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Comparative Analysis of the Perception of the Training Process by Coaches and Female Athletes in 3×3 Basketball

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ABSTRACT: The purpose of the present study was to identify and analyze differences in the perception of the training process between coaches and female athletes engaged in 3×3 basketball. The study involved 30 respondents, including 20 female athletes aged 18-23 and 10 coaches with experience in training teams in this game format. To collect empirical data, an author-designed questionnaire was used, consisting of 28 statements grouped into 7 thematic blocks: understanding of training goals, perception of training load, feedback, autonomy and decision-making, team interaction, psycho-emotional state, and the reflection of the specificity of 3×3 basketball in training. The results of the study revealed the presence of consistent differences in the evaluation of the training process between the two groups. Across all analyzed blocks, coaches demonstrated higher ratings compared to female athletes, with differences ranging from 0.66 to 1.10 points. The most significant discrepancies were identified in the areas of feedback and psycho-emotional state, indicating a mismatch between the organization of the training process and its perception by the athletes. In other blocks, the differences were less pronounced but systematic in nature. The smallest discrepancy was observed in the evaluation of team interaction. The obtained data indicate that the perception of the training process depends on the participant's role and may influence its effectiveness. The results of the study emphasize the need to take into account female athletes' subjective perceptions when designing and adjusting training programs, especially under the conditions of the high-intensity and dynamic nature of 3×3 basketball.

KEYWORDS: 3×3 basketball, training process, perception, coaches, female athletes, psycho-emotional state, team interaction, comparative analysis.

INTRODUCTION

The modern development of 3x3 basketball is accompanied not only by the growth of its popularity, but also by the formation of new requirements for the organization of the training process. The inclusion of this discipline in the Olympic Games program and its active implementation in educational and competitive systems have led to the need to reconsider traditional approaches to athlete preparation.

Recent studies show that 3x3 basketball differs significantly from the classic 5x5 format in terms of load structure and the nature of game actions. In the study by Ferioli et al. [4], it was established that the intensity of motor activity in 3x3 reaches more than 40 actions per minute, which significantly exceeds similar indicators in traditional basketball.

Purpose of the Study

The purpose of the present study is to identify and analyze differences in the perception of the training process between coaches and female athletes engaged in 3×3 basketball, with the subsequent determination of factors influencing the effectiveness of training.

Research Hypothesis

It was assumed that the perception of the training process by coaches and female athletes would differ significantly, with coaches tending to evaluate it more highly compared to female athletes, particularly in the aspects of feedback, psycho-emotional state, and understanding of training goals.

LITERATURE REVIEW

The systematic review by Sansone et al. [11] demonstrates that most contemporary studies focus on objective indicators, including physiological load, technical-tactical actions, and game structure. At the same time, the authors note a lack of data related to the subjective perception of the training process, particularly regarding its effectiveness as evaluated by athletes and coaches. Thus, an imbalance is formed between the study of external characteristics of activity and the internal experience of its participants.

Several studies emphasize the importance of the communicative component of training. García et al. [6] found that coaches tend to evaluate the training process more positively compared to athletes, especially in aspects of feedback and interaction. Similar conclusions are presented in

the work of Clemente et al. [3], where it is shown that differences in perception are directly related to the role of the participant in the training process.

Psychological aspects also play an important role in the evaluation of training activities. In the study by Pan et al. [9], conducted on a sample of more than 1,500 athletes, it was shown that the quality of the coach–athlete relationship is directly associated with team effectiveness. These data indicate that training represents not only a system of exercises, but also a space of interaction that influences performance outcomes.

In the practical preparation of 3x3 basketball players, the focus is shifting toward specific game-based exercises. Musiienko et al. [8] demonstrated that the use of specialized training means leads to improvements in the physical preparedness of young athletes. However, even in such studies, primary attention is given to physical indicators, while the perception of the training process itself by participants remains outside the scope of analysis.

In the educational environment, 3x3 basketball is considered an effective form of organizing classes. Yuzkovets [14] notes that the compactness of the format and high level of engagement make it convenient for students. However, these studies do not address the issue of alignment in the perception of the training process between the instructor or coach and the learners.

In the scientific context of the Republic of Moldova and Romania, research devoted to 3x3 basketball is still at a formative stage. The analysis of available publications shows that the main focus is placed on issues of physical preparation and teaching methodology in team sports [3, 7, 12]. At the same time, a comparative analysis of the perception of the training process among different participants is practically absent. Data that would allow for a comparison of coaches' and female athletes' evaluations within the 3x3 context remain limited.

Thus, existing studies converge in recognizing the high intensity of 3x3 basketball, the need for specialized training, and the importance of psychological factors. At the same time, a divergence in research focus can be observed: physiological and technical aspects are studied in sufficient detail, whereas the subjective perception of the training process remains insufficiently explored. Data concerning female samples and comparative analyses of coaches' and female athletes' perspectives are particularly limited.

Such an approach makes it possible to identify not only quantitative differences in evaluations, but also the interactional features that influence training effectiveness. The methodological foundation of the study involves the use of comparable questionnaires for female athletes and coaches, which ensures the possibility of a valid comparative analysis.

MATERIALS AND METHODS

To achieve the stated purpose, the following **objectives** were defined:

1. To analyze theoretical approaches to the evaluation of the training process in team sports.
2. To develop and adapt a questionnaire taking into account the specificity of 3×3 basketball.
3. To assess female athletes' perception of the training process across key components of preparation.
4. To conduct a comparative analysis of the data obtained between the two groups.
5. To identify the most pronounced discrepancies in the evaluation of individual aspects of the training process.
6. To formulate practical recommendations for optimizing the training process based on the obtained results.

Methodology of the Study

The study was aimed at identifying differences in the perception of the training process between coaches and female athletes engaged in 3×3 basketball. The focus was not on the training process itself as such, but on its subjective evaluation by two key groups of participants, the organizers and the athletes directly involved.

A total of 30 respondents participated in the study. The first group consisted of 20 female athletes aged 18 to 23 who regularly take part in 3×3 basketball competitions. The second group included 10 coaches with practical experience in training teams within this game format. All participants were involved in the training process at the university or competitive sport level.

To collect empirical data, an author-designed questionnaire was used, developed with consideration of the specific characteristics of 3×3 basketball. Its structure included 28 statements grouped into 7 thematic blocks: *understanding of training goals, perception of training load, nature of feedback, level of athletes' autonomy, characteristics of team interaction, psycho-emotional state, and the reflection of the specificity of 3×3 basketball in training.*

Each statement was evaluated using a five-point Likert scale, where the minimum value corresponded to complete disagreement and the maximum to complete agreement with the proposed statement. The wording of the questions was adapted for the two groups of respondents: the questionnaire for athletes used a personal perspective *("I understand," "I feel*"), whereas for coaches it used an external evaluative perspective ("*athletes understand," "athletes experience*"). At the same time, the semantic content of the statements remained identical, which ensured the possibility of a valid comparative analysis.

Data collection was conducted anonymously, which made it possible to minimize the influence of socially desirable responses. Participation in the study was voluntary.

Data processing was carried out using methods of descriptive statistics. For each block, mean values (M) were calculated, after which comparisons were made between the groups of coaches and female athletes. Particular attention was paid to identifying discrepancies in evaluations, as these reflect differences in the perception of the training process. The greater the difference between the mean values, the more pronounced the inconsistency in evaluations was considered to be.

RESULTS

The analysis of the questionnaire data showed that the evaluations of the training process by female athletes and coaches differ noticeably. For clarity, the results were summarized across seven thematic blocks and presented in Table 1, which reflects the mean values and standard deviations for each group, as well as the magnitude of the differences between them.

Table.1 Comparative analysis of athletes and coaches' perceptions of the training process in 3x3 basketball

Block	Athletes (M ± SD)	Coaches (M ± SD)	Difference	p-value
Block 1	3.51 ± 0.36	4.28 ± 0.22	0.76	<0.001
Block 2	3.49 ± 0.32	4.18 ± 0.39	0.69	<0.001
Block 3	3.30 ± 0.46	4.40 ± 0.32	**1.10**	<0.001
Block 4	3.50 ± 0.38	4.25 ± 0.29	0.75	<0.001
Block 5	3.64 ± 0.38	4.30 ± 0.39	0.66	<0.001
Block 6	3.40 ± 0.38	4.40 ± 0.27	**1.00**	<0.001
Block 7	3.61 ± 0.53	4.35 ± 0.32	0.74	<0.001

The presented data make it possible to observe not merely differences in individual indicators, but a rather consistent pattern: across all blocks, coaches evaluate the training process more highly than female athletes. The difference ranges from 0.66 to 1.10 points, which indicates a systematic discrepancy in perception.

The most pronounced divergence is recorded in the block related to feedback (difference of 1.10). This suggests that coaches are more confident in the effectiveness of their own comments and explanations, whereas female athletes assess this aspect considerably more cautiously. Such a situation may complicate the correction of actions and reduce the rate of acquisition of game skills.

A difference of similar magnitude is observed in the psycho-emotional state block (1.00). The higher evaluations provided by coaches allow for the assumption that the emotional strain experienced by athletes during training is not always fully perceived. In the context of 3x3 basketball, where game episodes change at a high pace, such a factor may have a direct impact on the quality of performance.

In the remaining blocks, the differences are less pronounced, yet they maintain a consistent character. Thus, in the evaluation of understanding training goals, autonomy, and the specificity of the game, the gap remains within the range of 0.74-0.76 points. This indicates that coaches consider the training process to be sufficiently structured and clear, whereas athletes do not always perceive it in its entirety.

The smallest discrepancy is observed in the team interaction block (0.66), which may indicate a more aligned perception of this component. It is likely that interaction within the team is more readily observable and assessable than aspects such as feedback or emotional state.

Overall, the obtained results demonstrate that the differences in evaluations are not episodic but systematic in nature. This allows for the conclusion that there is a certain gap between the organization of the training process and its perception by female athletes, which should be taken into account in its further optimization.

For a clearer comparison of the evaluations of female athletes and coaches across all blocks, the results are presented in the form of a graph.

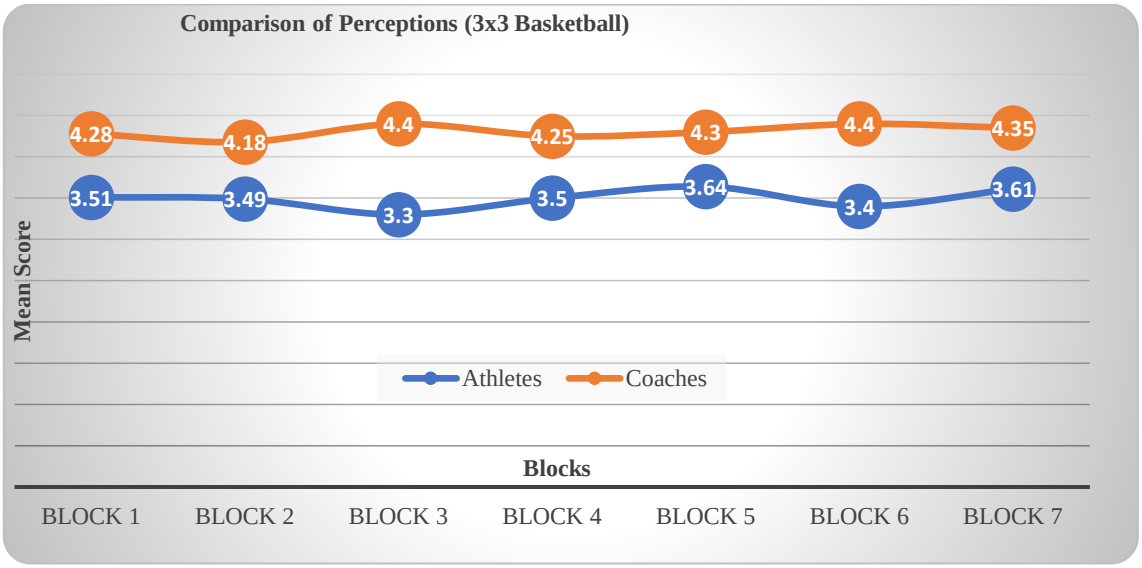

Figure 1. Comparison of training process perception between athletes and coaches

The graph demonstrates a consistent pattern in which coaches' evaluations exceed those of female athletes across all blocks. The largest differences are observed in aspects related to feedback and psycho-emotional state, whereas in the remaining components the discrepancies are moderate in nature.

Block-by-block analysis

In the **first block, *"Understanding of Training Goals,"*** the differences are reflected not so much in the level of ratings as in the nature of perception. As shown in **Figure 1**, coaches demonstrate confidence that the goals of the training process are formulated clearly, whereas female athletes perceive them less holistically. This may indicate a gap between the explanation of tasks and their practical comprehension during the execution of exercises.

In the **second block, *"Perception of Training Load,"*** the difference takes on a more "physical" dimension. **Figure 2** illustrates that coaches' evaluations reflect the alignment of the load with the training plan, while female athletes, judging by their lower ratings, rely more on their subjective perception of fatigue. Thus, the same training volume is perceived differently depending on the participant's position.

The **third block, *"Feedback,"*** is characterized by a particularly pronounced difference. The visualization shows that coaches' evaluations diverge substantially from those of the athletes. This may indicate that the transmission of information does occur, but does not always achieve the intended effect. The issue likely lies not in the quantity of feedback, but in its precision, form, or timing, **see Figure 3**.

In **Block four, *"Autonomy and Decision-Making,"*** the discrepancy is associated with the understanding of the athlete's role in training. From the coaches' perspective, there appears to be sufficient freedom of action; however, the players themselves do not always feel able to influence the course of a game episode, as reflected in **Figure 4.** This may suggest that elements of choice are present but remain constrained within a predefined structure.

The **fifth block, *"Team Interaction,"*** is distinguished by a more restrained difference. The evaluations of the two groups are closer to each other, indicating greater alignment in their perceptions. It is likely that interaction within the team is easier to observe and assess objectively, as it is manifested directly in game actions rather than in internal experiences, **see Figure 5**.

In **Block six, *"Psycho-Emotional State,"*** a sharp gap between the evaluation lines is visually evident. Coaches tend to perceive the training environment as relatively stable, whereas female athletes demonstrate a more tense perception. This may indicate that players' emotional responses remain partially hidden and are not always fully taken into account in the organization of the process, as shown in **Figure 6**.

Block seven, *"Specificity of 3×3 Basketball,"* reflects attitudes toward the characteristics of the sport itself. Despite coaches' confidence that the preparation meets the requirements of 3×3 basketball, female athletes assess this aspect more cautiously. This difference may indicate the persistence of elements from traditional training models that are not fully adapted to the dynamics and structure of 3×3 basketball, see **Figure 7**.

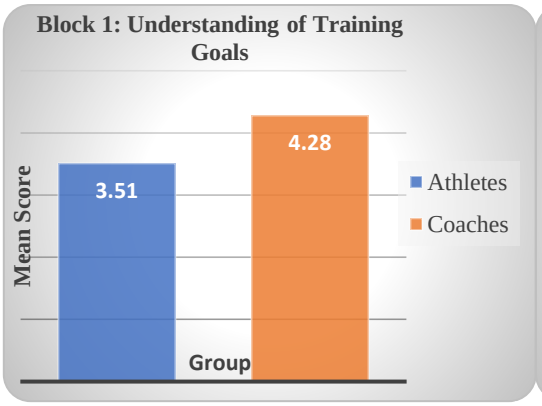

Figure 1. Comparison of athletes' and coaches' perceptions of understanding training goals

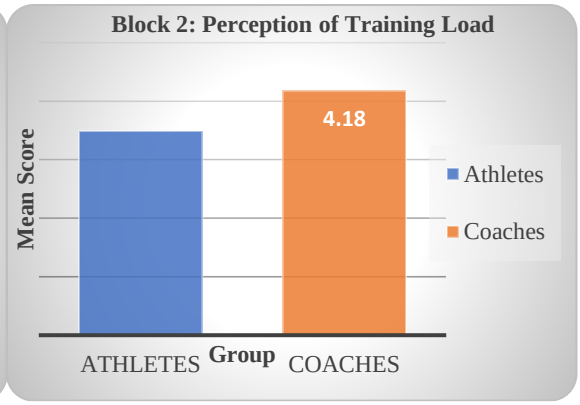

Figure 2. Comparison of athletes' and coaches' perceptions of training load

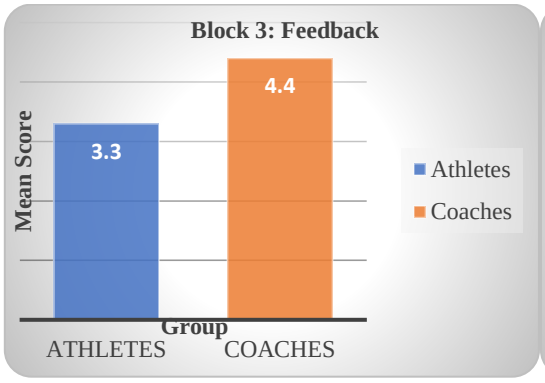

Figure 3. Comparison of athletes' and coaches' perceptions of feedback

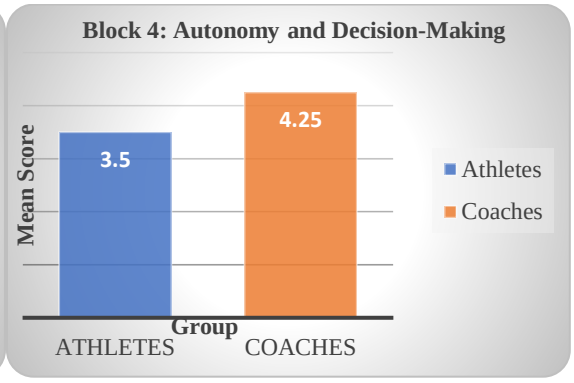

Figure 4. Comparison of athletes' and coaches' perceptions of autonomy and decision-making

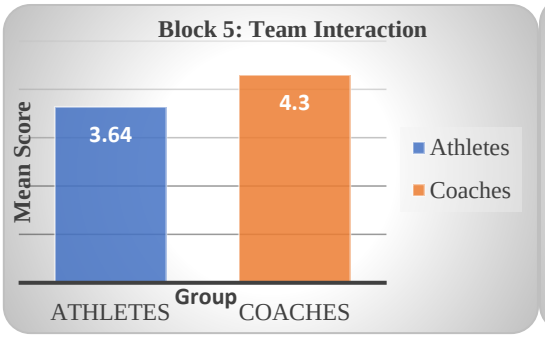

Figure 5. Comparison of athletes' and coaches' perceptions of team interaction

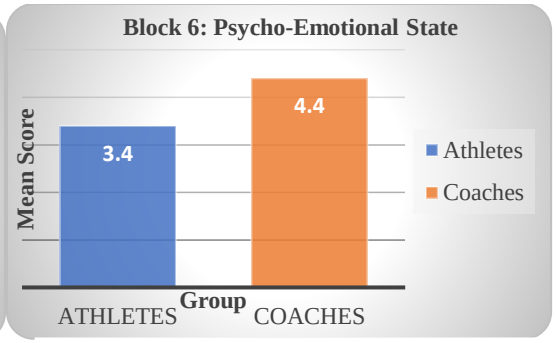

Figure 6. Comparison of athletes' and coaches' perceptions of psycho-emotional state

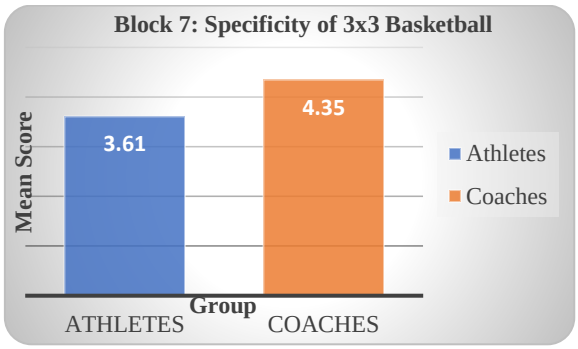

Figure 7. Comparison of athletes' and coaches' perceptions of the specificity of 3x3 basketball

The overall analysis of the presented graphs makes it possible to observe that the differences do not affect individual elements only, but rather the entire training process as a whole, manifesting in various forms from the interpretation of information to the emotional perception of training load.

DISCUSSION

The obtained results make it possible to consider the identified differences not as random, but as a stable tendency reflecting the specific features of how the training process is perceived by its participants. Across all analyzed blocks, coaches demonstrate higher evaluations compared to female athletes, which indicates the systematic nature of the discrepancy.

Similar findings are also reported in international studies. In particular, Jorge García and co-authors note that coaches often evaluate the effectiveness of the training process more highly than the athletes themselves, especially in aspects related to communication and feedback [7]. A similar pattern is observed in the work of Filipe Manuel Clemente, where the dependence of the perception of training activities on the participant's role is emphasized [4].

The most pronounced discrepancy in the present study was identified in the "Feedback" block. This confirms the particular importance of this component, as the quality of feedback largely determines the effectiveness of learning and the development of game skills. Insufficient specificity or untimely comments may reduce the level of information assimilation and slow down the process of improvement.

At the same time, the smallest discrepancy was recorded in the "Team Interaction" block. This is likely due to the fact that interaction among players is more observable and, consequently, less subject to subjective interpretation compared to internal states or individual perception of information.

Special attention should be paid to the block related to the specificity of 3x3 basketball. Despite the high evaluations provided by coaches, female athletes demonstrate a more restrained perception, which may indicate an incomplete adaptation of the training process to the requirements of this game format. As emphasized by FIBA, 3x3 basketball requires high intensity, rapid decision-making, and constant transitions between offensive and defensive phases, which impose specific demands on the structure of training [6].

Thus, the identified differences are primarily due to differences in professional perspective: coaches evaluate the training process from the standpoint of its organization and methodological appropriateness, whereas female athletes assess it through the prism of personal experience and subjective sensations. The mismatch between these evaluations may reduce the effectiveness of training, especially under the dynamic and high-intensity conditions of 3x3 basketball.

CONCLUSION

1. The study revealed a consistent discrepancy in the perception of the training process between female athletes and coaches.
2. Coaches systematically evaluate the training process more highly than female athletes across all analyzed blocks.

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3. The most significant differences were observed in the aspects of feedback and psycho-emotional state, indicating the need to improve the communicative and psychological components of training.
4. The smallest discrepancy was recorded in the team interaction block, suggesting a more aligned perception of this aspect.
5. The obtained results confirm findings from other studies regarding differences in the perception of the training process depending on the participant's role.
6. The practical significance of the study lies in the possibility of optimizing the training process by taking into account the subjective perception of female athletes.

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