STUDY ON ESSENTIAL PHYSICAL CHARACTERISTICS OF SUCCESSFUL WEIGHTLIFTING ATHLETES

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Abstract
The profile of the successful athlete depends not only on the absolute strength of the athlete, but also on the efficiency with which this strength can be applied through a favorable body structure. Essential physical characteristics, such as segmental proportions, body composition and joint mobility, determine the basic biomechanical conditions for producing strength and stability under the weightlifting. Focusing on body proportions, grip strength, and explosive power, the survey ensures alignment with both theoretical and practical dimensions of talent identification, providing useful insights into the role of physical traits in shaping long-term athletic success.

Keywords: *athlete, weightlifting, physical characteristics, strength, proportions, survey, performance.*

INTRODUCTION

One of the major challenges facing modern performance sport is the early identification of talent, a task all the more complex in disciplines that combine strength, technique, coordination and psychological components, as in weightlifting. As an Olympic discipline, weightlifting is distinguished by a distinct set of demands: lifting a weightlifting in the snatch and clean & jerk events requires not only maximum strength, but also the ability to generate explosive force in extremely short intervals, very precise biomechanics, postural stability, joint mobility and exceptional psychological balance. International champions demonstrate all these attributes in top form, capable of reaching or breaking world and Olympic records.

If we want to predict a child's potential, it is paramount to understand what a champion looks like. Thus, studies describing the characteristics of elite weightlifting athletes will be analyzed: anthropometric parameters (e.g. trunk-to-limb ratio, percentage of muscle mass), biomechanical factors (specific mobility, weightlifting trajectory, optimal lifting technique) and physiological (explosive strength, RFD, muscle fiber type). In addition, psychological aspects (resilience, motivation, ability to concentrate under pressure) and socio-cultural factors (family support, sporting tradition) will be integrated to provide a

complete picture of the ideal performer. Essentially, we will present: the traits to which we aspire and subsequently want to recognize at a young age that will complete the profile of successful athletes.

Key physical characteristics

Identifying the profile of successful weightlifters involves a comprehensive understanding of the physical, biomechanical, neuromuscular and psychological characteristics that contribute to performance. Elite athletes typically exhibit a specific set of traits that optimize lifting heavy weights in a highly technical context [Storey & Smith, 2012; Haff & Triplett, 2015]. Although there is considerable individual diversity, research has identified several common patterns, ranging from body proportions and composition to neuromuscular qualities such as explosive strength and coordination efficiency, as well as psychological traits such as motivation, resilience and the ability to cope with competitive pressure [Gourgoulis et al., 2009; Carter & Ackland, 1994].

Anthropometrics: limb proportions, torso length and more

Anthropometric characteristics play a crucial role in determining the biomechanical advantages that elite weightlifters can capitalize on during competition. The distribution of segmental proportions, particularly in terms of limb length and torso dimensions, has a significant impact on an athlete's ability to maintain stability, transmit force efficiently and optimize the trajectory of the weightlift during lifts. Studies consistently demonstrate that weightlifters with shorter trunks in relation to their overall height, combined with strong and well-developed lower limbs, possess a biomechanical advantage.

These traits support a stable center of gravity and reduce the opposing moment of force during key phases of lifting, such as the catch position or second pull (Meyer et al., 2017; Monteiro et al., 2021). The relationship between femur and tibia length is another key anthropometric factor influencing weightlifting performance.

A favourable ratio, characterized by relatively shorter femurs and slightly longer tibiae, enhances the weightlifter's ability to maintain an upright trunk position during squat movements and recovery to chest press. This alignment minimizes mechanical

inefficiencies by reducing forward tilt and alleviating pressure on the lower back, allowing greater vertical force to be applied.

Research using motion capture and biomechanical modeling confirms that lifters with these proportions achieve higher mechanical performance and experience fewer compensatory movements during lifts, which is essential for both performance and injury prevention (Schleppe et al., 2020; Picerno et al., 2022). Arm length also contributes significantly to lifting mechanics, particularly in determining starting position, weightlifting trajectory, and overhead stabilization. Athletes with slightly shorter arms in relation to their torso often exhibit greater control when stabilizing the weightlifting overhead on the snatch.

The reduced lever length minimizes rotational moments, allowing better stability of the bar trajectory and reducing the energy demands on the shoulders and scapular stabilizers during the grip phase. In contrast, athletes with longer arms tend to adopt different starting positions, characterized by a deeper hip flexion, which may influence the trajectory of the weightlifting during the pull phase.

These adjustments require customized technical adaptations to optimize efficiency and minimize deviation from the ideal weightlifting trajectory (Caruso et al., 2019; Štefanovský et al., 2023). Furthermore, the compactness of an athlete's torso directly affects their ability to maintain an advantageous center of mass throughout the lift. A shorter torso, together with broad shoulders and narrow waist, facilitates more efficient force transfer through the kinetic chain. This configuration allows the athlete to generate higher peak forces while maintaining a stable base of support, especially during the explosive triple extension phase.

Biomechanical analyses of elite lifters show that compact trunks contribute to reduced energy loss and improved load distribution during both the snatch and the clean & jerk (Kim et al., 2018; Stoll et al., 2021). In addition to segmental ratios, pelvic width and hip joint structure influence weightlifting performance. A wider pelvic structure, combined with a deep acetabular orientation, improves stability during squat and grip positions, allowing athletes to efficiently absorb the load and transition smoothly into the recovery phase.

This structural alignment supports greater mobility of the hip joint and facilitates the full range of motion required for technical accuracy under heavy loads. Athletes with these anatomical advantages often exhibit superior consistency and reduced variability in the execution of lifts over multiple attempts (García-González et al., 2020; Mangine et al., 2022). While favorable anthropometric traits offer significant advantages, it is important to note that athletes with less than ideal proportions can achieve elite performance through tailored training and technical adjustments.

For example, those with longer torsos or arms can compensate by emphasizing torso strength and flexibility to enhance stability and adapt their technique to optimize bar trajectory and joint alignment. Motion capture data and individualized biomechanical analysis allow coaches to identify these compensatory strategies, ensuring that athletes maximize their lifting potential regardless of their anatomical starting point (McGuigan et al., 2019; Ursino et al., 2022).

These anthropometric attributes highlight the complex relationship between physical structure and biomechanical efficiency in weightlifting. By leveraging specific segmental ratios and body proportions, elite weightlifters optimize stability, force transmission, and technical execution, highlighting the importance of the anthropometric profile in both talent identification and the development of an individualized training program.

Body composition: lean to fat mass ratio

Body composition is a fundamental determinant of weightlifting performance as it directly influences an athlete's ability to generate power, maintain mobility and compete effectively within weight classes. Successful weightlifters typically have high levels of lean muscle mass combined with relatively low fat mass.

This composition provides a superior strength-to-weight ratio, which is essential for lifting heavier loads while maintaining agility and technical precision. Muscle mass contributes to the athlete's ability to produce force quickly and efficiently, while moderate levels of body fat ensure adequate energy reserves without compromising movement dynamics or biomechanical efficiency (Keogh et al., 2021; Storey et al., 2018). The distribution and quality of muscle mass also plays a critical role.

For example, the development of muscle groups in the posterior chain, such as the gluteus maximus, hamstrings and erector spinae, is particularly important for force production during the pulling phases of the snatch and the clean & jerk. In addition, the muscle mass in the shoulders, quadriceps must be optimized to support weightlifting stabilization and explosive extensions, essential for the execution of both lifts (Lanzoni et al., 2019).

Differences in body composition and its influence on weightlifting performance can vary between male and female athletes, with men often exhibiting greater absolute muscle mass and strength potential, whereas women tend to demonstrate superior flexibility and stability, which are equally important for technical efficiency (Zaras et al., 2016).

The role of fat mass in weightlifting is nuanced. While high percentages of body fat can contribute to total body mass and provide some biomechanical advantages in certain weight classes, excess fat can reduce the strength-to-weight ratio and impede agility. Maintaining fat levels within an optimal range allows weightlifters to combine the force-generating benefits of muscle mass with the speed and mobility needed to excel in dynamic movements such as snatching and cleaning & jerking. This balance is particularly important for weightlifters in the lower weight classes, where a higher force-to-weight ratio is often the deciding factor for success (Cholewa et al., 2022; Kim et al., 2021).

Effective management of body composition is an integral component of a weightlifter's training plan, particularly in the context of weight categories. Athletes must carefully adjust their lean and fat mass to compete optimally in their chosen division. Strategies to achieve these adjustments include nutrition protocols, hydration management and specific recovery interventions. Protein-rich diets are commonly used to support muscle growth and repair, while carbohydrate intake is strategically modulated to fuel training sessions and restore glycogen levels without promoting excessive fat gain. Recent studies have also emphasized the importance of periodized nutritional approaches that align macronutrient intake with specific phases of training, competition preparation, and recovery (Slater et al., 2019; Helms et al., 2021).

Hydration is another critical factor influencing body composition and performance, as athletes often use short-term dehydration strategies to meet pre-competition weight requirements. However, inadequate dehydration can impair muscle function, coordination, and recovery capacity, emphasizing the need for carefully monitored rehydration protocols to restore performance capabilities after weight-gain. Electrolyte balance is particularly important, as imbalances can disrupt neuromuscular function and increase the risk of cramping or fatigue during competition (Sawka et al., 2015; Garthe & Maughan, 2018).

Body composition management is also complicated by gender differences. Female weightlifters, for example, may face unique challenges due to hormonal variations that influence fat distribution, muscle mass accumulation, and energy metabolism. Estrogen, while beneficial for joint stability and recovery, can favor fat storage in certain areas, which can impact body composition strategies.

This requires tailored training and dietary plans to account for these physiological differences, ensuring that athletes achieve an optimal strength-to-weight ratio while maintaining overall health and hormonal balance (Devries et al., 2016; Kostek et al., 2020).

Monitoring body composition in weightlifters has become increasingly sophisticated, with techniques such as dual-energy X-ray absorptiometry (DXA) and bioelectrical impedance analysis 42 (BIA) providing detailed information about muscle and fat distribution.

These tools enable coaches and athletes to make data-driven adjustments to training and nutrition plans, optimizing performance outcomes while minimizing health risks (Ackland et al., 2018; Peeters et al., 2020)

Joint flexibility and mobility

Joint flexibility and mobility are essential components of successful performance in weightlifting, as they enable athletes to adopt and maintain biomechanically advantageous positions during the execution of the snatch and clean & jerk. These positions require a combination of flexibility, stability, and strength to achieve optimal weightlifting trajectories, minimize energy loss, and ensure technical accuracy under

heavy loads. The shoulders, hips, and ankles are particularly vital, as their mobility directly influences the athlete's ability to achieve the ranges of motion required for efficient force transfer and stabilization of the weightlifting (Prieske et al., 2019; Chaabene et al., 2020).

Shoulder mobility is essential for maintaining a stable overhead position, especially during the snatch. The overhead position requires a combination of shoulder flexion, external rotation, and upward rotation of the scapula to ensure that the weightlifting remains aligned with the athlete's center of gravity. Restricted mobility in the shoulder girdle can lead to compensatory movements such as excessive lumbar extension or altered bar trajectory, both of which compromise lifting efficiency and increase the risk of injury (Welsch et al., 2020; Oliveira et al., 2022).

In addition, mobility deficits may impede an athlete's ability to achieve a safe and balanced lockout, particularly when stabilizing heavy overhead loads. Ankle mobility, particularly in dorsiflexion, is another key factor influencing weightlifting performance. Adequate dorsiflexion allows athletes to achieve deep squat positions necessary for the catch phase of both the snatch and the chest press. Insufficient ankle mobility can lead to forward bending, shifting the athlete's center of gravity and putting more pressure on the knees and lower back. Research has shown that limited ankle dorsiflexion is associated with increased variability of the weightlift trajectory and reduced lift stability, often leading to missed attempts during the catch or recovery phases (Malliaras et al., 2020; Garcia et al., 2023).

Hip mobility is equally important, as it facilitates flexion and deep rotation required for correct positioning in the pull and grip phases. The external rotational ability of the hips in combination with deep flexion ensures that the knees pass over the toes, promoting stability and alignment during squat movements. Deficits in hip mobility can force athletes into compromised positions, such as valgus knee collapse or excessive forward trunk tilt, which negatively affect both performance and joint health (Baumeister et al., 2018; Monteiro et al., 2021).

Flexibility and mobility training is an integral part of weightlifting training as it addresses the specific demands of the sport and reduces the risk of injury. Static stretching, dynamic warm-ups and joint mobilization exercises are commonly used to

improve range of motion in key areas, particularly the shoulders, hips and ankles. Recent studies highlight the efficacy of proprioceptive neuromuscular facilitation (PNF) stretching and mobility exercises incorporating resistance bands in improving passive and active joint flexibility (Behm et al., 2021; Lima et al., 2022).

These methods not only increase range of motion, but also improve joint stability, which is essential for safely handling heavy loads. Joint mobility also plays a role in injury prevention, as restricted movement patterns can increase stress on surrounding structures such as ligaments, tendons and cartilage. For example, inadequate ankle dorsiflexion can lead to compensatory knee valgus, increasing the risk of anterior cruciate ligament (LCA) injury. Similarly, limited shoulder mobility can cause impingement or rotator cuff strain when athletes attempt to stabilize the weightlifting in suboptimal positions (Bishop et al., 2017; Zemp et al., 2021).

Individual differences in joint mobility often require customized approaches to flexibility training. Coaches and practitioners frequently use motion capture technology and functional movement examinations to identify specific mobility limitations and develop personalized interventions. For example, athletes with tight shoulder girdles may benefit from focused thoracic spine mobility exercises, whereas those with restricted ankle dorsiflexion might incorporate calf stretches and weighted dorsiflexion exercises to address their deficits (Schache et al., 2019; Cheung et al., 2023).

Joint flexibility and mobility requirements also vary by gender, with female weightlifters usually exhibiting greater passive flexibility but needing additional emphasis on stability to maintain control during dynamic movements. Male athletes, on the other hand, may need more intensive flexibility training to achieve the required ranges of motion, particularly in the shoulders and hips. These gender differences highlight the importance of individualized training strategies to optimize performance while addressing the unique anatomical and physiological characteristics of each athlete (Santos-Concejero et al., 2020; Cormier et al., 2022).

Joint flexibility and mobility are indispensable for effective performance in weightlifting. By improving shoulder, hip, and ankle mobility, athletes can achieve optimal lifting positions, maintain stability, and reduce the likelihood of injury. Specific

mobility training, based on biomechanical assessments, ensures that athletes can meet the demanding technical and physical demands of the sport.

The present article aims to present the importance of the perception of weightlifting, the importance of selection, selection factors, anthropometric attributes and the feasibility of weightlifting training as they were centralized from the questionnaire applied to the specialists.

Materials and methods

In the research, a questionnaire was developed and addressed to the nomenomized weightlifting coaches. The questionnaire contained 46 questions of which 5 were demographic and the others were categorized according to the interest of data collection. Figure 1 presents the questions related to perception of weightlifting, importance of selection, factors of selection, anthropometric attributes and feasibility of training. This represents only a part of the questions asked to the specialists and the results of which we wish to present in this article.

Table 1. Perception of weightlifting, importance of selection, factors of selection, anthropometric attributes and feasibility of weightlifting training.

INIT-PC06	Perception of weightlifting as a sport for children	Weightlifting safety	Do you consider weightlifting a safe and beneficial sport for children?
INIT-PC07	Perception of weightlifting as a sport for children	Degree of risk	Do you consider weightlifting a high-risk sport?
INIT-PC08	Perception of weightlifting as a sport for children	Recommended age	At what age should you start weightlifting?
INIT-IS09	The importance of selection in sport	Importance of selection	Do you consider selection in sport important?
INIT-IS10	The importance of selection in sport	Early selection	Do you think that early selection in weightlifting can contribute to high performance?
INIT-IS11	The importance of selection in sport	Use of the system	Do you consider that a selection system in weightlifting is useful?
INIT-FS12	Important factors in selection	Physical factor	Do you consider that the physical factor is important in the selection process for weightlifting?

INIT-FS13	Important factors in selection	Technical factor	Do you consider that the technical factor is important in the selection process for weightlifting?
INIT-FS14	Important factors in selection	Theoretical factor	Do you consider the theoretical factor is important in the selection process for the weightlifting?
INIT-FS15	Important factors in selection	Tactical factor	Do you consider the tactical factor to be important in the selection process for the weightlifting?
INIT-FS16	Important factors in selection	Psychological factor	Do you consider the psychological factor important in the selection process for the weightlifting?
INIT-FG17	Genetic and biological factors	Antropometric measurements	Do you think anthropometric measurements are relevant for the selection process in weightlifting?
INIT-FG18	Genetic and biological factors	Biometric measurements	Do you think biometric measurements are relevant to the selection process in weightlifting?
INIT-FG19	Genetic and biological factors	Genetic factors	Do you think that genetic factors may have a significant bearing on the selection process in weightlifting?
EXP-AAF01	1. Anthropometric and physical attributes	Body proportions	To what extent do you think body proportions (e.g. arm/leg length, torso to height ratio) influence success in weightlifting?
EXP-AAF02	1. Anthropometric and physical attributes	Grip strength	How important is grip strength in 9-12 year olds in predicting long-term potential in weightlifting?
EXP-AAF03	1. Anthropometric and physical attributes	Vertical jump test	To what extent would you recommend including the vertical jump test as a predictor of potential in weightlifting?
EXP-AAF04	1. Anthropometric and physical attributes	Long jump test	To what extent do you consider the long jump test to be relevant for assessing explosive strength in children?
EXP-FZA05	2. Feasibility of training	Introduction of techniques	To what extent do you consider it feasible to introduce basic weightlifting techniques (e.g. snatch, clean & jerk) to children aged 9-12 years?

EXP-FZA0	2. Feasibility of training	Physical training exercises	How important is the influence of physical training exercises (e.g. trunk strengthening, pilometry) for children aged 9-12 years?
EXP-FZA07	2. Feasibility of training	Progressive load management	To what extent do you agree that progressive load management is essential for young weightlifting athletes?
EXP-FZA08	2. Feasibility of training	Age-specific technical exercises	To what extent is it feasible to introduce age-specific technical exercises for children under 12?

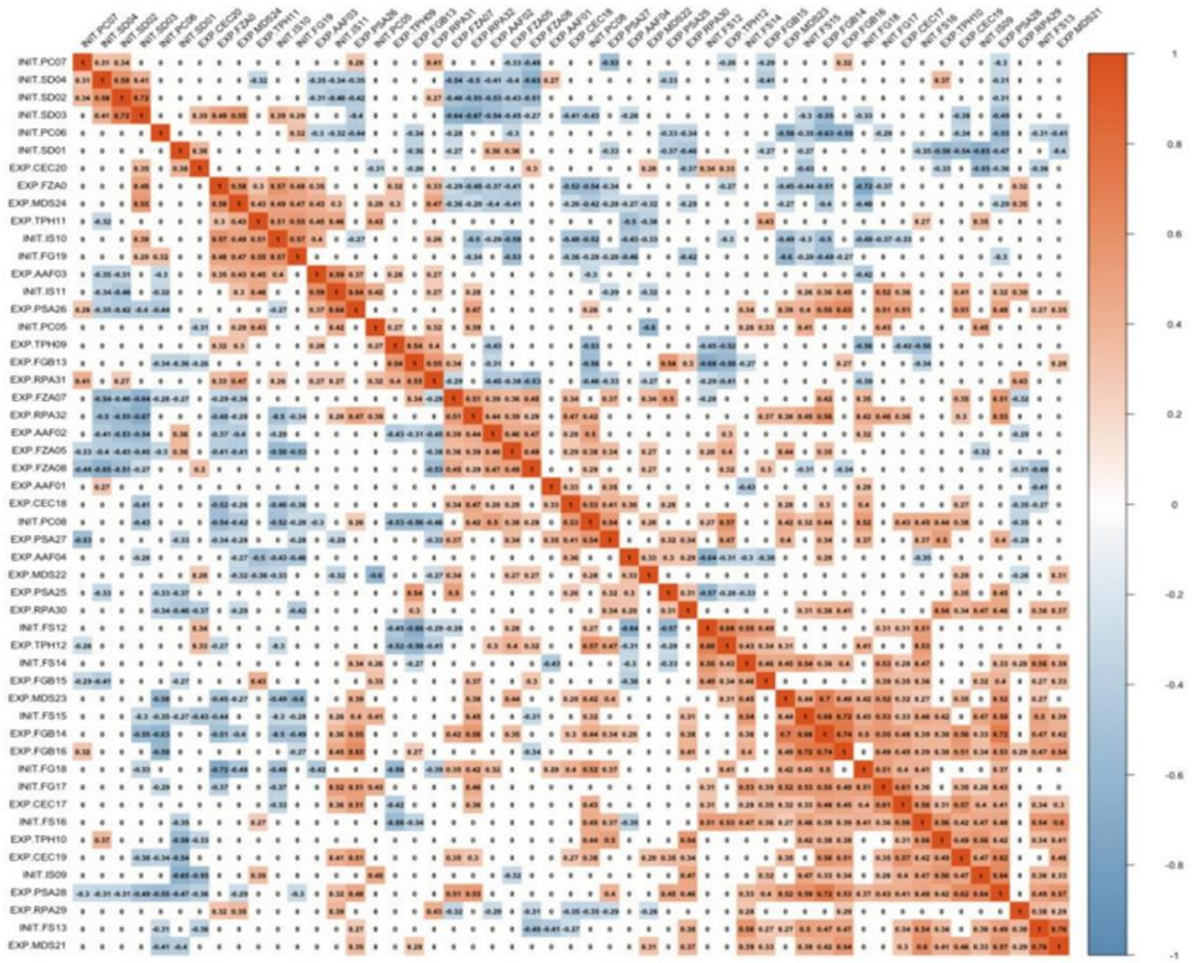
The questionnaire was administered between March and September 2022 to 56 weightlifting professionals nationwide. The questionnaire was written in Google form and was sent to the respondents via a login link. The answers were automatically centralized through the Google platform.

The questionnaire was built on these categories of questions as a result of the literature review on how to investigate specialists internationally. The questions found in the questionnaires from the research questionnaires available in the studied databases were centralized and then scaled in order to be statistically analyzed. This process resulted in these categories of questions and within each category the questions considered relevant to them were identified and selected.

Questionnaires provide a flexible and rigorous means of collecting quantitative and qualitative data, facilitating a nuanced exploration of complex phenomena. In the context of this research, which examines talent identification and development in performance weightlifting, the Questionnaire proved to be the most appropriate methodology due to its scalability, accuracy and adaptability.

Results

Correlative results related to all the questions included in the questionnaire administered to the specialists are presented in Figure 1. The paper presents only the results that are the subject of this article.



The first section of the survey, focusing on the perception of weightlifting for children, reveals a complex interaction between the perceived safety of the sport, the risks associated with the sport and the recommended age of initiation. The correlation analysis shows a moderately strong inverse relationship between the perception of weightlifting as safe and beneficial (INIT-PC06) and its perception as a high-risk sport (INIT-PC07), with a correlation coefficient of approximately -0.6 and a p-value below 0.01. This statistically significant result suggests a clear division among experts: those who consider the sport to be safe tend to reject the idea that it is too risky and vice versa.

The domain of anthropometric and physical attributes examines measurable physical characteristics and their perceived influence on performance in weightlifting, particularly in the identification of future champions. There is an extremely strong and statistically significant correlation between the perceived importance of body proportions (EXP-AAF01) and the relevance of grip strength (EXP-AAF02), with a correlation coefficient close to 0.81 and a p-value below 0.01. This strong relationship reflects the practical reality that body proportions and grip strength both play an essential

role in weightlifting mechanics. Proportions, such as the ratio of limb length to torso length, influence leverage, while grip strength has a direct impact on the ability to control and stabilize the weightlifting, particularly in complex lifts such as the Clean & jerk. The alignment of these factors highlights a common biomechanical basis that experts consistently prioritize when evaluating talent.

Another notable correlation is observed between the importance of body proportions (EXP-AAF01) and the vertical jump test (EXP-AAF03), with a coefficient of approximately 0.65 and a p-value below 0.05. This relationship emphasizes the role of explosive power as a critical predictor of success in weightlifting, given that vertical jump performance is a well-established proxy for lower-body strength and neuromuscular efficiency. However, the weaker, but still positive, correlation between the vertical jump test (EXP-AAF03) and the long jump test (EXPAAF04), with a coefficient of approximately 0.52 and a borderline significant p-value, suggests subtle distinctions in how these tests are evaluated. The vertical jump appears to be considered more relevant to the upward explosive force required in weightlifting, whereas the long jump may be considered less specific because of its horizontal component, which differs slightly from the vertical requirements of the sport. Interestingly, the relationship between grip strength (EXP-AAF02) and the long jump test (EXP-AAF04) is relatively weak, with a correlation coefficient below 0.4 and an insignificant p-value. This weak correlation likely reflects the divergent nature of these attributes: while grip strength is essential for barbell control, the long jump emphasizes lower-body strength without directly engaging upper-body musculature. Such distinctions may indicate that experts perceive these attributes as having complementary, rather than overlapping, roles in assessing potential.

Overall, the data in this domain reflect a multifaceted understanding of physical attributes, emphasizing the interplay between anthropometry, strength and power. Strong and significant correlations highlight areas of consensus, while weaker and insignificant relationships indicate the nuanced, sometimes independent, roles that these attributes play in the identification and cultivation of weightlifting talent. These findings reinforce the complexity of talent identification in weightlifting, where experts must

balance a variety of physical characteristics to construct a comprehensive profile of potential

DISCUSSION

This component of the survey is designed to capture coaches' perceptions of the critical role that physical characteristics play in predicting success in weightlifting. In particular, it assesses attributes such as body proportions, grip strength, and explosive power - generally recognized as essential in differentiating high-potential athletes in strength sports.

By including items such as Body proportions, the survey aligns with the hypothesis that anthropometric measures such as limb length and trunk-to-limb ratio significantly influence performance. These factors are particularly relevant, given their biomechanical implications for the execution of key weightlifting movements such as the snatch and the clean & jerk (Bayios et al., 2006; Zatsiorsky & Kraemer, 2006).

The Grip Strength (Grip Strength) element is directly related to hypothesis 1.3, examining the early predictive value of grip strength for long-term success in competitive weightlifting. Grip strength is not only a proxy for overall upper body explosiveness, but also a practical measure widely used in talent identification programs in a variety of sports (Cronin et al., 2007; Franchini et al., 2011).

Coaches' responses to this item will provide information about the priority they place on grip strength as a developmental marker, particularly for young athletes aged 9-12 years, where early identification can have significant implications for targeted training interventions. The inclusion of elements such as

Vertical Jump Test and Long Jump Test (vertical and horizontal jump tests) further strengthens the alignment with hypotheses 1.2 and 1.3 by exploring coaches' views of explosive strength as a predictor of weightlifting potential. Numerous studies have demonstrated that jumping ability is closely correlated with neuromuscular strength, an essential quality for generating the rapid force required in Olympic lifting (Carlock et al., 2004; Markovic & Jaric, 2007).

These elements allow the survey to assess whether coaches see the value of incorporating such field tests into their talent identification processes, potentially linking

athletic testing protocols with their experiential judgment. The inclusion of these elements is justified by a rich literature on the biomechanical and physiological determinants of success in weightlifting. For example, optimal body proportions - such as a shorter femur relative to torso length - have been associated with an increased mechanical advantage during lifting movements, reducing energy cost and increasing efficiency (Siahkouhian et al., 2011; Knechtle et al., 2020).

Similarly, explosive power, as measured by vertical and broad jump tests, has been widely validated as a proxy for neuromuscular efficiency and correlates strongly with performance in strength and power sports (Newton & Dugan, 2002; McGuigan & Winchester, 2008).

The inclusion of these measures aligns the survey with both scientific findings and established practices in elite athlete selection, ensuring that the responses will provide valuable data to advance evidence-based talent identification in weightlifting. In summary, this component of the survey directly addresses critical research hypotheses by exploring how coaches perceive anthropometric and physical attributes as indicators of potential in weightlifting.

CONCLUSIONS

In weightlifting, success depends not only on the absolute strength of the athlete, but also on the efficiency with which this strength can be applied through a favorable body structure.

Essential physical characteristics, such as segmental proportions, body composition and joint mobility, determine the basic biomechanical conditions for force production and stability under the weightlifting.

Focusing on body proportions, grip strength, and explosive power, the survey ensures alignment with both the theoretical and practical dimensions of talent identification, providing useful insights into the role of physical traits in shaping long-term athletic success.

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