

# The Impact of Loads of College Basketball Players on Their Competitive Performance

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**Abstract:** This study meticulously examines the influence of training loads on the competitive performance of college basketball players. It endeavors to gauge the technical and psychological preparedness of players before games, shedding light on the efficacy of their training regimens. Focused solely on college basketball players and their training routines, this study does not delve into extraneous factors such as diet or psychological variables that may impact performance. The insights gleaned from this study are poised to offer invaluable guidance to coaches and trainers in crafting tailored training programs tailored to optimize the performance of college basketball players.

**Keywords:** Training Loads; College Basketball Players; Competitive Performance.

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## 1. Introduction

Basketball stands out as one of the swiftest team sports of the present era, characterized by flamboyant maneuvers such as the thunderous slam dunk and the decisive blocked shot. These displays of athletic prowess vividly exemplify the essence of the sport, wherein speed, strength, and power emerge as paramount determinants of successful basketball performances. While such attributes are commonly associated with contemporary basketball athletes, it is intriguing to contemplate the evolution of basketball from its humble origins into one of the most popular and dynamic team sports in modern society.

Effectively managing the training process of highly skilled basketball players hinges not only on assessing the nature of technical and tactical tasks and their alignment with players' game activity but also, significantly, on accounting for the physiological impact of loads on athletes' bodies. The proposed system of grading loads for highly skilled basketball players, rooted in the physiological changes induced by exercise performance, facilitates the efficient management of the training regimen. Research has underscored that the fluctuations in the volume of training methods of diverse physiological orientations throughout the preparation of a highly skilled team for pivotal international competitions are uneven, exerting an influence on the outcomes of control assessments in specialized tests. Hence, the allocation of training methods at different training stages must consider not only technical, technical-tactical, tactical, and game-oriented training.

## 2. Research Design and Locale

A Pre-test Post-Test research design was used in this study to approach load monitoring in basketball comprehensively.

The study employed purposive sampling, targeting individuals affiliated with the Shang Qiu Normal University Basketball Team as respondents. These respondents include athletes, coaches, and instructors associated with basketball at Shang Qiu University.

## 3. Research Instrument and Data Gathering Procedure

### Pre-Test (Baseline Assessment)

Before the commencement of the training program, participants undergo evaluation to ascertain their initial status. This assessment serves as a foundational measure, gauging pertinent variables such as fitness level, skill proficiency, and psychological factors.

The pre-test plays a pivotal role in pinpointing any existing disparities among participants, offering a benchmark for comparison subsequent to the training regimen.

### Training Intervention

Participants then undergo the training program, which could involve various activities, exercises, or interventions.

The goal is to enhance specific physical fitness (e.g., physical performance, mental resilience, or technical skills).

### Post-Test (Follow-Up Assessment)

Following the training period, participants undergo re-evaluation utilizing identical measurements as those employed in the pre-test phase.

The post-test data furnish researchers with insights into the discernible impact of the training regimen on the variables under scrutiny.

## 4. Analysis

This chapter provides a presentation of the tabulated data, along with a detailed explanation and analysis of the data. The conclusions presented in this section are the result of a statistical analysis conducted using jamovi 2.3.19.

The Shapiro-Wilk test, a statistical test for normality, will be employed to ascertain if the parametric test aligns with the research aims. Parametric testing is employed when the p-value exceeds 0.05. If the p-values are below 0.05, it indicates that the data is unlikely to have an even distribution. Therefore, non-parametric tests will be employed.

The research questions covered in this article are revisited. As a result, the findings are provided with their interpretations and analyses.

Preliminary Analysis  
Reliability.

**Table 1. Reliability Measurement – Impact of Training Loads (Cronbach’s Alpha)**

Construct	Cronbach’s Alpha	No. of Item/s Deleted	No. of Item/s Retained
Impact of Training Loads	0.90	0	15

Table A outlines the reliability assessment, specifically focusing on measuring the Cronbach's alpha of the scale, impact of training loads of the basketball players. Cronbach's alpha (CA) is a statistic that is employed to ascertain the internal consistency or dependability of the constructs that will be examined. The CA value, which must be equal to or greater than 0.70 (Fornell & Larcker, 1981; Nunnally, 1978), determines which items are considered excellent. The tabulated data indicates that all items are considered to be good items with high internal consistency based on the CA value of 0.90.

**Table 2. Normality**

		Shapiro-Wilk	
		N	
		W	p
6m	90	0.93	0.063
20m	90	0.92	0.058
Power	90	0.94	0.066
Running	90	0.97	0.163
Balance	90	0.96	0.097
Coordination	90	0.95	0.075
Reaction time	90	0.95	0.075
Dribbling	90	0.96	0.097
Shooting	90	0.97	0.163
Shooting (2)	90	0.93	0.063
Shooting (3)	90	0.94	0.066
Passing	90	0.96	0.097
Defense	90	0.97	0.163

Since all the generated p-values from the Shapiro-Wilk test are higher than 0.05, this will confirm that the data are regularly distributed. Hence, to determine if there is a significant difference in the level of performance of basketball players before and after the training, a parametric test such as Paired t-test will be employed.

## 5. Conclusion

1) The basketball performance in terms of skills related to fitness components is subpar in reaction time and 20-meter run, average in running, commendable in balance, outstanding in 6-meter run, power, and coordination. If the athlete consistently does well in running, demonstrates good balance, excels in the 6-meter run, exhibits power, and displays coordination, they possess a strong basis upon which to further develop their skills. These talents are crucial for achieving success in basketball and can enhance the athlete's

performance in different facets of the game. To better their total performance and become a more effective player on the court, the athlete can improve their response time and 20-meter run.

2) Prior to the training, the basketball performance level in terms of technical proficiency, specifically in dribbling and shooting, is average, lacking in defense, and outstanding in passing. The consequences of these performance levels reveal the specific areas that require work and the places where the team demonstrates exceptional proficiency. To enhance their overall performance and competitiveness on the basketball court, the team should prioritize on their technical expertise in dribbling and shooting, resolving any defensive flaws, and consistently utilizing their exceptional passing abilities.

3) The post-training basketball performance in terms of skills associated fitness components is subpar for the 20-meter run and reaction time, satisfactory in running, very commendable in balance, and outstanding in the 6-meter run and coordination. In general, although there is a combination of positive and negative outcomes in many aspects of fitness, it is essential for the player to focus on addressing their shortcomings in order to improve their overall performance on the basketball court.

4) The post-training basketball performance exhibits a low level of technical preparedness in defense, a satisfactory level in dribbling and shooting, and an outstanding level in passing. Although the lack of technical readiness in defense is worrisome, the commendable dribbling and shooting abilities, along with the exceptional passing capabilities, serve as a solid basis for growth. By undergoing rigorous training and prioritizing the development of defensive skills, the player has the capacity to evolve into a versatile and impactful basketball player.

5) There is a significant difference in the level of basketball players before and after training. This indicates that the training program effectively focused on specific areas that needed improvement and offered the required resources and approaches to enhance their performance. This is a credit to the coaches' and trainers' ability, as well as the players' dedication and hard work.

6) The evaluation of the influence of the training loads on the basketball players is of moderate magnitude. An analysis of training loads indicates that there is a potential equilibrium between the intensity of the exercises and the athletes' ability to adjust and recuperate. This suggests that the training regimen is successfully stimulating the athletes without excessively straining them to the extent of fatigue or harm. This can result in enhanced performance on the court while reducing the likelihood of excessive training.

## 6. Recommendation

Based on the findings, the researcher made the following recommendations:

1) Given the poor performance in reaction time and 20-meter run, it is recommended to focus on specific drills and exercises to improve these skills. Reaction time is crucial in basketball as it allows players to quickly respond to opponents' movements and make split-second decisions. Implementing drills that require quick reflexes and decision-making, such as agility ladder drills or reaction ball exercises, can help enhance reaction time.

2) Improving 20-meter run time is essential for increasing speed and overall athleticism on the court. Incorporating interval training, sprint drills, and plyometric exercises can

help boost speed and explosiveness.

3) While running, balance, and coordination skills are already at a regular to excellent level, it is important to continue maintaining and strengthening these areas through practice and targeted exercises. Balance exercises like single-leg squats or stability ball drills can help improve stability and prevent injuries.

4) To rectify the deficiency in defensive proficiency, it is advisable to focus on enhancing defensive abilities, including footwork, positioning, and communication with fellow teammates. One can achieve this by engaging in drills that specifically target defensive techniques and strategies, in addition to analyzing game footage to assess defensive performance.

5) Consistent practice and repetition are crucial for enhancing technical skill in dribbling and shooting. Enhancing dribbling tactics and increasing shooting precision may be accomplished by engaging in drills and exercises that are particularly tailored to address these aspects.

6) It is advisable to prioritize enhancing performance in the 20-meter run and reaction time. Targeted drills and workouts that specifically emphasize speed and agility might be employed to accomplish this. Regular and disciplined training, together with correct methodology, will be essential in improving these areas of deficiency.

7) It is important to make efforts to preserve and potentially improve the satisfactory running skills, as they serve as the basis for overall performance on the basketball court. Furthermore, it is crucial to sustain the good equilibrium by consistently practicing and prioritizing the development of core strength and stability.

8) It is crucial to consistently monitor and evaluate the athletes' physical and mental health during their training program. This entails regularly monitoring their well-being to assess their degree of exhaustion, muscle soreness, and overall physical state. Training loads should be modified appropriately to avoid overtraining and the risk of injury.

9) Coaches and trainers may give priority to a comprehensive training program that includes both intense workouts and sufficient periods of relaxation. The maintenance of this equilibrium is vital in enabling players to recuperate efficiently and prevent exhaustion.

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