaches that technical and tactical skills can be developed over time through training, whereas morphological features are innate and less modifiable. Some coaches, however, viewed technical and tactical abilities as natural talents and essential criteria in selection.

Item 3 supported this by showing that 72.5% of the respondents considered body weight a key morphological variable in athlete selection, due to its influence on performance development and energy efficiency during training.

Similarly, item 4 revealed that 87.5% of coaches regarded height as a fundamental morphological factor in the selection process.

Item 5 further indicated that several coaches considered shoulder and chest width during selection—though mostly through observation rather than formal measurement.

Item 6 explored additional anthropometric variables, showing that some coaches also paid attention to chest, thigh, and calf circumference, again primarily through visual inspection.

Item 7 confirmed consensus among coaches regarding the importance of reaction speed in goalkeeper selection, identifying it as a core criterion across all levels.

Furthermore, Item 8 revealed agreement on the importance of biological age as a foundation for stage-appropriate selection.

Item 9 and 10 showed that while some coaches relied on basic anthropometric measurements (e.g., height, weight, chest and calf circumference), others cited the lack of equipment in clubs as a barrier, resorting instead to experience-based selection and general physical observation. These results are supported by modern literature which emphasizes the value of morphological profiling in talent identification, especially at early stages (Philippaerts et al., 2008; Peña-González et al., 2021). Effective long-term athlete development (LTAD) frameworks highlight the importance of matching physical characteristics to sport-specific demands.

The second sub-hypothesis was also confirmed through several questionnaire items.



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Item 11 indicated that 52.5% of coaches defined selection as the process of identifying athletic talent. The same table also revealed broad agreement that effective selection leads to more efficient training, as selected athletes are better aligned with the program objectives, maximizing performance outcomes.

Item 12 showed that most coaches did not rely solely on observation, reinforcing the scientific consensus that combining observational data with standardized assessments yields better decisions (Williams & Reilly, 2000).

In Item 13, coaches noted difficulties in selecting players aged 11–12, especially when talent exists but does not match morphological expectations highlighting the complexity of balancing innate skill with physical potential.

Item 14 revealed that some coaches incorporate long-term potential into their selection strategy, aiming to nurture talent over time for greater competitive value.

Item 15 explored whether selection is an end in itself or part of a broader training strategy. While some coaches saw it as foundational for future work, others emphasized its complementarity with the training process.

Item 16 indicated that most coaches do not implement pre-selection training programs, often citing lack of time or resources. Yet, all agreed on the value of such preparation in ideal conditions. Coaches acknowledged that this gap contributes to the difference between local football development and that seen in more advanced systems. These findings align with international best practices which recommend multi-factorial, longitudinal, and holistic selection approaches, including medical, psychological, technical, tactical, and morphological evaluations (Vaeyens et al., 2009; Sarmiento et al., 2018). The failure to implement these standards in Algerian clubs reflects resource disparities rather than lack of awareness.

4. CONCLUSION

This study aimed to explore the foundations for using morphological criteria in the selection of young football players under the age of 13, based on the perceptions of experienced coaches. The analysis of the questionnaire data revealed several key findings.

It was clear that a player's morphological characteristics, particularly height, weight, shoulder width, and chest circumference, are considered by most coaches as primary factors in the selection process. These traits are viewed as relatively stable and less modifiable through training, thereby influencing a player's ability to meet the physical demands of modern football.

At the same time, coaches acknowledged the value of technical and tactical skills, though they emphasized that such abilities can be developed over time with proper training. However, for these skills to be effectively cultivated, a strong physical and morphological foundation is deemed necessary.

The study also found that some coaches consider the long-term developmental potential of young athletes, focusing not only on immediate performance but also on the capacity for progression and sustained improvement. This forward-looking perspective is essential for building successful long-term athlete development (LTAD) strategies.

Nevertheless, the selection process continues to face structural limitations, particularly in terms of material resources. Many clubs lack access to scientific tools, medical screenings, and psychological evaluations, which often forces coaches to rely primarily on visual observation and experience-based judgment rather than objective measurements.

Despite these constraints, there is a growing consensus among coaches on the importance of combining multiple dimensions—morphological, technical, psychological, and biological—for more accurate and effective talent identification. Implementing a scientific, multidimensional, and adaptive approach would significantly enhance talent detection and development pathways in Algerian football.

In conclusion, the success of the youth selection process relies not only on the athlete's natural abilities, but also on the coach's capacity to assess, project, and guide individual development in a structured and context-appropriate manner.

This study opens up several avenues for future research and practical application in the field of talent identification among young football players. It highlights the importance of adopting a scientific approach based on objective morphological criteria, while also emphasizing the need to integrate broader dimensions such as psychological, cognitive, technical, and tactical factors.

In the short term, it would be beneficial to design standardized morphological assessment protocols tailored specifically to U13 categories, helping coaches guide players toward positions best suited to their body profiles. In the medium term, incorporating technological tools (e.g., body scanners, anthropometric analysis apps) could enhance the accuracy and efficiency of the selection process.

Moreover, longitudinal studies are needed to track the development of selected players and evaluate the long-term relevance of morphological choices, particularly in relation to performance, development, and retention in the sport.

Finally, this study underscores the need for ongoing training for coaches in



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scientific talent detection, reducing reliance on subjective observation and fostering a culture of evidence-based assessment. The development of a national strategy for identifying and monitoring young sporting talent could be strongly informed by the findings of this work.

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