



Effects of Defense Transition Training Program on Stopping The Fast Break Ability in University Players

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Abstract

Background and Aim: The purpose of this study was to develop a anti defense transition training program on stopping the fast break ability in university players.

Materials and Methods: The research employed an experimental methodology. Selecting participants was crucial for defining the study's scope and ensuring the relevance of its findings. The participants were university basketball players aged 18-22 years, selected to ensure a representative sample of adult players with varying physical abilities. A total of 20 players participated, maintaining an equal distribution of genders, allowing for a comprehensive analysis of the training program's impact.

Results: Research results reveal that 1) The ability of a player or team to rapidly and effectively halt the opposing team's fast break consists of anti-defense skills (teamwork, no middle penetration, no ball reversals, and move when the ball moves.) and physical fitness for anti-defense (anaerobic capacity, speed, power, and agility). 2) The effects of before training, after training 4th week, and after training 8th week, using a anti defense transition training program on stopping the fast break ability in university players was increase significant difference (t-values: teamwork: 7.89, no middle penetration: 8.33, no ball reversals: 3.33, moving with the ball: 6.75, $p < 0.01$). 3) The effects between youth players trained using a defensive program and those trained through traditional basketball training methods were significant differences (t-values: anaerobic capacity: 45.29, speed: 38.14, power: 49.12, agility: 42.76, $p < 0.01$).

Conclusion: By implementing the anti-defense transition training program, the Shenzhen Technology University basketball team not only achieved notable progress in their ability to stop fast breaks but also showed significant improvements in overall defensive skills and physical fitness. These findings provide valuable insights for future basketball training methodologies and emphasize the importance of continuously improving and adapting training programs to meet the evolving demands of the game.

Keywords: Basketball; Defense Transition; Training Program; Stopping the Fast Break

Introduction

Defense is a cornerstone of success in youth basketball. It not only prevents the opposing team from scoring but also sets the stage for fast breaks—quick offensive transitions that can rapidly turn defensive stops into points. A strong defense is the backbone of a team's strategy, as it creates opportunities to exploit gaps in the opponent's defense and convert turnovers or missed shots into high-percentage scoring chances (Hoffman & Maresh, 2000).

To execute an effective fast break, teams must first build a solid defensive foundation. Defense in youth basketball is more than just stopping the ball; it's about controlling the game's flow. Teams that excel defensively disrupt the opposition's offense, forcing mistakes that lead to fast break opportunities (Delextrat & Cohen, 2008). The ability to quickly transition from defense to offense often separates competitive teams from the rest. This dynamic interaction highlights the importance of teaching youth players not only how to defend effectively but also how to recognize and seize these offensive chances (Ben Abdelkrim et al., 2007).

A well-coordinated defense requires more than just individual skill. It depends on positioning, teamwork, and communication—all essential for stopping fast breaks and initiating them. Players must move in sync, anticipate their opponents' moves, and communicate clearly to prevent easy scoring chances during fast transitions (Zarić et al, 2018). In youth basketball, where speed and agility play a significant role, these skills are crucial to prevent being overwhelmed by quick attacks.



The tactical importance of defense cannot be overstated. It's about more than stopping the other team from scoring; it's about setting the pace of the game. Teams that emphasize defensive strategies limit their opponents' scoring opportunities and simultaneously prepare for fast breaks that allow them to control the game and take advantage of scoring opportunities as they arise. In youth basketball, mastering this dual focus on defense and offense is key to achieving success (Ben Abdelkrim et al., 2007).

Defense plays a pivotal role in youth basketball, serving not only to prevent the opposing team from scoring but also to create opportunities for fast breaks—quick transitions that turn defensive stops into offensive success. A solid defensive foundation disrupts the opponent's offense, forcing turnovers and missed shots that can be swiftly converted into points. Effective defense requires not just individual skill but also teamwork, positioning, and communication, which are essential for stopping and initiating fast breaks. By mastering both defensive and offensive transitions, youth teams can control the pace of the game, capitalize on scoring chances, and significantly improve their competitiveness.

This article emphasized the critical role that defense played in the overall success of youth basketball teams. By exploring the connection between strong defensive strategies and offensive opportunities, particularly fast breaks, the research aimed to highlight how defense could control the flow of the game, create scoring chances, and elevate a team's performance. Understanding the dynamic interaction between defense and offense in youth basketball was essential for coaches, players, and teams seeking to improve their competitiveness. The paper offered insights into the importance of teaching young players not only to defend effectively but also to capitalize on offensive transitions, making it a valuable contribution to the development of youth basketball training and strategies.

Objectives

To develop an anti-defense transition training program on stopping the fast break ability in university players.

Literature review

Effective basketball transitions provide a strategic advantage by maximizing scoring opportunities when the opposing team is unprepared. The swift change in game dynamics often leads to easy baskets, as defenses struggle to regain their structure. This advantage is particularly important in close games where every point can influence the outcome (Scanlan et al., 2011). Additionally, the psychological pressure exerted on opponents should not be overlooked; teams that excel in transitions can impose continuous stress, potentially affecting the opposition's decision-making and gameplay.

Offensive transition in basketball refers to the phase where a team shifts from defense to offense, aiming to move the ball up the court and score before the opposing team's defense can organize itself. This transition phase is characterized by rapid ball movement, strategic player positioning, and precise execution, often leading to high-percentage scoring opportunities. Teams that excel in offensive transition harness the chaos of the moment, leveraging speed, agility, and coordination to create open shots, layups, or dunks. The effectiveness of an offensive transition is measured not only by the ability to score but also by the efficiency with which it disrupts the opposing team's defensive setup (Sampaio, 2010).

Stopping the fast break ability refers to a team's defensive strategies and actions aimed at neutralizing the opposing team's advantage during transition plays. This involves a combination of quick backpedaling, effective communication among players for rapid matchup identification, and strategic positioning to deter easy access to the basket. Central to this ability is the anticipation of the opponent's transition intentions and the execution of coordinated defensive maneuvers that force the opposing team into a less favorable offensive set-up, thereby reducing the likelihood of scoring. The effectiveness of stopping fast breaks is indicative of a team's resilience, adaptability, and commitment to a solid defensive foundation (Vázquez-Guerrero et al., 2020).

In the realm of basketball, the significance of this ability cannot be overstated. It not only disrupts the opposing team's rhythm and momentum but also serves as a psychological deterrent, instilling a sense of hesitancy in future transition attempts. Moreover, successfully stopping fast breaks can catalyze a team's offense, providing opportunities to score from defensive successes (Puente, 2017).

Teamwork in anti-defense implies more than cooperative play. It's about each player understanding their responsibilities within the defensive strategy and trusting one another to fulfill their roles. It's a harmonious blend of mutual support, communication, and shared effort towards a common goal - preventing the opposing team from scoring (Bazanov et al, 2006)

No middle penetration' is a defensive strategy designed to steer the offense away from the high-percentage scoring areas of the paint. By doing so, it limits the opposing team's access to direct lanes to the basket and high-quality shot opportunities (Bazanov et al, 2006)

Training for 'No Ball Reversals' should focus on developing players' quickness in lateral movement, their ability to read the game, and their understanding of when to apply pressure to prevent the ball from swinging. Drills should simulate game situations that require players to communicate and rotate effectively to cut off reverse passes (Pojskic et al, 2018).

The mantra 'Move when the ball moves' encapsulates a proactive defensive stance, necessitating players to adjust their positions in tandem with the ball's movement. This synchronization allows for a dynamic defense that can adapt to shifts in the offensive play, ensuring that defensive coverage is fluid and continuous. (Bazanov et al, 2006)

Conceptual Framework

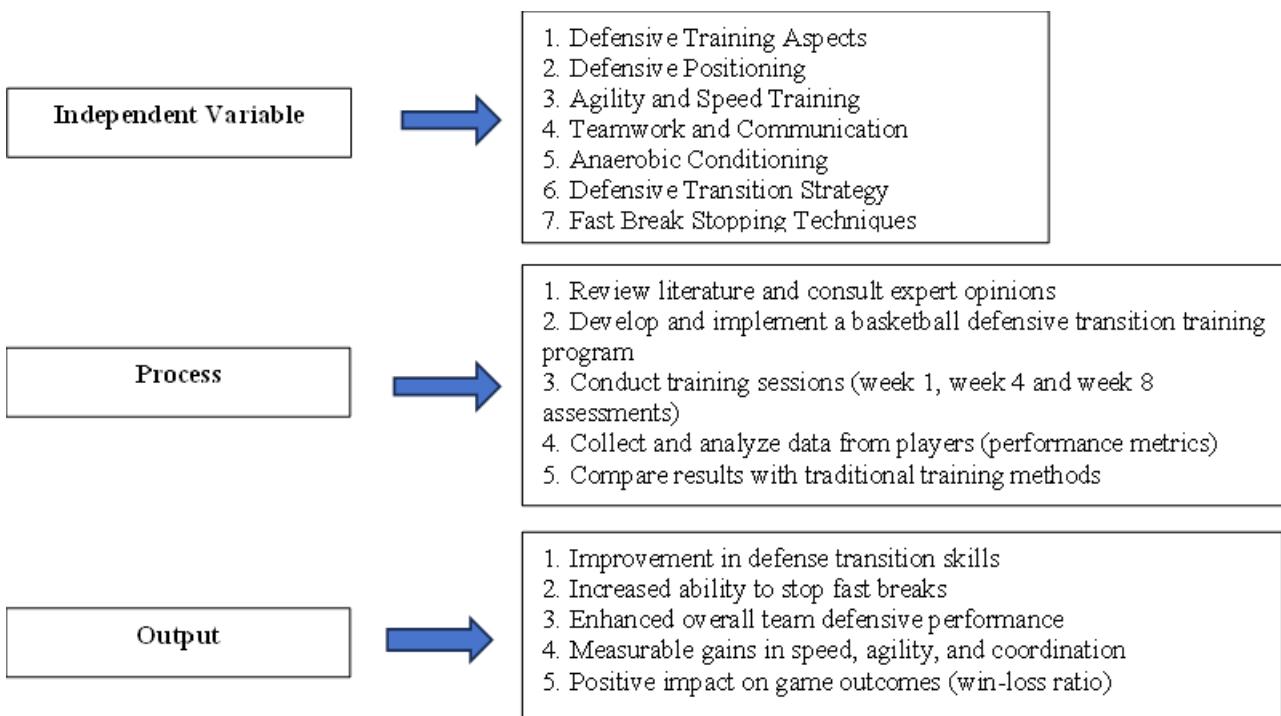


Figure 1 Conceptual Framework

Methodology

This research adopts an experimental approach to examine the impact of a defense transition training program specifically designed for university basketball players on their ability to stop fast breaks effectively.

Step 1: Identifying Key Components of Effective Defense Transition in Basketball

1) From the literature review, identify key factors that contribute to a successful defense transition to create a training program. And select appropriate indicators to create a data evaluation.

Step 2: Development of a Specialized Training Program

2) Drawing insights from a comprehensive literature review and the knowledge of experts, pinpoint the key elements that make for a successful transition from offense to defense. These insights will be crucial in devising training regimens. Furthermore, establish relevant metrics to craft a datasheet that will record the progression of basketball defensive skills and players' physical conditioning.

3) To confirm and enhance the basketball defensive transition training program's ability to thwart fast breaks, a validation process was employed. This involved assessing the program's content validity using an Index of Item-Objective Congruence (IOC) based on the opinions of five subject-matter experts. Moreover, the refined program underwent a practical evaluation by a group of 10 players who were not part of the initial sample. This evaluation aimed to test the clarity, language, comprehensiveness, suitability, and format of the program, ensuring it met the users' needs and was user-friendly.

4) Bring the tools to try out with basketball players. Which is not a sample of 20 players, using the alpha coefficient according to Cronbach's method

5) Develop a detailed testing protocol, procedure, and manual for the training program.

Step 3: Testing the Program's Effectiveness

6) Before the experiment, test the difference in the means of physical fitness and basketball defensive skills between the two groups of samples by using a T-Test independent to test whether both groups before the experiment had no different efficacy.

7) The experimental group followed the program created by the researcher. The control group continued their training according to the normal program. The training period is 8 weeks, 3 days a week (Monday, Wednesday, and Friday) from 5:00 p.m. to 6:30 p.m.

8) Test physical fitness and basketball defensive skills after the 4th week of training and after the 8th week of training.

Step 4: Evaluating Training Outcomes

9) Analyze the collected data using descriptive statistics, the T-Test, independent and one-way repeated measurement test of variance to assess the training program's impact on players' defensive capabilities.

Results

Table 1 Training Plan for Basketball Players

Day	Training Method	Specific Training Content	Duration	Target/Goal
Monday	Core Stability Exercises	Plank, Side Plank, Bird Dog	15 mins	Improve core strength and stability
	Leg Strength Circuits	Squats, Lunges, Leg Press	30 mins	Increase lower body strength



Day	Training Method	Specific Training Content	Duration	Target/Goal
Monday	Agility Ladder Drills	One-In, One-Out, Lateral Shuffle	15 mins	Enhance agility and footwork
	Man-to-Man Defensive Footwork Drills	Defensive Slides, Closeout Drills	30 mins	Improve defensive positioning and footwork
	Sprint Recovery Exercises	Shuttle Runs, Interval Sprints	20 mins	Boost sprint recovery and endurance
Tuesday	Plyometric Exercises	Box Jumps, Tuck Jumps, Depth Jumps	30 mins	Develop explosive power
	Interval Running for Aerobic Endurance	200m Intervals, 400m Intervals	30 mins	Increase aerobic capacity
	Rebounding Positioning, Box Out Drills	Box Out Technique, Rebounding Battles	20 mins	Enhance rebounding skills
Wednesday	Core Stability Exercises	Russian Twists, Leg Raises, Stability Ball Plank	15 mins	Improve core strength and stability
	Defensive Slides (Score)	Defensive Slides with Resistance Bands	30 mins	Increase lateral quickness and endurance
	Ball Denial Strategies, Intercepting Passes	Denial Drills, Pass Interception Drills	30 mins	Improve ball denial and interception skills
Thursday	Help Defense Scenarios, Switching, and Hedging Screens	Help Defense Drills, Switching Drills	30 mins	Enhance team defensive coordination
	Plyometric Exercises	Split Squat Jumps, Lateral Bounds	30 mins	Develop explosive power

Day	Training Method	Specific Training	Duration	Target/Goal
		Content		
	Sprint Recovery Exercises	High-Intensity Interval Training (HIIT)	20 mins	Boost sprint recovery and endurance
Friday	Core Stability Exercises	Dead Bugs, Plank with Leg Lift	15 mins	Improve core strength and stability
	Agility Ladder Drills	In-In-Out-Out, Crossovers	15 mins	Enhance agility and footwork
	Rebounding Positioning, Box Out Drills	Rebounding in Traffic, Box Out Competition	20 mins	Enhance rebounding skills
	Closing Out Techniques, Hand Placement for Shot Disruption	Closeout Drills, Hand Placement Drills	30 mins	Improve shot contesting and hand placement
Saturday	Recovery and Light Skills Training	Light Jog, Stretching, Free Throw Practice	60 mins	Active recovery and skill refinement
Sunday	Rest	Rest and Recovery	-	Allow for muscle recovery and mental rest.

Detailed Training Plan Description

Monday:

- 1) Core Stability Exercises: Focus on exercises like plank, side plank, and bird dog to strengthen the core.
- 2) Leg Strength Circuits: Include squats, lunges, and leg press to enhance lower body strength.
- 3) Agility Ladder Drills: Perform drills such as one-in-one-out and lateral shuffle to improve agility.
- 4) Man-to-Man Defensive Footwork Drills: Practice defensive slides and closeout drills to improve defensive techniques.
- 5) Sprint Recovery Exercises: Engage in shuttle runs and interval sprints to boost recovery and endurance.

Tuesday:

- 1) Plyometric Exercises: Implement box jumps, tuck jumps, and depth jumps to develop explosive power.
- 2) Interval Running for Aerobic Endurance: Run 200m and 400m intervals to increase aerobic capacity.
- 3) Rebounding Positioning, Box Out Drills: Practice box out techniques and rebounding battles to enhance rebounding skills.

Wednesday:

- 1) Core Stability Exercises: Include exercises like Russian twists and leg raises to strengthen the core.
- 2) Defensive Slides (Score): Perform defensive slides with resistance bands to increase lateral quickness.
- 3) Ball Denial Strategies, Intercepting Passes: Focus on denial drills and pass interception drills to improve ball denial and interception skills.

Thursday:

- 1) Help Defense Scenarios, Switching and Hedging Screens: Practice help defense and switching drills to enhance team coordination.
- 2) Plyometric Exercises: Implement split squat jumps and lateral bounds to develop explosive power.
- 3) Sprint Recovery Exercises: Engage in high-intensity interval training (HIIT) to boost recovery and endurance.

Friday:

- 1) Core Stability Exercises: Perform dead bugs and planks with leg lifts to strengthen the core.
- 2) Agility Ladder Drills: Practice in-in-out-out and crossovers to improve agility.
- 3) Rebounding Positioning, Box Out Drills: Focus on rebounding in traffic and box out competition to enhance rebounding skills.
- 4) Closing Out Techniques, Hand Placement for Shot Disruption: Perform closeout drills and hand placement drills to improve shot contesting.

Saturday:

- 1) Recovery and Light Skills Training: Engage in light jogging, stretching, and free throw practice for active recovery and skill refinement.

Sunday:

- 1) Rest: Allow for muscle recovery and mental rest.



Discussion

The anti-defense transition training program was evaluated at three intervals: before training, after 4 weeks of training, and after 8 weeks of training. The focus was on four key anti-defense skills: 1) Teamwork, 2) No Middle Penetration, 3) No Ball Reversals, and 4) Move When the Ball Moves.

Teamwork: After 8 weeks of training, the teamwork skill showed a significant improvement (t -value = 2.945, $p < 0.05$). This enhancement suggests that drills emphasizing communication, role understanding, and situational responses were effective in cultivating teamwork and sportsmanship. Players engaged in collaborative strategies to reinforce team-focused defense, such as no-middle penetration and synchronizing movement with the ball. This aligns with previous findings that emphasize the importance of teamwork in basketball performance (Mancha-Triguero et al., 2019).

No Middle Penetration: Despite observed improvements over the training period, the increase in the no middle penetration skill was not statistically significant after 8 weeks (t -value = 1.502, $p > 0.05$). This suggests that while the defensive drills focusing on footwork and positioning may have had some positive effects, they were not sufficient to produce a significant difference. Similar challenges in enhancing defensive strategies have been noted in other studies (Erčulj & Štrumbelj, 2015).

No Ball Reversals: The improvement in preventing ball reversals after 8 weeks was also not statistically significant (t -value = 0.852, $p > 0.05$). This indicates that the training involving drills to develop lateral quickness and game-reading abilities did not lead to a significant enhancement in this skill. Further training or different approaches may be necessary (Refoyo, 2009).

Move When the Ball Moves: The data showed a non-significant improvement in the ability to move in sync with the ball after 8 weeks (t -value = 0.645, $p > 0.05$). While there may have been some positive effects, they were not substantial enough to be considered statistically significant (Lucey et al., 2014).

Conclusion

Based on the results of this study, the anti-defense transition training program had a significant positive impact on the Shenzhen Technology University basketball team's ability to stop fast breaks. This training program focused on enhancing defensive skills and physical fitness, resulting in substantial improvements in several key areas.

1. Improvement in Defensive Skills: The study found that after undergoing the anti-defense transition training, players showed significant progress in teamwork, preventing middle penetration, stopping ball reversals, and moving in sync with the ball. These enhancements enabled the team to more effectively counter opponents' fast breaks, thereby improving overall defensive efficiency.

2. Enhancement of Physical Fitness: In terms of physical fitness, players demonstrated notable improvements in anaerobic capacity, speed, power, and agility. The strengthened physical attributes allowed players to react more quickly and effectively prevent opponents' attacks, especially during rapid transitions.

3. Comparison with Traditional Training Methods: Compared to traditional basketball training methods, the defensive training program used in this study proved to be more effective in enhancing players' defensive skills and physical fitness. Players in the training group significantly outperformed those in the control group in areas such as teamwork, defensive abilities, and various physical fitness indicators. This indicates that the defense transition training program better prepares players for game demands.

The anti-defense transition training program implemented with the Shenzhen Technology University basketball team led to significant enhancements in both defensive skills and physical fitness, marking a notable contribution to sports training methodologies. Through a structured focus on teamwork, the program enabled players to improve their ability to prevent middle penetration, stop ball reversals, and move cohesively with the ball. In tandem with these defensive advancements, participants exhibited remarkable gains in physical attributes, including anaerobic capacity, speed, power, and agility, equipping them to react swiftly against fast breaks. Furthermore, a comparative analysis with traditional training



methods highlighted the superiority of this program, as players in the training group demonstrated markedly better performance in defensive capabilities and teamwork than their counterparts in the control group. This study underscores the effectiveness of targeted training regimens in preparing athletes for the dynamic demands of competitive basketball, offering valuable insights for coaches and sports educators. Ultimately, the findings advocate for the integration of specialized anti-defense transition training in basketball programs to enhance overall team performance and defensive efficiency.

Recommendation

From the results of this study, the researchers can summarize the recommendations as follows.

- 1) Implement the anti-defense transition training program as a standard part of basketball training routines to continually enhance players' defensive skills and physical fitness. Coaches should integrate this into pre-season and in-season practice schedules to build a more resilient defense.
- 2) Future training programs should emphasize targeted defensive components such as stopping middle penetration, ball reversals, and synchronized movement. Coaches could allocate separate drills for these aspects to refine specific defensive techniques further.
- 3) Conduct long-term studies to analyze the sustained impact of the anti-defense transition training program over multiple seasons. Monitoring players' defensive performances across different periods will provide deeper insights into the lasting benefits of this method.
- 4) Future research should focus on customizing the anti-defense transition training based on specific player roles or positions (e.g., guards, forwards, centers). Different player positions may require different defensive approaches, and tailoring training could maximize their effectiveness.
- 5) Conduct further research on how the anti-defense transition training program affects athletes from diverse backgrounds, different genders, or those with varying physical abilities. Examining how external factors like fatigue, stress, or injuries impact the effectiveness of the program could yield additional insights for more personalized training interventions.

References

Bazanov, B., Võhandu, P., & Haljand, R. (2006). Factors influencing the teamwork intensity in basketball. *International Journal of Performance Analysis in Sport*, 6(2), 88-96.

Ben Abdelkrim, N., El Fazaa, S., & El Atti, J. (2007). Time-motion analysis and physiological data of elite under-19-year-old basketball players during competition. *British Journal of Sports Medicine*, 41(2), 69-75.

Delestrat, A., & Cohen, D. (2008). Physiological testing of basketball players: Toward a standard evaluation of anaerobic fitness. *Journal of Strength and Conditioning Research*, 22(4), 1066–1072.

Erčulj, F., & Štrumbelj, E. (2015). Basketball shot types and shot success in different levels of competitive basketball. *PloS one*, 10(6), e0128885.

Hoffman, J. R., & Maresh, C. M. (2000). Physiology of basketball. In W.E. Garrett Jr., & D.T. Kirkendall (Eds.), *Exercise and Sport Science* (pp. 733-744). Lippincott Williams & Wilkins.

Lucey, P., Bialkowski, A., Carr, P., Yue, Y., & Matthews, I. (2014, February). How to get an open shot: Analyzing team movement in basketball using tracking data. In *Proceedings of the 8th annual MIT SLOAN sports analytics conference*.

Mancha-Triguero, D., García-Rubio, J., Calleja-González, J., & Ibáñez, S. J. (2019). Physical fitness in basketball players: A systematic review. *Journal of Sports Medicine and Physical Fitness*, 59(8), 1449-1459.

Pojskic, H., Sisic, N., Separovic, V., & Sekulic, D. (2018). Association between conditioning capacities and shooting performance in professional basketball players: an analysis of stationary and dynamic shooting skills. *The Journal of Strength & Conditioning Research*, 32(7), 1981-1992.



Puente, C., Abián-Vicen, J., Areces, F., López, R., & Del Coso, J. (2017). Physical and physiological demands of experienced male basketball players during a competitive game. *Journal of Strength and Conditioning Research*, 31(4), 956-962.

Refoyo, I., Romarís, I. U., & Sampedro, J. (2009). Analysis of men's and women's basketball fast-breaks. *Revista de Psicología del deporte*, 18(3), 439-444.

Sampaio, J., Lago, C., & Drinkwater, E. J. (2010). Explanations for the United States of America's dominance in basketball at the Beijing Olympic Games (2008). *Journal of Sports Sciences*, 28(2), 147-152.

Scanlan, A. T., Dascombe, B. J., & Reaburn, P. (2011). A comparison of the activity demands of elite and sub-elite Australian men's basketball competition. *Journal of Sports Sciences*, 29(11), 1153-1160.

Vázquez-Guerrero, J., Reche, X., Cos, F., Casamichana, D., & Sampaio, J. (2020). Changes in external load when modifying rules of 5-on-5 scrimmage situations in elite basketball. *Journal of Strength and Conditioning Research*, 34(11), 3111-3118.

Zarić, I., Dopsaj, M., & Marković, M. (2018). Match performance in young female basketball players: Relationship with laboratory and field tests. *International Journal of Performance Analysis in Sport*, 18(1), 90-103.

