



Anthropometric Characteristics of Young Bocce Athletes in the Raffa Specialty: An Analysis of Physical Parameters in Junior Players of National Level

Fabio Scamardella^{1ABCDE}, Francesca Latino^{2ABCDE} and Maria Giovanna Tafuri^{2ABCDE}

¹University of Naples Parthenope

²Pegaso University

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Corresponding Author: Francesca Latino, e-mail: francesca.latino@unipegaso.it

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Abstract

Background. The sport of bocce, and in particular the specialty of Raffa, has seen significant competitive development in recent decades, but the scientific literature on the anthropometric characteristics of athletes, especially among young people, is still limited.

Objectives. This study aimed to analyze the physical characteristics of Raffa's junior players at national level, focusing on anthropometric variables such as height, weight and body mass index (BMI).

Materials and methods. A sample of twenty athletes, divided into a research group consisting of ten athletes of national interest and a control group of ten non-competitive practitioners, was subjected to baseline measurements during regional events.

Results. The findings showed an average height of 170.5 cm and an average weight of 65.8 kg for the research team, with an average BMI of 22.63, indicating a condition of normal weight. However, 33.3 % of the athletes in the research group were overweight or class I obese, suggesting the need for greater attention to physical preparation. The data were compared with those of the control group, which had an average height of 173.5 cm, an average weight of 74.5 kg and a BMI distribution with 50% of the athletes classified as overweight. The results were discussed in relation to the initial hypotheses and the existing literature.

Conclusions. This study offers important insights for the development of personalized training programs and for the selection of young talents, highlighting the importance of adequate physical preparation. Future prospects include deepening the analysis of the somatotype and the use of larger and more diverse samples.

Keywords: anthropometry, sport, training, athletes, physical performance.

Introduction

The sport of Bocce, and in particular the Raffa discipline, is a game rooted in centuries-old tradition, yet it has undergone significant technical, tactical, and physical evolution over the past few decades (Febrianingrum, & Diana, 2021). Once regarded primarily as a recreational activity, Raffa is now played at highly competitive levels, requiring athletes not only to possess technical skills and mental focus, but also a solid physical preparation and appropriate morpho-functional characteristics (Şimşek & Kesilmiş, 2022). In this context, the analysis of anthropometric features in young athletes is gaining

increasing importance, particularly in areas such as athlete selection, training, and talent prediction. Anthropometry, the study of the measurements and proportions of the human body, represents a fundamental component in evaluating the morphological suitability of an athlete in relation to the specific demands of their sport (Gür et al., 2022). Numerous scientific studies have demonstrated the significance of certain body characteristics in predicting athletic success, with clear specificity depending on the discipline. While sports like basketball or volleyball favor taller athletes with long limbs, disciplines such as artistic gymnastics or diving benefit from more compact and lighter physiques. However, in the case of Raffa, scientific literature remains scarce regarding the analysis of ideal anthropometric components, especially among young athletes (Yuan & Li, 2022; Geçitli et al., 2021). The Juniores category in Raffa marks a crucial

phase in the athletic development of players: it is during this stage that they transition from basic sports practice to a more structured and performance-oriented approach (Türkmen et al., 2018). Consequently, understanding which physical traits are most advantageous can offer valuable tools not only for coaches and trainers in making more targeted selections, but also for the athletes themselves, allowing them to adjust their training according to their strengths and areas needing improvement. Raffa differs from other bocce specialties (such as Volo or Petanque) through a series of technical and regulatory elements that require particular abilities in coordination, precision, postural stability, as well as strength in the dominant arm and core muscles. Moreover, contrary to common assumptions, this discipline involves a substantial amount of repetitive movements, torso rotations, and weight transfers, factors that engage various body segments, suggesting a potential relevance of anthropometric proportions (Eler & Eler, 2018). Studies in the broader sports science field have highlighted the importance of parameters such as height, body weight, body mass index (BMI), limb length, wrist and arm circumference, and body composition (percentage of lean and fat mass) in determining athletic performance (Yuan & Li, 2022).

Despite the long tradition of bocce and growing interest in its development among young and competitive athletes, scientific literature specifically focused on the Raffa discipline remains extremely limited. Most studies in the sports field concentrate on disciplines that are more widespread and well-structured in terms of research, such as football, athletics, gymnastics, or team sports (Raiola et al., 2015; Scamardella et al., 2025). When it comes to bocce, existing research is mostly centered on technical or historical aspects, while biomechanical, physiological, and, especially, anthropometric investigations are still lacking. Nonetheless, some preliminary studies conducted in recent years, particularly in the broader context of bocce sports (including Volo and Petanque), have shown that certain physical characteristics can significantly influence the effectiveness of the technical gesture, postural stability, precision, and neuromuscular endurance. Moreover, international studies on sports that share similarities with Raffa, such as archery, curling, or bowling, emphasize the importance of a balance between strength, fine motor control, and bodily symmetry (Cataldi et al., 2019). In these contexts, parameters such as the length of the dominant arm, symmetry between limbs, BMI, and lean mass distribution have shown correlations with performance quality (Balan et al., 2020). Therefore, the absence of a solid body of specific data for Raffa, and especially for the Juniores category, represents a significant gap that this study aims to begin addressing, by providing an original and focused contribution toward building a reference model for the physical and morphological evaluation of young bocce athletes (Firdaus, & Irfan, 2023).

This study was thus conceived to fill a gap in the current scientific landscape by proposing a detailed analysis of the anthropometric characteristics of young bocce players in the Raffa discipline. Through the collection and analysis of morphological data from a representative sample of Juniores-level athletes, the aim is to outline an ideal physical profile for the discipline, identifying any potential correlations between these characteristics and performance

levels. The methodological framework of the study is based on several key research questions, which represent the core of the scientific inquiry: What is the ideal height for a Juniores-level Raffa player? What is the ideal weight for such a player? Moreover, can we approximate the average body composition of such athletes with reasonable accuracy? And finally, is it possible to establish an anthropometric prototype of the national-level Juniores Raffa player?

In summary, the present article aims to provide a comprehensive and detailed overview of the anthropometric characteristics of young Raffa players, with the goal of identifying the ideal morphological parameters for high-level performance in this discipline. The research questions outlined above will guide the entire investigation, whose ultimate purpose is to enhance our understanding of the factors influencing performance in Juniores-level Raffa, while also offering concrete, operational insights for the sports world.

Materials and Methods

Study Design

The study was conducted according to a quasi-experimental comparative and transversal design, aimed at analyzing the anthropometric characteristics of young athletes practicing the Raffa specialty in the discipline of Bocce, in order to outline a possible ideal morphological profile for the Juniores category. A comparative study design was therefore adopted between two distinct groups of athletes: a research group composed of competitive subjects of national interest and a control group formed by non-competitive practitioners.

The adoption of a transversal design allows a precise photograph of the body characteristics of the subjects at a precise moment in their sporting career, providing useful data for the definition of youth performance standards.

The quasi-experimental design was chosen as it is particularly suitable for the sports field, where the randomization of subjects is not always possible for ethical, organizational or selection reasons. In this context, the division into natural groups still allows us to explore the correlations between specific physical characteristics and the level of sports performance, in a realistic perspective that can be applied to practice.

Within the design, the independent variable is represented by the level of sports practice (competitive vs non-competitive), while the dependent variables include the main anthropometric parameters measured: height, body weight, Body Mass Index (BMI).

In compliance with international ethical principles, the study was conducted in accordance with the dictates of the World Medical Association's Declaration of Helsinki, which regulates research with human subjects. All participants and their parents or legal guardians have received appropriate information on the purpose and modalities of the study and have provided written informed consent to participate. The measurements were carried out in full respect of the dignity, confidentiality and physical integrity of the subjects involved. The entire procedure was supervised by trained operators, able to guarantee the accuracy of the measurements and the safety of the athletes.

In conclusion, the design adopted, while presenting the typical limitations of quasi-experimental (absence of randomization, non-probability sample, observational nature), offers a solid framework to systematically explore the relevant anthropometric characteristics in Raffa at the competitive youth level, constituting a first step towards the construction of a reference performance model in the discipline.

Participants

The sample under study consists of twenty male athletes, aged between fourteen and eighteen, all belonging to the Juniores category, selected from among practitioners of the Raffa specialty. The participants were divided into two homogeneous groups of ten units each: the research group, made up of athletes of national importance (including winners of the absolute Italian title and medalists both individually and in teams at national level), and the control group, composed of practitioners of the Raffa discipline not included in federal competitive circuits. The selection of the athletes of the experimental group took place in collaboration with the federal technicians and the regional committees of the Italian Bocce Federation, in order to ensure the representativeness of the competitive level required. All participants and, when necessary, their parents or legal guardians, have provided informed consent to participate in the study.

Procedure

The data collection activities took place in the context of regional collegiate events, organized by the Italian Bocce Federation at the Campania Bocce Committee, in preparation for national competitions. The surveys were carried out during two technical internships, carried out in March and April 2025. Each athlete was subjected to two basic measurements: height, measured by means of a stadiometer in an orthostatic position, and body weight, measured through a digital scale calibrated and validated for sports medical use. The Body Mass Index (BMI) was calculated for each athlete using the standard formula (weight in kg divided by the square of the height in meters); however, since these subjects are adolescents (14–18 years), its interpretation has been made with reference to age- and sex-specific percentile values, as recommended by the main international scientific bodies, in order to take into account the natural variations related to pubertal growth and body development (Centers for Disease Control and Prevention, 2000; WHO, 2007). The data obtained were subsequently processed using descriptive statistical indices (mean, standard deviation, range) and compared between the two groups (research and control) to identify any significant differences and assess consistency with the research hypotheses formulated. The entire survey process was conducted by expert personnel in compliance with standardized anthropometric measurement protocols, in order to ensure the reliability and validity of the data collected.

Statistical Analysis

For the analysis of the collected data, several statistical tests were used in order to compare the anthropometric

characteristics between the research group (competitive athletes) and the control group (non-competitive athletes). The main variables analyzed were height, body weight, and body mass index (BMI).

First, a normality test was performed on the data to see if it followed a normal distribution. Because the study sample size was relatively small ($n=10$ for each group), the Shapiro-Wilk test, a specific test for small sample sizes, was used. This step was critical in determining which statistical test to use next. If the data were normally distributed, the t-test for independent samples would be applied to compare the means between the two groups. In the event that the data were not normally distributed, nonparametric tests, such as the Mann-Whitney U test, would have been used.

Next, descriptive parameters were calculated for each variable (height, weight, and BMI) within each group, including mean, median, standard deviation, and value ranges. These values provided an overview of the distribution and variability of the participants' anthropometric characteristics.

To compare differences between groups with regard to height, body weight, and BMI, the t-test for independent samples was used. This test made it possible to establish whether there were statistically significant differences between the two groups in relation to each of the variables measured. The null hypothesis (H_0) indicated that there were no differences between the groups, while the alternative hypothesis (H_1) stated that there were significant differences.

Once the BMI values for all participants had been calculated, the means of the two groups were compared using the t-test for independent samples. For each of the variables analyzed (height, weight and BMI), the results obtained were interpreted according to the significance value (p-value). A p-value of less than 0.05 was considered statistically significant, indicating that the observed differences between the groups were not due to chance. In addition, to have a measure of the magnitude of the differences, the effect size (Cohen's d) was calculated, which allows us to assess how significant the differences between the groups are, beyond statistical significance.

All data were analyzed using SPSS software (version 27.0, IBM Corp.), with the help of Excel 2021 for descriptive data management and charting.

Results

The analysis of the data collected concerned the main anthropometric variables of the subjects involved in the study: height, body weight and body mass index (BMI). The results were compared between the research group, made up of junior competitive athletes of national level, and the control group, made up of peers who are non-competitive practitioners of the Raffa specialty.

In terms of height (Fig.1, 2), subjects in the research group showed an average of 170.5 cm (range: 157–183 cm), while subjects in the control group had a slightly higher average of 173.5 cm (range: 162–184 cm). The t-test for independent samples found no statistically significant differences between the two groups ($t_{(18)} = 0.70$, $p = 0.492$), suggesting that height is not a relevant distinguishing factor between young competitive and non-competitive athletes in the discipline. The analysis of Cohen's d revealed a moderate

difference between the two groups with a value of -0.55, indicating that the control group is on average higher than the research group. Although the difference between the averages is visible, the effect is not particularly pronounced, suggesting that height is not a determining factor with a large incidence in performance between the two groups.

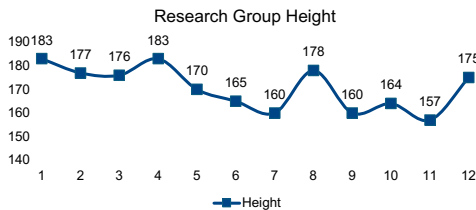


Fig. 1. Average height research group

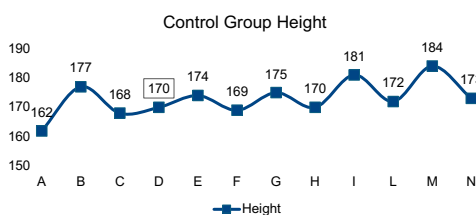


Fig. 2. Average height control group

More marked, however, are the differences that emerged in terms of body weight (Fig. 3, 4). The athletes in the research group showed an average weight of 65.8 kg (range: 42-87 kg), while the peers in the control group showed a significantly higher average value of 74.5 kg (range: 68-93 kg). Statistical comparison revealed a significant difference between the groups ($t_{(18)} = -2.78$, $p = 0.012$), indicating that agonist subjects tend to have a lower body weight than non-agonist peers. The Cohen's d value for weight is -1.09, indicating a significant and impressive difference between the two groups. The research group, therefore, has a lower body weight than the control group. This suggests that Raffa bowlers in the research group tend to be lighter than players in the control group.

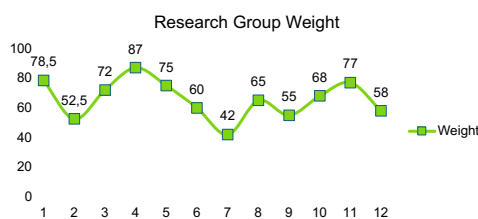


Fig. 3. Average weight of the research group

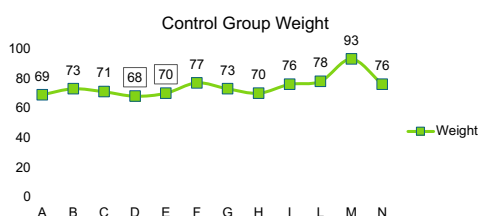


Fig. 4. Average weight control group

A similar picture was observed in the analysis of Body Mass Index (BMI) (Fig 5, 6). BMI was calculated for each subject using the weight (kg) / height (m)² formula, and was interpreted according to the criteria for adolescent subjects aged 14 to 18 years, referring to the percentile-specific tables for sex and age, as indicated by Cole et al. (2000). The results show that the research group is distributed as follows: 16.67 % of athletes fall into the underweight range, 50 % into the normal weight range, 25 % overweight, and 8.33 % into class I obesity. On the contrary, in the control group, 50 % of athletes are normal weight, while the remaining 50 % are overweight; no subject is underweight or obese. Again, the t-test showed a statistically significant difference between the two groups ($t_{(18)} = -2.80$, $p = 0.012$), confirming that the weight profile of competitive athletes tends to be more in line with optimal body composition conditions than non-competitive peers. Cohen's d value for BMI is -0.71, indicating a moderate difference between the two groups, with the research group having a lower average BMI than the control group. This suggests that bowlers in the research group tend to have a relatively lower weight than players in the control group, a factor that could be related to physical characteristics specific to the Raffa discipline.

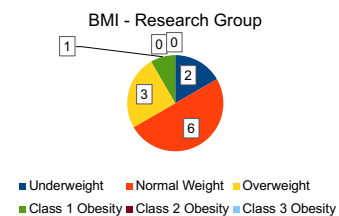


Fig. 5. BMI distribution research group

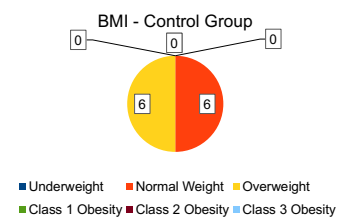


Fig. 6. Control Group BMI Distribution

These results, taken together, suggest that competitive junior athletes of the Raffa specialty exhibit anthropometric characteristics closer to an ideal reference model, particularly with regard to body weight and body mass index. Despite the absence of a significant difference in height, the overall profile appears consistent with a higher level of physical preparation and weight control.

Discussion

The aim of this study was to analyze the anthropometric characteristics of young athletes in the Raffa specialty, with particular attention to height, weight and BMI, in order to identify any correlations between these variables and sports performance. The authors also sought to compare

these data with those of a control group of non-competitive practitioners, to assess the physical differences between national-level junior athletes and their non-competitive peers.

The first result that emerged from the study concerns the average height of the young athletes of the Raffa, which turns out to be 170.5 cm. This figure is lower than the national average of young Italians, which is around 177 cm, but this difference could have interesting biomechanical implications. Athletes with a smaller stature could benefit from greater stability when throwing the apparatus, thanks to a lower center of gravity. This could positively affect the precision and control of the technical gesture, favoring greater postural stability during the throwing gesture (Badruzaman, 2021; Paciorek, 1992; Miao et al., 2017).

The average height of the research team may suggest a preference for athletes who do not excel in height, but who benefit from better body control and a more advantageous stable position. This feature could prove useful for the type of movement required in the Raffle, which involves postural stability and accuracy in throwing (Şimşek et al., 2024; Horowitz, 2009; Turkmen et al., 2013).

The results obtained are consistent with some evidence in the scientific literature. Although sports such as basketball require a tall stature, sports such as archery or curling, which require precision and stability, show a preference for athletes with an average or smaller stature. Eler (2018) noted that the average height of Raffa adult national athletes is around 177 cm, while the young athletes in our study are below this average, suggesting that Raffa's specialty does not favor very tall athletes (Helmi et al., 2024a).

The average weight of the athletes in the research group was 65.8 kg, with an average BMI of 22.63, which falls within the normal weight range, a sign of an adequate physical condition for a competitive athlete. This value is in line with the expectation of an athlete who practices the Raffa at a national level. However, the BMI figure shows that 33.3% of athletes are overweight or even class I obese, which could indicate a certain inattention to conditional physical training, and especially to physical culture in relation to the game of bowls. Although the research team has a normal BMI average, the presence of overweight athletes suggests that some young people may not be fully prepared physically (Helmi et al., 2021).

The weight and BMI data highlights a positive aspect, with most athletes in an appropriate physical condition for the competitive level, but also a certain criticality, with a significant percentage of athletes overweight or even obese. This may reflect a lack of attention to physical preparation, which is an important factor in maintaining a competitive level in a sport that, although technical, also requires endurance and agility (Helmi et al., 2024b).

The results of the research team are partly in line with the data of Eler et al. (2018), where the average BMI of senior athletes in the Raffa is around 22.94, very close to the figure of 22.63 observed in our sample. However, the presence of athletes with overweight or obesity is an issue that requires attention, as it has been found that the optimal physical condition in athletes of precision and coordination sports, such as Raffa, is that of a BMI in the normal weight range or slightly lower (Hafidz et al., 2024; Costa, 2021).

As for the control group, the average height was 173.5 cm, a higher value than the research group, but still close to the

national average of young Italians (Epicentro, 2025). The average weight, on the other hand, was 74.5 kg, with a higher average BMI than the research group, indicating that most athletes in the control group are in the overweight range, with a percentage of 50% in this condition. These findings may reflect a lack of focus on physical preparation for bowls, or a non-competitive approach to physical training, suggesting that many non-competitive practitioners do not have a specific conditional training regimen (Irawan et al., 2024; Kopp, 2022; Mardiah, 2022).

Data from the control group confirm that, without a structured training program and attention to physical preparation, practitioners tend to develop less than ideal physical conditions, with a significant percentage being overweight. This is a worrying aspect, which underlines the importance of promoting a sports culture even among non-competitive athletes, in order to ensure a balanced approach to sports practice.

The distribution of BMI in the control group aligns with data reported in previous studies examining the physical status of Italian adolescents (Maffei et al., 2023), where there is a worrying trend towards overweight and obesity among young people. The literature also supports the need for awareness-raising interventions to improve physical preparation, not only among competitive athletes, but also among non-competitive practitioners (Irawan, 2019; Nurhasan et al., 2024).

In general, the results obtained in the present study are in line with the initial research hypotheses, highlighting some common anthropometric characteristics among young Raffa athletes. Although physical preparation is adequate in many cases, the presence of overweight or obese athletes in both the research group and the control group underlines the importance of a conditional training program that accompanies sports technique. It is hoped that future research will explore the somatotype of junior athletes, using methods such as those of Heath & Carter (1967), to gain an even deeper understanding of the ideal physical characteristics for Raffa's specialty.

The study in question therefore aimed to explore the anthropometric characteristics of junior athletes in the Raffa specialty, an aspect still little explored in the scientific literature. The results obtained provide interesting and useful data to improve the physical preparation of young athletes and help to fill a gap in the sports research landscape.

However, the study has some limitations that must be considered. First, the sample size is relatively small, with only 20 athletes involved, divided into two groups of 10 participants each. This limited number of subjects may not fully represent the total population of junior athletes in the Raffa, reducing the ability to generalize results. A larger sample would allow us to have a more accurate and representative view of the physical characteristics of Bocce athletes. In addition, the study focused mainly on three variables: height, weight and BMI, without including other relevant parameters such as somatotype or body composition, which could provide additional information on the physical condition of the athletes. The effect of other factors, such as diet or lifestyle, that could affect athletes' body weight and physical health was also not considered. In addition, the sample was not randomly selected, and this could introduce biases, particularly regarding the difference between the

research group (competitive athletes) and the control group (non-competitive athletes). Finally, the fact that the study is cross-sectional represents another limitation, since changes over time in the physical characteristics of athletes have not been observed, which could evolve with age and with the improvement of technical and physical skills.

Despite these limitations, the study has numerous strengths. First of all, the contribution to the scientific literature is significant, as it offers food for thought on an area that has not been much explored: the physical characteristics of junior athletes in the Raffa. Objective data, such as height, weight and BMI, represent parameters that are easily repeatable and can be used by coaches and sports professionals to monitor the health and physical condition of athletes. In addition, the comparison between competitive and non-competitive athletes allows us to highlight significant differences in the level of physical preparation, helping to better understand the importance of training for the Raffa specialty. The results obtained are also useful for designing targeted training programs that can improve the physical condition of young practitioners. Finally, the results of this study are consistent with other previous research, confirming the robustness and reliability of the data.

Therefore, although the study has some limitations related to the sample size and the lack of additional variables, it still offers a significant contribution to the understanding of the physical characteristics of junior athletes in the Raffa. The information collected can be used as a basis for further research and for the improvement of training practices for young Bocce athletes. Future studies could explore these issues by including a larger sample, additional variables, and a longitudinal design to observe the evolution of physical characteristics over time.

Conclusions

The sport of bocce, in particular in the specialty of the Raffa, has seen a growing development at a competitive level in recent decades, with an increasing attention to physical preparation and the selection of young talents. Although the scientific literature regarding the anthropometric characteristics of bocce athletes, and in particular of young Raffa players, is still limited, this study sought to fill part of this gap, exploring the physical characteristics of national-level junior players. The analysis of variables related to height, weight and BMI has provided interesting insights to understand the physical peculiarities of this category of athletes and to develop future specific preparation models for the discipline.

The results obtained revealed that the average height of Raffa's junior athletes is 170.5 cm, a figure that may appear lower than the average height of Italian adolescents, but which may confer biomechanical advantages related to greater stability and a lower center of gravity during the technical gesture of the throw. The average weight of 65.8 kg is in a normal weight range, with a BMI of 22.63, consistent with the physical characteristics of a national-level competitive athlete. However, the data also show that a significant proportion of athletes are overweight or even class I obese, an aspect that underlines the importance of adequate physical preparation and athletic conditioning, which is often neglected in this sport. In addition, the

comparison with the control group, made up of non-competitive practitioners, highlighted evident differences in physical composition, in line with the initial hypotheses.

The practical implications of the study manifest themselves on several levels. Firstly, from a scientific point of view, the work contributes to filling a gap in the Italian and international sports literature, providing useful data to the academic and sports community. Secondly, on a practical level, the results can be used by sports federations (such as the Italian Bocce Federation) to improve youth selection processes, to design personalized training paths and to optimize talent development strategies. In addition, sports training schools, functional assessment centers and coaches themselves will be able to have more objective tools to assess the suitability of athletes during the recruitment phase, but also to monitor progress over time and intervene in a targeted way on physical preparation. Finally, the work aims to contribute to a greater professionalization of the sport of bocce, bringing it closer and closer to consolidated disciplines in terms of scientific analysis of the athletic gesture and physical preparation. A distinctive aspect of this study lies in the integrated and multidimensional approach to anthropometric evaluation. In this way, the aim is to build an in-depth descriptive model, which can serve as a reference for future comparative studies, also in other bowling specialties or in sports similar to technical requirements.

Looking ahead, future research developments could include the integration of more detailed measurements of body composition (particularly the percentage of lean and fat mass) and somatotype, using validated protocols such as that of Heath & Carter. The introduction of a larger and more diverse sample, including athletes of different age groups and from different backgrounds, could allow for more general results that are applicable at national and international level. A longitudinal design, which allows athletes' physical changes to be monitored over time, would be particularly useful for understanding how physical characteristics evolve with age and competitive experience, as well as for identifying the best training strategies during various stages of development.

In conclusion, this study represents a significant first step in understanding the anthropometric characteristics of the young bowler in the Raffa, with implications for the training, selection and development of talent in this sport. While there are still many areas to explore, the information gained is a valuable starting point for improving athletes' physical fitness and contributing to their success in competitive competition.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Антропометричні характеристики юних спортсменів з бочче за спеціалізацією «Раффа»: Аналіз фізичних параметрів юних гравців національного рівня

Фабіо Скамарделла^{1ABCDE}, Франческа Латіно^{2ABCDE}, Марія Джованна Тафурі^{2ABCDE}

¹Університет Неаполя Парфенопа

²Університет Пегаса

Авторський вклад: А – дизайн дослідження; В – збір даних; С – статаналіз; D – підготовка рукопису; Е – збір коштів

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Історія питання. За останні десятиліття бочче як різновид спорту і, зокрема, спеціалізація «Раффа», зазнали значного конкурентноспроможного розвитку, проте наукова література щодо антропометричних характеристик спортсменів, особливо серед молоді, представлена досі обмежено.

Мета дослідження. Метою цього дослідження було проаналізувати фізичні характеристики юних раффа-гравців на національному рівні, зосередивши увагу на антропометричних показниках, як-от зріст, вага та індекс маси тіла (ІМТ).

Матеріали та методи. Задля проведення базових вимірювань під час регіональних змагань, вибірку із двадцяти спортсменів розподілено на дослідницьку групу, що складалася з десяти спортсменів національного рівня, і контрольну групу з десяти практикуючих осіб, які не брали участі у змаганнях.

Результати. За результатами дослідження середній зріст досліджуваної групи становив 170,5 см, середня вага — 65,8 кг, середній ІМТ — 22,63, що вказує на стан нормальної ваги. Однак 33,3 % спортсменів у досліджуваній групі мали надмірну вагу або ожиріння І ступеня, що свідчить про необхідність приділяти більшу увагу фізичній підготовці. Отримані дані було порівняно із показниками контрольної групи, яка мала середній зріст 173,5 см, середню вагу 74,5 кг та розподіл ІМТ, за яким 50 % спортсменів класифіковано як особи з надмірною вагою. Результати обговорено відповідно до вихідних гіпотез та наявних літературних даних.

Висновки. У цьому дослідженні представлено важливу інформацію для розробки персоналізованих тренувальних програм та відбору молодих талантів, що підкреслює важливість належної фізичної підготовки. Подальші перспективи включають поглиблення аналізу соматотипу та використання більших та різноманітніших вибірок.

Ключові слова: антропометрія, спорт, тренування, спортсмени, фізична результативність.

Information about the authors:

Scamardella, Fabio: fabio.scamardella@uniparthenope.it; <https://orcid.org/0000-0001-7970-2539>; University of Napoli Parthenope, Via Ammiraglio Ferdinando Acton, 38, 80133 Napoli NA, Italy.

Latino, Francesca: francesca.latino@unipegaso.it; <https://orcid.org/0000-0003-0302-6145>; Pegaso University, Centro Direzionale Isola F2, 80143 Napoli NA, Italy.

Tafuri, Maria Giovanna: mariagiovannatafuri@unipegaso.it; <https://orcid.org/0000-0003-4059-3122>; Pegaso University, Centro Direzionale Isola F2, 80143 Napoli NA, Italy.

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