Effect of Short-Term Coaching Program to Enhance Basketball Technical Skills of Passing, Shooting, and Dribbling

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Abstract

Basketball's physical demands and wide appeal make numerous societal applications feasible. Through a short-term physical and psychological exercise program, this study sought to improve collegiate basketball players' physical, psychological, and technical skills during their off-study period. Twenty-four university basketball players older than 18 and in good physical and mental health participated in the study. Twelve participants were assigned to the experimental group and twelve to the control group. The instruction program lasted three weeks and consisted of four two-hour weekly sessions. The experimental group received specialized instruction in shooting, passing, and dribbling. In contrast, both groups received training in fundamental skills, aerobic fitness, vertical jumping, arm and trunk muscle endurance, and rudimentary playing skills. The study's results revealed that both unique and mixed training improved maximal oxygen uptake, with both groups experiencing similar improvements. Aerobic fitness and strength improved roughly 30% in the specific training group and 20% in the combined training group. Moreover, performance in three basketball technical skills increased by 17 to 27% in both groups, with a tendency for shooting and passing skills to develop more significantly in the training group. These results suggest that an exclusively on-court basketball training program (special training) is as effective as a combined training program at enhancing aerobic and anaerobic fitness. Based on the provided fit indices, the adaptability of the green enterprise model to basketball players demonstrates an acceptable and decent fit. The findings emphasize the potential for targeted and specific training to improve basketball players' physical and technical abilities during their off-season.

Keywords: Short-term training, basketball, aerobic fitness, Physical Health, Psychological Training

1. Introduction

A sports enterprise was introduced to sports participants to comprehend the relationship between psychological commitment, behavioral persistence, and leisure participation in the leisure industry. Basketball is among the three most popular sports in the United States, Australia, Europe, Southeast Asia, and the Western Pacific (Baca & Perl, 2019; Hulteen et al., 2017). Basketball's physical demands and wide appeal make numerous societal applications feasible. Passing the ball is basketball's most technically complex action because players interact collectively (Nunes et al., 2016; Ullah et al., 2021). The most common technical action is players possessing the ball and interacting with their teammates to improve the success of the pass (Gómez et al., 2013). The team that completes more passes and takes more shots will win the game (Gómez et al., 2013). Athletes play a unique role in green behavior, which may combat climate change by encouraging people to invest in green products (Ahmad et al., 2019; Ali, 2022).

To comprehend the collective behavior of team sports participants, sports scientists are increasingly focusing on team sports such as volleyball and basketball. According to a study by Gòmez et al. (2009), passing errors are the primary cause of losing a game. In contrast, losing

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possession of fewer balls will result in a lower score and a decreased possibility of victory. Therefore, passing abilities and performance can contribute more to the success of a basketball game (Passos, Araújo, & Volossovitch, 2016). Pass is intricate, requiring players to be mentally strong and physically and technically more tactically adept. The investigation of basketball's past should include studies; essentially, a vital coach should train and develop the skills of basketball players.

In team sports like basketball, off-season training programs are frequently organized to keep participants engaged and improve their abilities (Bogdanis et al., 2007; Kakarougkas & Papageorgakis, 2023). Research studies have analyzed and discussed participants' performance in the most popular sports. There is a need for additional research on the short-term efficacy of training programs designed to improve basketball passing techniques, one of the most crucial and technical actions leading to victory. Physical training programs are necessary to improve team sports by enhancing players' strength, endurance, anaerobic power, leaping ability, and ball possession (Bogdanis et al., 2007). The short-term training program will increase the athletes' aerobic capacity, muscle strength, leaping ability, emotional balance, and possession (Abdel Fatah Alkhfif, 2016; Baquet et al., 2002; Harrison et al., 2015; Passos et al., 2016).

Basketball competitions have sprung up in over 100 countries, resulting in a lucrative industry that provides athletes with legitimate career opportunities and provides entertainment for billions of people. It is remarkable how little basketball research has been conducted compared to other sports, given the wide variety of applications (Lisdiono et al., 2022; Stojanović et al., 2018). There are few studies on the effectiveness of short-term training programs for basketball players' possession abilities, which is one of the most important technical actions and requires greater aerobic strength in team sports. According to Fox, Scanlan, and Stanton (2017), the coach of a basketball game can improve the player's game, performance and technique. The coach plays a crucial role in the sports team game, and they will always strive to improve the player's abilities for a more effective fight. Therefore, the most important basketball skills to acquire are ball control and proper movement (Csapo et al., 2015).

(Passos et al., 2016) The basketball pass is complex; coaches should train their athletes to improve their technical actions and physical and mental factors. Consequently, this research investigates the efficacy of a short-term coaching program scheduled for the basketball team of university freshmen during the semester break. Individually and collectively, the coaching and training program will improve the player's basketball skills. The short-term training program was conducted on the basketball court, expecting participants to improve their basketball possession skills. Additionally, aerobic fitness would be enhanced. This research paper also investigated the green behavior of the basket sailor toward green enterprise to combat climate change. The integration of multiple skill components, the examination of short-term training, the comparison of training approaches, the evaluation of specific technical skills, and the relevance to the off-study period all contribute to the originality and significance of this work in the field of basketball training and player development.

2. Literature Review

The fact that basketball can be played casually with one, two, or three participants on each side contributes to its undeniable popularity among youth. Fifty percent of children and adolescents say they began playing basketball because it is typically played with multiple teams (Baca & Perl, 2019; Edwards et al., 2018). A team sport like basketball can be appreciated by providing training and instruction to youth, particularly university students, for their physical fitness. A coach or sports instructor plays a crucial function in most sports. Coaching and participant training improve athletes' abilities. Consequently, improved performance is obtained (Csapo et al., 2015; Fox et al., 2017). Coaches and high-performance staff use current monitoring methods to gather player athletic, workflow, and fatigue data to make intelligent decisions on prescription training and recapture opportunities to improve performance. Maimón, Courel-Ibáñez, and Ruíz (2020) evaluated basketball coaching examinations to improve passing skills based on performance skills analysis, mental factors, physical endurance, and motor control. PE evolution has not always been a bed of roses. Late in the 20th century, declines were inevitable due to the increasing number of subjects and electives, transferring interest toward academics (Gleddie & Morgan, 2021). Due to the refinement and automation of education, competition, mental development, and cognitive mapping are now prioritized over physical development among students (Lei, Cai, & Hua, 2021; Maksymchuk et al., 2018). Clear indicators of this trend include the shrinking size of educational institutions and their relocation to densely populated areas, where they are frequently housed in tall structures without suitable playgrounds. Indoor game facilities were once readily available but are now uncommon (Ni et al., 2020).

China purports to be more systematic and innovative, but it has neglected the proper provision and development of physical education. The educators fail to recognize that a healthy body and mind go hand-in-hand. They are most effective when collaborating because they complement one another. The separation of body and mind can cause distress on the learner's social, moral, psychological, and affective levels. This may interfere with their ongoing responsibilities and studies and negatively impact their daily lives. The past demonstrates that those who excel at sports can better handle stress and problems in personal, societal, and organizational contexts. A problem in education caused by a lack of sports facilities and practices has spread beyond densely populated urban areas and has significantly impacted rural communities around the globe.

The players' performance improves due to the importance of the coach's expertise in the training process. Individual athletes receive motivation, significance, and value from coaching (Policastro et al., 2018). Coaching is the art of enabling followers to share their game experience to increase and enhance player psychology and physical and mental strength. In this process, the athlete will perform to the Coach's specifications (Scanlan et al., 2019). The coaching should integrate problem-solving games to foster creative approaches and develop specific skills among the players. Depending on capacity, age, and explicit objectives, players must attend training for two to three hours daily. Complex technology development is dependent on the investment of time. Time and again, players have been so preoccupied with "cutting-edge" abilities that they have neglected to master the fundamentals. You will succeed in games if you play to learn and practice (Okoroha et al., 2017). They grouped literature on coaching and improving basketball players' passing abilities.

2.1 Basketball Passing Performance

Passing abilities are essential for leading the score and winning the competition in a basketball game. Therefore, exceptional coaching and training are required to improve the passing skills of picking and rolling the ball based on the game situation (Gómez et al., 2013), the fast break (Cárdenas et al., 2015), and the inside pass to increase the effectiveness of the passing attack (Courel-Ibáñez et al., 2017). Csapo et al. (2015) will be subjected to greater defensive pressure during the passing action compared to other positions on the team. Sachanidi et al. (2013) recommended additional practice to improve the passing action during competitive play. Csapo et al. (2015) and Conte et al. (2016) emphasized that more coaching and training programs must be implemented to reduce the blunders caused by the increased number of passes made by basketball players during competition. Coaching in physical activity is essential for healthy youth development and team enhancement (Leicht, Gomez, & Woods, 2017). A quantitative research approach was used to analyze match outcomes from Olympic women's basketball competitions to investigate the correlations between these characteristics. In conclusion, developing basketball passing skills requires specialized coaching and training programs covering various topics, including decision-making in different game situations, fast break passing, inside passes, facing defensive pressure, and reducing turnovers. The success of basketball players, in general, and competitive situations, largely depends on the execution of such programs.

2.2 Physical Fitness

Physical fitness is essential for basketball passing performance. Short-term training programs can considerably enhance athletes' physical fitness and passing abilities. Training must be tailored to specific positions in the field of play. Short-term training programs can also aid fatigue recovery and improve hydration, nourishment, sleep quality, and the number of athletes who sleep in. Training methods and variables such as the frequency and duration of coaching affect the physical fitness of the athletes. Ahmed (2013) states that physical fitness is essential for passing performance. The passing accuracy decreases substantially when players are fatigued (Staunton et al., 2018). According to Bogdanis et al. (2007), short-term training programs substantially enhance basketball players' physical fitness and passing skills. Short-term training improves athletes' physical fitness and passing abilities. According to a player's position, they must train in fitness and passing skills. Bogdanis et al. (2007) implemented a quasi-experimental design with a pre-and post-test control group. 27 adolescent basketball players (14.7 0.5 years; 3.5 0.5 Tanner stage) were randomly assigned to one of three groups: mixed, specialized, or control. After four weeks of training, the SP and MX groups significantly improved their aerobic, anaerobic, trunk, and arm muscle endurance. Thus, short-term training programs will help basketball players recover from fatigue (Fields et al., 2018). Training methods and variables such as the frequency and duration of coaching affect the physical fitness of the athletes.

2.3 Motor Skills and Mental factor

Passing technique and overall basketball performance can be enhanced by contemplating the psychological stability of group drills, the mental health of the athletes,

and appropriate coaching and training techniques. By focusing on the physical and mental aspects of the game, players can improve their passing skills and manage difficult situations on the court (Hill et al., 2009). Mental disturbances and other demanding conditions harm athletic performance. Under stressful conditions, players will make erroneous passing decisions and perform under pressure, resulting in a turnover. In this regard, numerous studies indicate that coaching and training programs will benefit players and improve their mental health and motor skills. Hill et al. (2009) emphasized the significance of basketball coaching training to enhance the learning process and, as a result, the player's physical, mental, and motor abilities. In group exercises, emotional stability should be included as an additional constraint player must face while developing passing skills (Ali et al., 2023).

2.4 Players behavior

This study aims to promote sustainable practices and increase player knowledge and commitment to green behavior by incorporating green enterprise and environmental consciousness into the training program for collegiate basketball players. It recognizes that basketball players, including those competing at the collegiate level, have the potential to influence environmental attitudes and promote positive change within the sporting community. According to Steg and Vlek (2009), individual concern for the environment reduces actions that harm the natural environment. Thus, the implementation of green enterprise sustainable development goals has gained increased interest among athletes around the globe. They promote green nature and sustainable green business practices in sports organizations. Their organizational culture and work environment inspire green behavior in participants. Basketball is one of the most popular sports worldwide, and its participants are highly esteemed by society. Some are recognized brands. Consequently, their motivation toward green enterprise or positive behavior toward the environment plays a crucial function. According to the commitment theory of athletes, the majority of research on the psychological behavior of athletes is conducted by professional athletes. Conversely, this study is training university basketball players to improve their technical skills and level of cognizance regarding green behavior and green enterprise. Ding, Zhang, and Sun (2001) concluded that college students' sports tendencies and enjoyment of sports, intervention options, and personal investment have a positive impact, whereas social constraints have a negative effect.

3. Materials and Methods

3.1 Ethic Statement

The Research & Development in Sports Science Committee for Education at Gansu University has reviewed and approved the study proposal. In addition, the review board granted permission verbally; however, during the training program, one of the members observed the entire training procedure and encouraged the students to develop their basketball training skills. In addition to obtaining verbal consent before selecting the players, their coaches were apprised of the program designed for university basketball players during the semester break. No written statement was required since the university sports science team and guidance concurred to develop basketball players' skills. It took place during the semester's break so that students' academics would not be affected. Lastly, it is essential to obtain ethical consent before conducting any research, and it is reassuring to know that the Gansu University review board approved this study under the condition that no video or photographs of the organized program would be made public without the university's permission. This guarantees the protection of the participant's rights and the ethical conduct of the study.

3.2 Sample Size

During the semester break, the basketball coach has decided to organize a short-term training and coaching program for the basketball players to better their passing skills and physical and mental health. Twenty-four basketball team members of undergraduate university students who volunteered for a short-term training program were divided into two experimental groups (EG, n=12, average age: 19.7 0.5 years, height: 178 7 cm, mass: 59.6 7.6 kg) and a control group (CG, n=12, average age: 19.5 1 year, height: 170 6 cm, mass: 60.6 6.8 kg). The athletes in the sports science department were on semester vacation, so they did not have classes or homework and were not affected by the coaching program. All procedures followed the code of ethics, and participants were screened for the mandatory medical requirements and apprised of any potential risks associated with this training. Since short-term coaching training was conducted on the university basketball court, the university authorities granted permission for the basketball players' three-week short-term coaching and training program.

3.3 Tanning Design

Participants were initially divided into two categories. n=12 for the experimental group and n=12 for the control group. The experimental group was instructed and trained in ball possession, whereas the control

group was not instructed in the passing tactic. However, they received additional physical training, such as running and vertical leaping. Within a three-week training program consisting of nine sessions, each lasting two hours, six hours of training were provided per week. The experimental group's primary training focused on basketball possession and implementing decision-making skills development for the team's essential defensive integration. In contrast, the control group received training in vertical leaping and running. Both groups received identical motivation, technical skill knowledge, and sports team regulation knowledge.

3.3.1 Special Training Exercise

Each session consisted of fundamental basketball routines and exercises and individual offensive and defensive dribbling, passing, and shooting drills. The experimental group was subdivided into four players, with whom basketball games were performed. The warm-up exercises were also performed on the court (with and without the ball), followed by a 5-minute stretching period. The Control group received the same fundamental training as the Experimental group, except for passing, so they were more engaged in vertical leaping, and all players were trained for vertical jumping. The individual's leaping height was measured before and following training.

3.3.2 Mix training

The athletes' mixed training coaching structure resembled that of a unique training program. The mixed training program reduced by 15-30% the duration of fundamental skills, collaboration, offensive/defensive cooperation, and individual exercise. This centered on improving the special training listed in Table 1. Another advantage of mixed training was the improvement of the athletes' physical and mental health. The game was taught through training, motivation, and leadership skills, followed by physical exercises, including skipping rope, sit-ups, vertical leaping, drop jumping, and push-ups. These are essential exercises that all athletes must perform to enhance their physical fitness. This exercise involved teamwork and individual effort, and participants had to devote sufficient time to physical training. Before beginning specialized basketball training, mixed training is a motivator and a lift for the players. The number of repetitions for each exercise was recorded, and participants were instructed to complete sets that lasted 2 minutes per session. The total duration of the mixed training on each session day was approximately 15 minutes, the duration interval for the following week increased to 20, and last week, each session was extended to 25 minutes.

Table 1

Three weeks of unique and mixed training program contribution each week

	Week 1		Week 2		Week 3		Mean	
	SP	MX	SP	MX	SP	MX	SP	MX
Warm-up	15	20.4	16.2	18.0	20.6	15.0	17.7 ± 0.3	17.6± 1.3
Fundamentals	70	43.9	37.4	29.4	21.2	15.7	36.7± 11.9	25.5± 7.1
Individual work	0.0	0.0	34	26.4	43.8	32.4	24.8 ± 9.5	18.9± 7.1
Offensive/Defensive	0.0	0.0	18.7	21.2	30.6	34.5	2.7 ± 2.7	5.6 ± 3.6
Team exercise	5.0	7.5	6.0	8.3	11.8	12.5	5.3 ± 1.8	3.3 ± 1.6
vertical Jumping	2.0	3.7	5.8	4.6	6.9	7	5.8 ± 0.3	4.1 ± 0.6
Circuit training	—	22.2	—	21.9	—	21.3	—	21.1± 0.7

Table 1 demonstrates that a three-week training program was conducted to improve adolescent basketball players' physical and technical abilities. A unique training program (SP) and a combined training program (MX) comprised the training program. Both training programs included warm-up, fundamentals training, team exercise, and vertical leaping in the first week. The unique training curriculum for the second week included individual work, offensive/defensive training, and circuit training. The unique training program had lengthier warm-up and fundamentals training durations than the standardized training program.

In contrast, the durations of fundamentals and circuit training were lengthier in the mixed training program. The unique training program included individual work, offensive/defensive training, and team exercise during the third week. In contrast, the mixed training program extended the durations for individual work, offensive / defensive training, and vertical leaping. The training programs were designed to enhance basketball players' physical and technical abilities. The specific activities and durations varied between the unique and combined training programs throughout the three weeks.

3.4 Training intensity evaluation

Banister (1991) and Foster et al. (2001) proposed a method of monitoring heart rate (HR) during the training session based on training intensity and impulse score. It was calculated using the Lucía et al. (2000) scale of low-intensity exercise (ventilatory threshold 1 (VT1), "moderate-intensity" exercise, i.e., between VT1 and ventilatory threshold 2 (VT2), and "high intensity" exercise.

3.5 Exercise Measurements

The maximal oxygen consumption (VO_{2max}) was determined utilizing a treadmill test with a constant speed of 8 km/h and an initial grade of 1.5% that increased by 1.5% per minute. The first ventilatory threshold (VT1) was determined using V-slop, and the respiratory compensation threshold (VT2) was determined by comparing ventilation

(VE) to CO2 output (VCO_2). The vertical leap (VJ) was calculated using Vertex and adjusted to match the participants' height. The Vertex was modified further by raising the individual's leading hand height to the correct height, where players with 90-degree angles jumped as high as feasible. The difference between the initial leaping height and the maximum jumping height, known as vertical jumping height, was determined. Each individual repeated it twice during each training session until the end of the training period. Each participant exhibited marked improvement.

3.6 Trunk and arms muscle development

Abdominal muscle endurance exercise consists of 30 seconds of sit-ups with bent arms suspended from a horizontal bar and shoulder and arm development. Sit-ups performed in the 1930s were recorded, as was the time required for arm and shoulder muscle development to remain above eye level and grasp.

4. Result and Analysis

Training impulse scores (TRIMP) for the unique and combined training programs were comparable for the experimental and control groups. There were no significant differences between groups for any of the sessions. Training impulse score for the specific program (SP = 310 and mix training = 313 arbitrary units). The intensity of training measured in low, moderate, and high intensities does not differ significantly between the two groups (low intensity: 60.2 versus 61.7, moderate intensity: 36 versus 30, and high intensity: 3.9 versus 3.1 for the specialized and mixed training groups, respectively). Based on the percentage of maximal heart rate, Fig. 1 depicts the average training duration for the individual and combined training programs. The results revealed no significant difference between the two cases. Bogdanis et al. (2007) have a similar outcome.

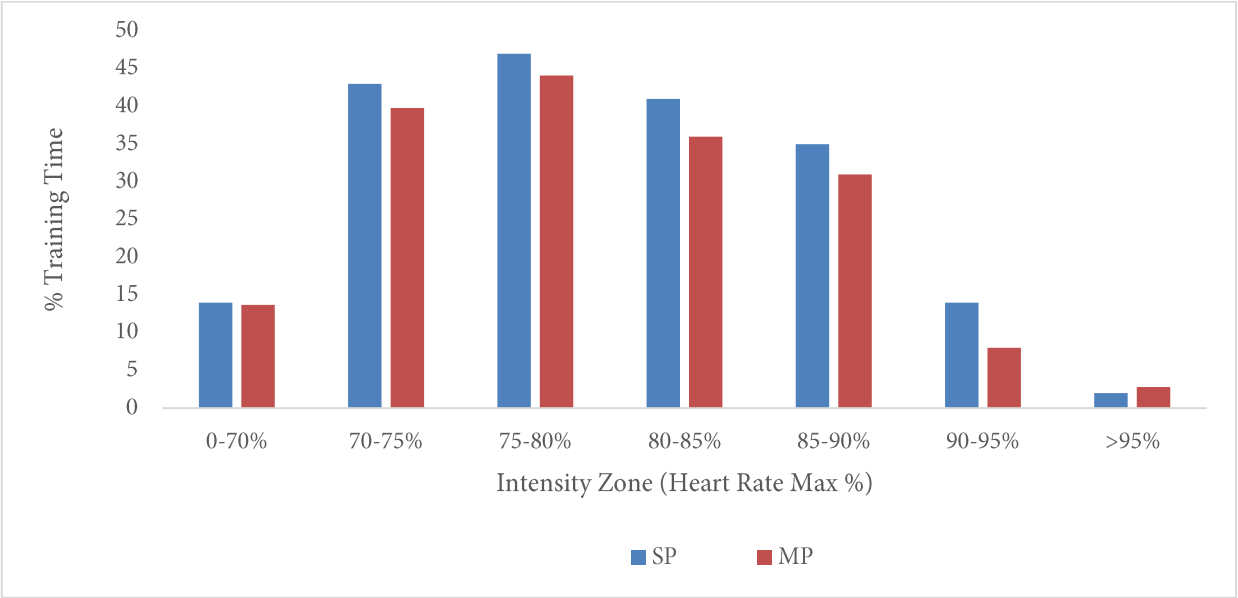

Figure 1: Percentage of training time spent at different intensity zones (Based on the heart rate values in %).

The ventilatory threshold (VT1) increased significantly in the experimental group. Maximum oxygen consumption ($VO_{2\,max}$) was measured before and after special and mixed training. As shown in Table 2, no significant differences existed between the experimental and control groups in the pre-training and post-training values of VO_2 max and VT. In addition, the control samples demonstrated a modest improvement over the control samples. Statistically, the three-week short-term program positively affects VO_2 max (SP= 4.5 versus MP=4.8). There were significant negative correlations between the pre-training VO_{2max} level and the percentage increase in VO_{2max} for both training groups (SP: r = 0.92, p< 0.01; MX: r = 0.62, p< 0.05; pooled SP and MX data: r = 0.86, p <0.01). For the control group, no changes in aerobic fitness parameters were observed. After three weeks of training, maximum HR and HR at VT1 and VT2 did not change in any groups.

Table 2

Aerobic fitness test result

	SP		MX		Co	
	PRE	POST	PRE	POST	PRE	POST
VO_{2max} (ml kg^{-1} min^{-1})	51.3	54.7	52.5	54.9	49.8	49.4
VT1 (ml kg^{-1} min^{-1})	33.9	35.0	37.0	38.1	33.1	33.2
HR_{max} (b min^{-1})	201	200	199	200	200	200
HR_{VT1} (b min^{-1})	163	162	167	166	164	167
HR_{VT2} (b min^{-1})	184	183	186	185	184	184

The American Alliance for Health, Physical Education, Recreation, and Dance (AAHPERD) basketball skills test for technical abilities was used to measure the speed of shooting, passing, and dribbling; players passed the shooting test for 60 seconds, passing while running and moving for 30 seconds, and dribbling for 30 seconds. As shown in Figure 2, basketball possession (Passing skills), shooting, and dribbling abilities improve.

The results indicated that passing, dribbling, and shooting were according to the standards of 0.59, 0.78, and .49, respectively. The passing skills before and after training ($r = -0.60$ to -0.730, $p < 0.01$) were moderately higher.

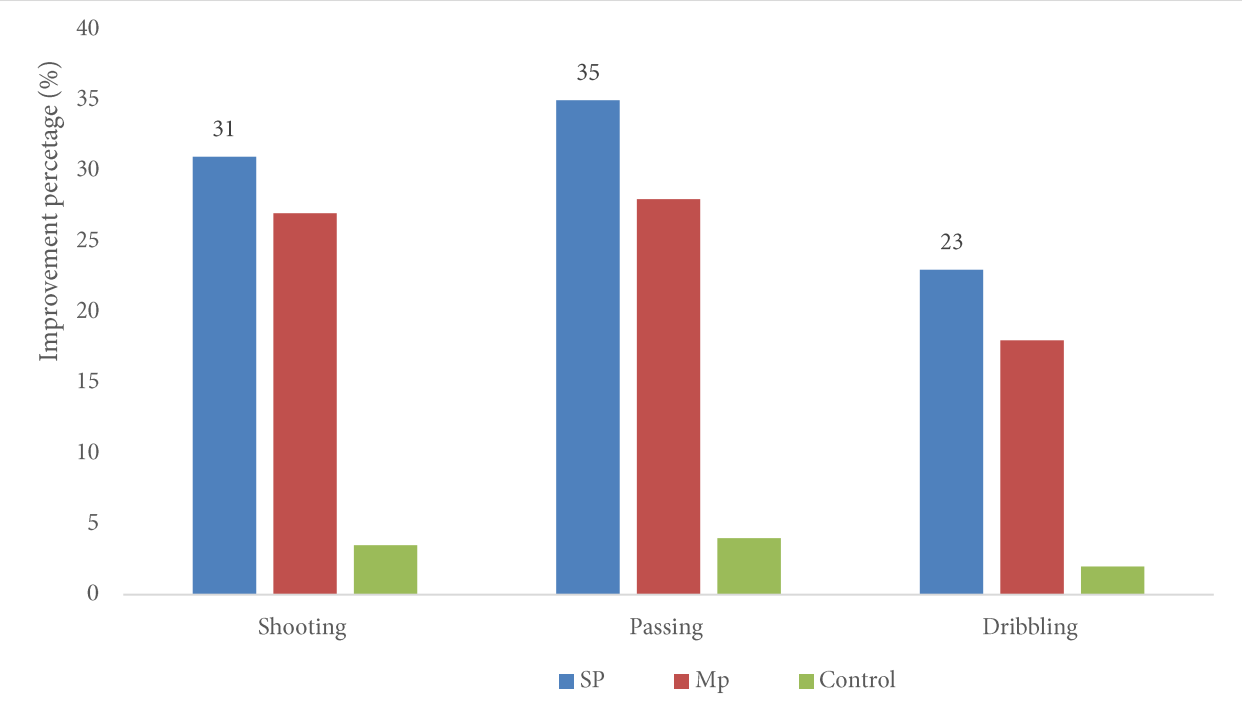

Figure 2: Basketball Technical skills improvement

The coaching relationship with player performance is accepted because the T statistic value is 3.15 and the P-value is 0.000; a short coaching training relationship with player performance and improvement is also accepted because the T statistic value is 3.154 and the P-value is 0.000.

Table 3

T-Test statistics

	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values
Training and Player Performance	0.023	0.132	3.154	0.0003

This section evaluates the relationship between basketball players' psychological behavior and green enterprise. Participation in the green movement, increased expenditure on the green environment, motivation, personal investment, participation choice, participation interests, and social factors influence basketball players' behavior toward green enterprises and the environment. The second phase of this investigation involved analyzing the relationship between recreational sports participation and its antecedents. Table 3 displays a significant positive correlation among the five determinants of participation motivation, personal investment, participation interests, and behavioral commitment. At the same time, participation choice and behavioral commitment have a significant negative correlation. Statistical evidence does not support the correlation between social factors and behavioral commitment.

Table 4

Adoptability of green enterprise and basketball players

Model	X^2 /df	RMSEA	CFI	TLI	IF
Adaptability	1.98	0.081	0.096	0.78	0.982

Table 4 displays the model fit indices for green enterprise adaptability among basketball players. Assessing the adaptability of green enterprise among basketball players

is the model being evaluated. The Root Mean Square Error of Approximation (RMSEA) quantifies the difference between the observed data and the proposed model. RMSEA values below 0.08 are regarded as acceptable, so a value of 0.081 indicates an acceptable fit. CFI measures the improvement in fit relative to a benchmark model. CFI values above 0.90 are typically deemed acceptable, so a value of 0.096 suggests a relatively good fit. Tucker-Lewis Index (TLI) measures the model's relative fit. TLI values greater than 0.90 are generally acceptable, so 0.78 indicates a satisfactory fit. IFI contrasts the fit of the hypothesized model to that of the null model. IFI values greater than 0.90 are typically deemed acceptable, so a value of 0.982 suggests a good fit. Based on the provided fit indices, the adaptability of the green enterprise model to basketball players demonstrates an acceptable and decent fit.

Table 5

Correlation Analysis of Psychological Behavior Commitment and Determinants of Green Enterprise

Factors	Psychological Behavior	Motivation	Green investment	Green Enterprise
Basketball players motivation	0.583**			
Player's investment	0.189**	0.262**		
Player's choice	.012	0.10	0.08	
Player's interest	0.50	0.23	0.55	0.48

Table 5 is a correlation matrix that illustrates the relationships between psychological behavior, motivation, green investment, and green enterprise among basketball players. Psychological Behavior and Motivation have a correlation coefficient of 0.583. This suggests a positive and moderately robust association between these two variables. Higher levels of motivation are associated with improved psychological behavior in basketball players. The correlation between Psychological Behavior and Green Investment has a coefficient of 0.189**. This suggests a positive but diminished relationship. A slight correlation exists between psychological behavior and participants' investment in environmentally friendly practices. Motivation and Green Investment have a 0.262%** correlation coefficient. This indicates a moderately positive relationship. Higher motivation levels correlate with a greater propensity to invest in ecological initiatives.

Participation interest refers to the advantages attainable through participation. If the activity is discontinued, these chances or advantages will be lost. To continue receiving these benefits, they will maintain their current conduct. Individuals' behavioral results from participating in the current leisure sports activities can meet or exceed their initial expectations, promoting their commitment to the behavior and insistence on continuing to engage in the activities. In contrast, if the benefits delivered by the current behavior are less than the expected results, the individual's commitment to the behavior will decrease, and withdrawal from the current behavior will be possible. Participation interests and behavioral commitment are, therefore, positively correlated. Social factors refer to the influence of influential individuals.

5. Discussion

During the semester break, a three-week basketball coaching/training program was conducted for the university basketball team as part of this initiative. The objective was to develop and improve the basketball players' abilities by providing them with unique and varied coaching exercises. Each session lasted for two hours, and there were three sessions per week. The participants were separated into two groups, one receiving specialized training in ball passing, shooting, and dribbling. The mixed training regimen consisted of essential exercises such as push-ups, sit-ups, vertical jumping, and running to improve the anaerobic capabilities of the players.

As shown in Figure 1, the main findings of this study indicate that special and mixed program training has increased the anaerobic power of the players. Hoffman et al. (2000) found that short-term basketball training for adults increased anaerobic performance. Asadi (2013) reported that short-season basketball conditioning led to a slight improvement in vertical leaping. Rotstein et al. (1986) were among the first authors to study the performance outcomes of anaerobic training and reported that four weeks of training substantially increased anaerobic performance among athletes. The ability of learners to effectively organize the cognitive-response selection and movement-response execution components of their performance in the form of condition-action pairs is the foundation for sport-specific improvement and development, according to previous ecological research (Fields et al., 2018). Research, Freitas et al. (2019) shows that designed play activities offer unique conditions for acquiring technical or tactical skills. In this study, the

anaerobic power change exceeded 20%, exceeding the findings of other researchers. This could be attributed to the coaching and training design participants' enthusiasm and participation in the training program. In the study by Bogdanis et al. (2007), the training period was four weeks, and one session per week resulted in anaerobic output below 15%. Nonetheless, evidence from session observations revealed that the structural mentoring provided in a unique and mixed program has a lasting effect on the performance outcomes for all participants.

University basketball players frequently compete; consequently, their anaerobic performance is significantly influenced by their performance during brief training sessions. Contrary to coaching, the participant's response to training and pre-training level of physical fitness also contribute to improved performance. High negative correlations (r = 0.79 to 0.88) between pre-training power output and percentage increase in power after training indicate the influence of pre-training anaerobic fitness on the magnitude of training response.

Given that the primary objective of the short-term training is to improve basketball passing and shooting skills, the specific and varied training program includes physical and mental well-being exercises. As Hoffman et al. (2000) suggested, basketball players should be provided with a warm-up and fundamental exercise to increase their aerobic capacity. The VO2 max was significantly increased due to the combined training program and exercise. In this experiment, between 6 and 10 percent of each session was devoted to improving fundamental but intense impulse exercise, and Figure 1 demonstrates a sufficient increase in VO2 max as measured by VT2. According to a study by Bogdanis et al. (2007), four weeks of intense aerobic training substantially improved the players' performance. Arm development training has considerably strengthened the arms of the players in the mixed training session. According to Asadi (2013), four weeks of regular 30 push-up training is sufficient to develop the arm and shoulder musculature. Both experimental groups significantly enhanced local muscle endurance in the arms and thorax. The mixed group improved more in arm muscle endurance than the specific group. The coach's mentality is crucial in enhancing the players' abilities.

Special training emphasized and enhanced the participants' technical skills and abilities for the three crucial actions. As depicted in Figure 2, the experimental group significantly improved their aiming and passing techniques. Most of the time, unique training was provided. This result demonstrates that participants perform significantly better after enhancing their technical skills. Participation interest refers to the advantages attainable through participation. If the activity is discontinued, these chances or advantages will be lost. To continue receiving these benefits, they will maintain their current conduct. Individuals' behavioral results from participating in the current leisure sports activities can meet or exceed their initial expectations, promoting their commitment to the behavior and insistence on continuing to engage in the activities.

In contrast, if the benefits delivered by the current behavior are less than the expected results, the individual's commitment to the behavior will decrease, and withdrawal from the current behavior will be possible. Social factors refer to the influence of influential individuals. Participation interests and behavioral commitment are, therefore, positively correlated.

In comparison to shooting and passing, dribbling was marginally enhanced. These tests emphasize speed and anaerobic fitness, as players must complete the drill as quickly as feasible. The functional (e.g., keeping the action moving) and social (e.g., practice with teammates) aspects of the game and exercise were equally important in determining the intensity and significance of the young athletes' engagement. In our scenario, this was demonstrated by the positive developmental tendencies observed in the dribbling actions of both groups following our coaching trial. However, our example's prevalence of dribbling-in-place movement patterns supported the notion that juvenile players need a ball in 1 vs. 1 or low-organized situations to feel competent (Wen et al., 2018).

6. Conclusion and Recommendations

According to the project's findings, a short-term specific physical exercise training program significantly increases aerobic fitness and strength. Additionally, participants' technical and tactical abilities increased. In addition, short-term basketball training for adults led to increased anaerobic performance and a slight improvement in the participants' psychological behavior. The addition of approximately twenty days of training enhances the player's arm endurance. This initiative aimed to improve basketball players' technical skills and programmed mixed training to increase their aerobic capacities. There was a tendency for greater development in the SP groups' technical shooting and passing skills. Therefore, the decrease in total on-court training time due to the inclusion of circuit training was associated with a slight improvement in basketball technical skills in the mixed training group.

This study highlighted the significance of basketball coaching training to improve the learning process, as

short-term training programs were found to improve players' physical, mental, and motor skills. Therefore, both unique and mixed training are equally effective for minimizing and reversing the effects of detraining during the off-season following the basketball season. However, it cannot be ruled out that an off-court conditioning program may positively affect fitness aspects not assessed in the present study (e.g., throwing and jumping) and injury prevention, and further research is warranted. Through exploratory factor analysis and confirmatory factor analysis, this study concluded that the determinants of basketball sports behavior commitment include five variables: participation motivation, personal input, participation alternatives, participation opportunity, and social factors and that the framework has a high degree of fit.

Providing university basketball players with short-term training can improve their aerobic fitness. The basketball players apply to other athletes as well. During a basketball game, players' technical abilities can also demonstrate significant improvement. Therefore, this research suggests a minimum three-week coaching program that could improve the player's skills. This investigation is limited to university-level basketball players. It is suggested that a study be conducted to investigate the professional basketball players' attitudes toward green enterprise and green expenditures, which will aid in the global fight against climate change. Moreover, psychological behavior research sample sizes can increase.

Based on the project's findings, it is recommended to implement the suggested short-term basketball player coaching program. The program should be at least three weeks long to significantly improve the technical skills and cardiovascular fitness of the players. Although the study focuses on collegiate basketball players, it is recommended that additional research be conducted to understand better how professional basketball players respond to similar training regimens. This would shed light on the efficacy of short-term coaching programs for athletes at higher competition levels.

7. Limitation and Future Studies

This study focused primarily on the effects of a short-term training program on technical skills and aerobic fitness. Future research should investigate the influence of off-court conditioning regimens on other fitness-related activities, such as throwing and leaping. This study concentrated on collegiate basketball players, which may restrict the applicability of its findings to other populations. Future research should include a broader range of participants, such as professional athletes and players of varying skill levels; also, the sample size was small; however, conducting studies with larger sample sizes would provide more robust insights into the psychological benefits of short-term coaching programs.

8. Practical Implications and Policy

This study highlights the significance of coaching education in enhancing the learning process and basketball players' physical, mental, and motor abilities. Coaches and sports organizations should prioritize ongoing coaching education and development opportunities for effective athlete development. To minimize detraining effects during the off-season, it was discovered that both significant advancements in technical skills and mixed training approaches are equally effective. Coaches and trainers can consider incorporating hybrid training methods to maintain player performance and prevent skill regression. The study suggests investigating the behavior of professional basketball players regarding green business and expenditures. Understanding how athletes view and participate in environmental sustainability initiatives can contribute to global climate change mitigation efforts. The study suggests improvements in aerobic fitness, technical skills, and psychological behavior as potential advantages of a short-term coaching program for basketball players. However, additional research with larger and more diverse samples is required to confirm and expand upon these findings.

Authors' Contributions

All authors equally contributed to this research project.

Ethical Approval

Applicable and Granted by the Institute

Consent to Participate

I am free to contact any of the people involved in the research to seek further clarification and information

Institutional Review Board Statement

Applicable and Granted by the Institute

Informed Consent Statement

Applicable, Participants consent was taken

Conflicts of Interest

The authors declare no conflicts of interest.

Availability of data and materials

The datasets used and analyzed during the current study are available from the corresponding author upon reasonable request.

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