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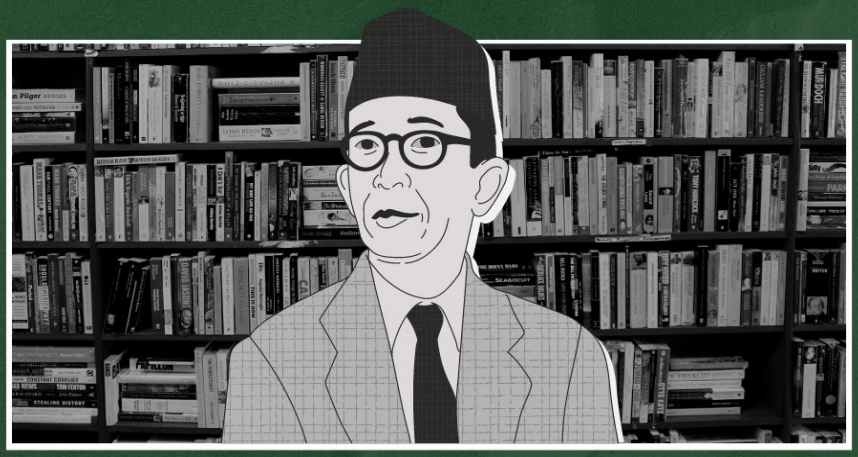

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Percentage of Use of Different Defensive Skills (Arm-Trunk-Foot) according to Weight Categories (Light, Medium, Heavy) in the Baghdad Junior Clubs Championship

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Abstract

General Background: Defensive skills are essential components of boxing performance because boxers must respond to changing fight situations through appropriate defensive techniques. **Specific Background:** Junior boxers may employ different defensive skills according to their weight categories, but the frequency of arm, trunk, and foot defenses during actual bouts requires systematic examination. **Knowledge Gap:** Limited studies have focused on the rates of defensive skills used by junior boxers across different weight categories, particularly in local championship competition. **Aims:** This study determines the percentage and frequency of defensive skills used by junior boxers according to weight category. **Results:** Using descriptive analysis of 2026 Baghdad Clubs Junior Championship bouts, 15,368 defensive movements were recorded. Lightweight boxers (44–57 kg) performed 5,310 defensive movements, comprising 22% arm, 35% trunk, and 43% foot defense. Middleweight boxers (60–70 kg) recorded 5,215 movements, comprising 24% arm, 42% trunk, and 34% foot defense. Boxers above 70 kg recorded 4,843 movements, comprising 45% arm, 33% trunk, and 22% foot defense. **Novelty:** The study provides a weight-category-based profile of defensive skills derived from actual junior boxing bouts in the Baghdad Championship. **Implications:** The findings provide coaches and specialists with numerical information for developing defensive training according to age, weight category, and fight performance requirements.

Highlights:

- Lightweight boxers recorded the highest use of foot defense at 43%.
- Middleweight boxers recorded the highest use of trunk defense at 42%.
- Boxers above 70 kg recorded the highest use of arm defense at 45%.

Keywords: Defensive Skills, Fight Analysis, Arm Defense, Trunk Defense, Foot Defense.

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Introduction

Boxing is one of the most exciting and thrilling sports, boasting diverse and beautiful gameplay that showcases artistry and skill through various techniques and abilities. It also presents numerous challenges and difficulties that instill a spirit of determination, perseverance, and a drive to win and progress. Achieving victory in international, world, and Olympic championships is a primary goal for nations, making it a top priority that necessitates significant investment. This success serves as a crucial indicator of their advancement in the sporting arena. As boxing is a key event within international and Olympic competitions, many countries strive to reach advanced levels by winning the largest possible number of medals.

Achieving these successes depends on several factors, most importantly the monitoring, evaluation, and analysis of technical and skill levels. This is a cornerstone for understanding current achievements and future goals, facilitating the development of strategic plans and performance assessments that align with available capabilities and resources to achieve optimal results. Since skill preparation comprises a set of necessary techniques and methods that a boxer chooses to achieve dominance in fight rounds, all skills, whether offensive or defensive, are of paramount importance to the boxer, who must master them completely.

Defensive skills are no less important than offensive skills; in fact, they are the most crucial key to a successful attack. This is because boxing matches are based on constantly changing situations, requiring the boxer to choose diverse defensive tactics and methods that suit the opponent's style and approach.

A successful coach works to the best of their ability to prepare a boxer holistically, enabling them to maximize their potential, minimize weaknesses in their performance, and bridge the gap between their training and fight performance. This includes training for various fighting situations, such as diverse defenses tailored to the specific circumstances of the bout and the opponent, to achieve victory. During a fight, a boxer's abilities are revealed through the proper application of all trained skills and techniques, especially defensive ones. Local tournaments are the first step in discovering talented boxers with the best performance, who can then achieve better results at the international level [1]. Therefore, a distinguished boxer is one who possesses advanced and diverse defensive skills, as well as offensive skills and complements them. Possessing offensive skills without effective defensive skills is not enough, because the boxer will be exposed to attacks and counterattacks from the opponent, causing him to lose points and thus potentially lose the fight. Therefore, the integration of different skills is a fundamental element for the boxer to advance to high levels and achieve advanced accomplishments.

A boxer demonstrates their acquired abilities through real fights. Therefore, a boxer's true skill level can be realistically measured and evaluated through these bouts, revealing how they utilize their proficiency by employing various offensive and defensive skills in different fight situations. A boxer must showcase their best skills in all fight conditions, both in terms of the quality and frequency of their application, to successfully control and dictate the flow of the fight. Based on all of the above, the research idea emerged, aiming to analyze selected fights in official local championships to determine the percentage of defensive skills used according to the weight classes, and which skills are most frequently employed for each boxer's weight category. This allows coaches and specialists to develop appropriate training plans based on the researcher's findings, thereby improving boxers' defensive skills. This, in turn, contributes to raising the level of training, which ultimately elevates the level of competition to achieve better results and reach the highest levels.

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Most coaches and specialists are concerned with offensive skills and how to develop them and throw the most punches at the opponent, in order to gain points and win the fight. Some may neglect defensive skills, not completely, but rather they are trained in an unbalanced way with offensive skills and the different course of the fight and the different styles of the opposing boxers, due to the lack of sufficient information about the most important and frequently used defensive skills in fights for different weight classes. Therefore, this study was designed to provide valuable information for specialists and coaches regarding the frequency of these skills' use in fights. This is due to the lack of previous local or international studies focusing on this important aspect of performance, with the exception of a few studies that did not address the topic of this research. These include the study by Durjasz and Nowak [2], which aimed to identify "the types of defenses used, changes in tactical style, and their relationship to the number of knockouts at the Atlanta Olympic Games (1996)," and the study by Khader et al. [3], which aimed to determine the frequency of use of individual offensive and defensive skills by winning and losing boxers participating in the Rio de Janeiro Olympic Games (2016). The study by Al-Zarjawi and Hammoud [4] aimed to identify the reasons for winning and losing based on certain technical indicators. The researchers selected three weight classes of boxers to represent the light, middle, and heavyweight classes for fight analysis. The results showed that inactive periods give a negative impression. The judges, therefore, are one of the reasons for the loss. The study by Shtanagei et al. [5] aimed to analyze competitive boxing performance, building on previous studies. It concluded that technical proficiency, punch accuracy, and activity level are among the most important determinants of performance. The study recommended adopting current research approaches and methods that integrate different analytical approaches, thus providing a foundation for improving the objectivity of performance evaluation and enhancing boxing training. From this emerged the research idea, which aims to analyze the bouts of the Baghdad Junior Championship (2026) to determine the rates and percentages of use of various defensive skills (arms, Trunk, legs) according to the weight categories adopted for juniors. This will contribute to providing sufficient information to aid in developing targeted training based on real data derived from a realistic analysis of the bouts.

Therefore, this research is significant because it provides coaches and specialists with a comprehensive description of the defensive skills used by boxers participating in the Baghdad Junior Championship. It also offers complete information that contributes to developing balanced training programs that consider both the defensive skills used in training and those required in fights, and identifies the most and least used defensive skills according to the boxers' weight classes.

The research aims to determine the percentage of defensive skills used by junior boxers participating in the Baghdad Championship, categorized by weight class.

Methods

A. Methodology and Tools

The researcher used the descriptive method, as it was suitable for the nature of the research. The research population consisted of junior boxers participating in the Baghdad Clubs Championship held from April 21-24, 2026, at the Al-Shula Sports Club in Baghdad Governorate, for all qualifying rounds and the final. The research sample consisted of the boxers participating in the 2026 Baghdad Clubs Junior Championship, selected purposively from all bouts of the championship, from the preliminary rounds to the final. The total number of boxers was 193, representing 18 clubs, meaning the research sample represented 100% of the research population.

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The analysis process continued from April 21 to June 15, 2026, with the assistance of the research team, using the following data collection tools:

1. Media Player software for displaying the bouts at different speeds.
2. Four HP computers for displaying and analyzing the bouts.
3. Two Canon cameras for filming matches.
4. CDs and flash memory for storing match recordings.
5. Data collection form.

The researcher conducted a preliminary study to determine the needs and appropriate software for analyzing the matches and collecting data effectively. This study was conducted one week before the start of the championship. The results of the match analysis were presented to experts for their feedback on the accuracy of the analysis and the methodology used. The experts approved the analysis method and the data collection form (arbitrator validation). The researcher calculated the reliability of the data collection form by analyzing some previous matches, transcribing the data from the preliminary matches, and enlisting the help of assistants to transcribe the same matches. The percentage of agreement was calculated using Cooper's formula. The percentage of agreement should not be less than 70%, which represents the reliability of the observation.

The agreement percentage formula is: (Number of times agreed / (Number of times agreed + Number of times disagreed) * 100. Therefore, the agreement percentage was 8 / (8 + 1) * 100 = 88.89%. This exceeds the 70% threshold, indicating the reliability of the questionnaire (test). Statistical Methods:

The researcher used the following statistical methods:

a. Agreement percentage.
b. Percentage.

Results and Discussion

A. Results

Based on the study's objective and using appropriate research and statistical tools, the researcher presented the findings in accordance with the data obtained and statistically processed, as follows: The total number of defensive skills was (15,368) defensive movements for all championship bouts, divided according to weight categories.

Table 1. Shows the rate of defensive skills used by the lightweight category (44-57)

Weight category	Arm defense		Trunk defense		Foot defense	
Light category	Repetition	%	Repetition	%	Repetition	%
	1142	22%	1870	35%	2298	43%
	Total repetitions					5310

The total number of defensive skills used in the lightweight category is (5310) defensive skills, divided into percentages of (22%) for arm defense, (35%) for Trunk defense, and (43%) for foot defense.

Table 2. Shows the rate of defensive skills used by the middle weight category (60-70)

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Weight category	Arm defense		Trunk defense		Foot defense	
Middle class	Repetition	%	Repetition	%	Repetition	%
	1269	24%	2191	%42	1755	34%
	Total repetitions					5215

The total defensive skills used in the middle weight category (60-70) is (5215) defensive skills, divided into percentages (24%) for defense with the arms, (42%) for defense with the Trunk, and (34%) for defense with the feet.

Table 3. Shows the rate of defensive skills used by the heavyweight category (+70)

Weight category	Arm defense		Trunk defense		Foot defense	
Middle class	Repetition	%	Repetition	%	Repetition	%
	2165	45%	1612	33%	1066	22%
	Total repetitions					4843

The total number of defensive skills used in the heavyweight category (+70 kg) is 4843, divided as follows: 45% arm defense, 33% Trunk defense, and 22% foot defense.

B. Discussion

Looking at Table (1), we see a total of (5310) defensive skills for all these lightweight weight classes (44-57 kg), divided as follows: (22%) for arm defense, (35%) for Trunk defense, and (43%) for foot defense. The researcher attributes these results to the light weight, the high use of long, straight punches, and the frequent reliance on long-range fighting techniques and counter-punches. "Using the feet in defense requires a high level of reaction time and simultaneously linking defensive movements with counter-attacks. A good boxer's choice of defensive techniques during a punch depends on the punch distance" [6]. Furthermore, a boxer's skill level depends on using Trunk and foot defenses and linking them with counter-punches [7]. Boxers also tend to defend with their feet and Trunk due to the long-range fighting style used in these weight classes. The researcher believes that the low reliance on arm defenses is for the same reason: the reliance on other skills and the long-range fighting style. Long punches and quick movements inside the ring.

Upon observing Table (2), we find that the total defensive skills for all these middleweight categories combined are (5215), divided as follows: (24%) for arm defense, (42%) for Trunk defense, and (34%) for foot defense. The researcher attributes these results to agility, diverse fighting styles, reliance on punch combinations, long and medium straights, and playing from medium distances. The use of arm defenses followed by counter-punches is also considered infrequent for these weight categories and is limited to specific or defined tasks, such as exhausting the final round of a fight due to fatigue or a specific objective like neutralizing an opponent's attack [8]. The Trunk defense, which has the highest percentage for this category,

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is considered one of the most successful and effective methods, as it gives the boxer complete freedom to use the arms to deliver various types of counter-punches. This includes leaning the Trunk backward, forward, or to the sides, while shifting the body weight onto the feet in the direction of the lean to move away from the opponent's punching range [3]. Al-Warraqi and Shaheen [3] also consider it a fundamental pillar of effective defense, as it allows the boxer to move away from the opponent's punch area and reposition himself quickly. It includes techniques such as stepping back or to the side and turning. It is a skill closely linked to victory, as most winning boxers prefer the foot defense style [9]. As for the Trunk defense, it is the second highest percentage used by boxers in these weight categories, and it is a realistic representation of their technical level. Specialists should pay attention to this valuable information to raise the level of young boxers to the highest possible level in all skills, as this category is an important future for achieving international and world championships, if specialists work to invest in them seriously to supply the national team with the best players.

Looking at Table (3), we find that the total defensive skills for all these weight classes (70+) combined amount to (4843), divided into percentages: (45%) for arm defense, (33%) for Trunk defense, and (22%) for foot defense. The researcher attributes these results to the combination of close-range fighting styles more than medium and long-range ones, as well as the use of short side and upward punches, short and medium-range straight punches, and frequent physical contact due to the high weights and their reliance on counter-punches. Trunk defense provides the ability to deliver a counter-punch [10]. The frequent reliance on continuous grappling positions, high weight, limited movement, and dependence on the power of short single punches and curved punches (hooks) are among the reasons for the higher prevalence of arm defense compared to other styles. As for foot defense, the researcher believes that the percentage accurately reflects the demanding fighting styles of these weight classes, given their relatively limited movement in the ring and their reliance on using the edges and corners of the ring to control the opponent more than other weight classes. Their movement during transition is therefore limited. Their limited and calculated strengths, coupled with their high weights which restrict their agility and force them to rely on footwork for defense, are a significant factor in their fitness.

The researcher agrees with Kapo et al. [1] that a boxer's skill level may determine the amount of defensive skills used. However, he disagrees, stating that there is no fixed rate for using defensive skills, as it depends on several factors, most importantly the opponent's style, the level of competition, and the difficulty and importance of the match.

Qaddouri [11], quoting Ghoneim, emphasizes that defensive skills play a role in the outcome of fights because mastering them means disrupting the opponent's plans and preventing their punches from reaching their target, thus enabling the boxer to counter with punches. He adds that modern boxing relies on automated scoring systems for judging fights, which has given great importance because good defenses prevent the opponent from scoring points. Therefore, the coach must focus on training not only in offensive skills but also in defensive and offensive skills in a balanced and harmonious manner [12]. This aligns with what some previous studies and research have indicated: "A superior boxer is not content with possessing a high level of physical fitness, but must also possess various essential skills, including the effective use of defensive skills, according to the opponent's position and offensive punches during the fight" [13]. This is because boxing is characterized by dynamic performance that relies on the use of powerful, fast, and numerous varied movements.

Various defensive skills are among the important tools a boxer uses to execute and implement the best strategies during competition. Therefore, they must be mastered comprehensively so that the boxer possesses the necessary skills to face the opponent and control the fight under

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the most difficult circumstances and against the strongest boxers. Proficiency in defensive techniques increases a boxer's self-confidence, as it allows them to disrupt the opponent's strategy. A successful defense is a means of counter-attack, enabling the boxer to discover their opponent's weaknesses and strengths [1]. Therefore, the researcher believes that this study provides specialists, coaches, and players with valuable information on the level of defensive skills according to weight class, enabling those involved in training to develop the best plans for improving these aspects to achieve the highest possible level.

Therefore, the results of this study are of paramount importance as it is a survey of a significant and influential variable in performance. Presenting the results numerically is a valuable contribution, helping to clarify an important performance variable and placing upon coaches and specialists the responsibility of developing players technically and tactically based on these findings.

It is clear from all of the above that in analyzing any sporting activity, competition is the primary and most important component, while training is a secondary element used as a preparatory part for competitions [14]. Therefore, the most important analysis is that of matches, as they provide a crucial outcome for identifying a player's strengths and weaknesses and for developing them in training[15].

Conclusions

1. The highest percentage of footwork defensive techniques were used in the lightweight weight class, followed by Trunk defense, and then arm defense.
2. The highest percentage of footwork defensive techniques were used in the middleweight class, followed by Trunk defense, and then arm defense.
3. The highest percentage of armwork defensive techniques were used in the over 70 kg weight class, followed by Trunk defense, and then footwork.

Recommendations

1. Specialists should utilize the research findings to develop boxers' defensive skills in a manner appropriate to their age and weight classes, and in accordance with the performance requirements of fights to achieve optimal levels.
2. Similar studies should be conducted on other age groups.
3. Similar studies should be conducted on other skill techniques.
4. Analytical and statistical studies should be conducted on various training methods in local and international championships.
5. Analytical and statistical studies should be conducted on various training methods and compared to international standards.
6. They need to utilize modern technology and artificial intelligence to design devices that measure the skill and tactical abilities of boxers.
7. Conducting similar studies on advanced stages of the tournament, as preliminary rounds may show significant variations in the use of different defenses.

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