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An Aerobic Power and Repeated Sprint Performance in Basketball Athletes

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ABSTRACT

Basketball is a dynamic sport characterized by short bursts of high - intensity activity, including jumping, sprinting, and rapid directional changes. These actions depend heavily on an athlete' s anaerobic power, which refers to the body' s ability to generate force without relying on oxygen. Repeated sprint performance, another critical component of basketball, reflects an athlete' s ability to perform multiple sprints with minimal rest in between. This capacity determines how effectively players can maintain high performance throughout a game. Researchers have increasingly focused on understanding how anaerobic training contributes to performance enhancement in basketball. For example, Arede et al. (2025) emphasized that the intermittent and high - intensity nature of basketball makes anaerobic training indispensable. The importance of these physical attributes becomes evident in competitive matches where endurance and explosive power often separate elite players from the rest. Strengthening these aspects not only boosts athletic performance but also reduces injury risk. Hence, integrating anaerobic and sprint - specific conditioning in training routines is critical for basketball athletes.

Keywords: *This Systematic Approach Fosters Optimal Performance Development and Injury Prevention.*

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CHAPTER ONE
INTRODUCTION

Repeated sprint ability (RSA) is another key performance factor in basketball and is often measured using protocols that involve multiple sprints with short rest intervals. The goal is to observe the athlete' s ability to maintain high performance across successive sprints. Arslan et al. (2022) demonstrated that repeated sprint protocols improved both anaerobic capacity and sport - specific skill execution in elite basketball players. The physiological adaptations that enhance RSA include improved phosphocreatine recovery, better lactate buffering, and enhanced neuromuscular efficiency. Research by Cavar et al. (2023) supports this view, showing that structured repeated sprint training led to significant improvements in game performance. Players with higher RSA can recover faster between plays, which is particularly beneficial in the fourth quarter when fatigue sets in. Maintaining performance under fatigue conditions is a hallmark of elite athleticism. Therefore, integrating repeated sprint exercises into weekly routines is essential for conditioning basketball athletes. When paired with proper recovery strategies, RSA - focused training greatly contributes to game success.

Plyometric training is another method widely used to improve both anaerobic power and RSA. I t includes exercises such as box jumps, depth jumps, and bounding drills that stimulate the stretch - shortening cycle of muscles. According to Zhou et al. (2024), these exercises significantly improve power output and sprint speed among youth basketball players. Plyometrics enhance empower female athletes and improve team cohesion. Therefore, training interventions should always be inclusive and adaptable.

Incorporating sport- specific drills into anaerobic training further increases its efficacy. Exercises that replicate game scenarios, such as defensive slides followed by sprint finishes or fast - break drills with shooting, provide both conditioning and technical benefits. According to Arede et al. (2021), these drills bridge the gap between physical conditioning and game performance. Sport - specific anaerobic drills improve decision - making under fatigue and simulate real- time basketball demands. They also boo st muscle memory and movement efficiency, reducing cognitive load during games. Coaches emphasize “situational intensity,” where athletes are conditioned through drills that mimic clutch situations to enhance mental and physical readiness. The real - world applicability of such t raining methods increases motivation and engagement among athletes. Ultimately, this integration ensures that physical improvements translate directly to better court performance.

Evaluation methods such as the Running - Based Anaerobic Sprint Test (RAST) and full- court shuttle sprints are used to assess improvements in anaerobic and repeated sprint capacity. These tests allow coaches to track progress, make informed decisions about workload, and identify areas needing improvement. De Pedro- Múñez et al. (2025) advocate for regular performance assessments to avoid plateaus and maintain training effectiveness. Data collected from these tests guide periodization and recovery strategies. Moreover, these tests help in talent identification and benchmarking within teams. Continuous assessment creates a feedback loop that empowers athletes to take ownership of their development. Regular testing also instills a culture of accountability and performance excellence. Hence, evaluation tools are integral to maintaining peak anaerobic performance levels throughout the season.

Anaerobic power and repeated sprint ability are fundamental to basketball performance. Enhancing these physical attributes leads to improved explosiveness, faster recovery, and better decision - making under fatigue. Training interventions such as plyometric s, HIIT, VBT, and sport- specific drills have been validated by recent research. Gender - specific considerations and personalized programming further improve training outcomes. Integrating assessments like RAST ensures progress is measurable and training remains dynamic. With consistent application of evidence - based methods, basketball athletes can unlock their full anaerobic potential. As the game continues to evolve, conditioning programs must adapt to meet its increasing physical demands. A well- rounded approach to anaerobic development not only enhances athletic performance but also supports long - term athlete health and career longevity.

- *Background of the Study*

Basketball is a dynamic sport characterized by short bursts of high - intensity activity, including jumping, sprinting, and rapid directional changes. In Huizhou University in Guangdong China, such situation is prevalent. These actions depend heavily on an athlete’ s anaerobic power, which refers to the body' s ability to generate force without relying on oxygen. Repeated sprint performance, another critical component of basketball, reflects an athlete’ s ability to perform mu ltiple sprints with minimal rest in between. This capacity determines how effectively players can maintain high performance throughout a game. Researchers have increasingly focused on understanding how anaerobic training contributes to performance enhancement in basketball. For example, Arede et al. (2025) emphasized that the intermittent and high - intensity nature of basketball makes anaerobic training indispensable. The importance of these physical attributes becomes evident in competitive matches where endurance and explosive power often separate elite players from the rest. Strengthening these aspects not only boosts athletic performance but also reduces injury risk. Hence, integrating anaerobic and sprint- specific conditioning in training routines is critical for basketball athletes.

Anaerobic power is often measured using tests such as the Wingate Anaerobic Test (WAn T), which assesses peak power output, average power, and fatigue index. These parameters give insight into how efficiently an athlete can perform explosive

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movements such as fast breaks, jump shots, and defensive slides. According to de Pedro- Múñez et al. (2025), anaerobic test results are significant predictors of on- court performance. Training programs that enhance anaerobic power generally include plyometrics, resistance training, and high- intensity interval training (HIIT). These exercises improve neuromuscular coordination and increase the rate at which energy is produced by the anaerobic system. Researchers such as García - Pinillos et al. (2017) have demonstrated the benefits of vertical and horizontal plyometric drills in improving lower - limb explosiveness. For basketball players, such improvements translate directly into better jumping ability and first- step quickness. Consequently, regular assessment of anaerobic power helps in tracking progress and tailoring individualized training plans. This systematic approach fosters optimal performance development and injury prevention.

Repeated sprint ability (RSA) is another key performance factor in basketball and is often measured using protocols that involve multiple sprints with short rest intervals. The goal is to observe the athlete' s ability to maintain high performance across successive sprints. Arslan et al. (2022) demonstrated that repeated sprint protocols improved both anaerobic capacity and sport - specific skill execution in elite basketball players. The physiological adaptations that enhance RSA include improved phosphocreatine recovery, better lactate buffering, and enhanced neuromuscular efficiency. Eastern European research by Cavar et al. (2023) supports this view, showing that structured repeated sprint training led to significant improvements in game performance. Players with higher RSA can recover faster between plays, which is particularly beneficial in the fourth quarter when fatigue sets in. Maintaining performance under fatigue conditions is a hallmark of elite athleticism. Therefore, integrating repeated sprint exercises into weekly routines is essential for conditioning basketball athletes. When paired with proper recovery strategies, RSA - focused training greatly contributes to game success.

Plyometric training is another method widely used to improve both anaerobic power and RSA. I t includes exercises such as box jumps, depth jumps, and bounding drills that stimulate the stretch - shortening cycle of muscles. According to Zhou et al. (2024), these exercises significantly improve power output and sprint speed among youth basketball players. Plyometrics enhance neuromuscular coordination and leg stiffness, making the movements more efficient and explosive. Studies confirm that athletes who engage in regular plyometric programs exhibit higher vertical jump scores and quicker lateral movements. In basketball, where reaction time and agility are crucial, these benefits are indispensable. Moreover, when combined with strength training, plyometricexercises lead to better muscle recruitment and energy utilization. This dual approach ensures that players develop both maximal strength and explosive capabilities. Coaches should progressively integrate plyometric work into seasonal training plans to avoidoveruse injuries while maximizing performance outcomes.

High- Intensity Interval Training (HIIT) has emerged as an effective tool to enhance anaerobic and aerobic capacity s imultaneously. HIIT consists of short bursts of maximal effort followed by brief recovery periods and is particularly suited to the energy demands of basketball. Cavar et al. (2023) reported that HIIT significantly improved not only cardiovascular endurance but also shooting accuracy and dribbling under fatigue in competitive basketball players. This indicates that anaerobic conditioning has both physiological and technical performance benefits. HIIT improves VO 2 max, lactate threshold, and mitochondrial density, making athletes more efficient in using energy during games. Researchers, such as Song et al. (2023), further emphasized the psychological resilience developed through HIIT, as athletes learn to cope with fatigue and maintain mental sharpness. Additionally, HIIT sessions are time- efficient and easily adjustable to individual fitness levels, making them ideal for team settings. The scalability and versatility of HIIT allow it to be applied across different age groups and competitive levels. Consequently, i t remains a cornerstone in modern basketball conditioning.

Another approach gaining traction is Velocity - Based Training (VBT), where training intensity is monitored using bar speed rather than fixed percentages of one- rep max. Arede et al. (2025) demonstrated that VBT improves explosive strength and sprint ability in young basketball athletes. The advantage of VBT lies in its ability to adapt in real - time to the athlete' s fatigue level and performance readiness. This ensures that training remains effective while minimizing the risk of overtraining. Studies have found that VBT promotes neuromuscular adaptation, which directly benefits rapid acceleration and deceleration, crucial in basketball (Kontro et al., 2025). Athletes using VBT also show improvements in movement efficiency, helping them conserve energy during play. Moreover, by personalizing load prescriptions, VBT allows for a safer and more effective development of anaerobic power. The integration of technology in VBT also enhances coaching precision and athlete engagement.

Thus, i t serves as a sophisticated yet practical method for basketball - specific performance enhancement. The gender- specific effects of anaerobic training are another area of interest in basketball conditioning. Li et al. (2025) conducted a randomized trial showing that both male and female athletes experienced significant improvements in anaerobic power through ugh similar training protocols. However, the rate of adaptation and injury susceptibility varied s lightly between genders. Such findings highlight the importance of individualized training prescriptions that consider both physiological and biomechanical factors. Research also underscores the influence of hormonal cycles on female athletes' recovery and power output (Wu & He, 2023). Coaches must use these insights to modify training intensity and recovery protocols accordingly. Gender - sensitive programming not only improves performance but also enhances athlete well - being. Furthermore, ensuring equity in t raining intensity and opportunities can empower female athletes and improve team cohesion. Therefore, training interventions should always be inclusive and adaptable.

Incorporating sport- specific drills into anaerobic training further increases its efficacy. Exercises that replicate game scenarios, such as defensive slides followed by sprint finishes or fast - break drills with shooting, provide both conditioning and technical benefits. According to Arede et al. (2021), these drills bridge the gap between physical conditioning and game performance. Sport - specific anaerobic drills improve decision - making under fatigue and simulate real-time basketball demands. They also boo stmuscle memory and movement efficiency, reducing cognitive load during games. Coaches emphasize “situational intensity,” where athletes are conditioned through drills that mimic clutch situations to enhance mental and physical readiness. The real - world applicability of such t raining methods increases motivation and engagement among athletes. Ultimately, this integration ensures that physical improvements translate directly to better court performance.

Evaluation methods such as the Running - Based Anaerobic Sprint Test (RAST) and full- court shuttle sprints are used to assess improvements in anaerobic and repeated sprint capacity. These tests allow coaches to track progress, make informed decisions about workload, and identify areas needing improvement. De Pedro- Múñez et al. (2025) advocate for regular performance assessments to avoid plateaus and maintain training effectiveness. Data collected from these tests guide periodization and recovery strategies. Moreover, these tests help in talent identification and benchmarking within teams. Continuous assessment creates a feedback loop that empowers athletes to take ownership of their development. Regular testing also instills a culture of accountability and performance excellence. Hence, evaluation tools are integral to maintaining peak anaerobic performance levels throughout the season.

Anaerobic power and repeated sprint ability are fundamental to basketball performance. Enhancing these physical attributes leads to improved explosiveness, faster recovery, and better decision - making under fatigue. Training interventions such as plyometric s, HIIT, VBT, and sport- specific drills have been validated by recent research. Gender - specific considerations and personalized programming further improve training outcomes. Integrating assessments like RAST ensures progress is measurable and training remains dynamic. With consistent application of evidence - based methods, basketball athletes can unlock their full anaerobic potential. As the game continues to evolve, conditioning programs must adapt to meet its increasing physical demands. A well- rounded approach to anaerobic development not only enhances athletic performance but also supports long - term athlete health and career longevity.

➤ *Physiology (Specifically Anaerobic Power) of Basketball Athletes*

Like in other parts of the world, basketball in China is characterized by quick, repetitive bursts of moderate - to- intense physical effort. Athletes must use both their anaerobic and aerobic energy systems during these bursts, which affects their capacity to perform at their best anaerobic levels (Gottlieb et al., 2024). Success in basketball is said to depend on one' s ability to continuously perform high- intensity movements during a game (Ben Abdelkrim et al., 2023). Chinese basketball players must therefore have a strong aerobic capacity, particularly to facilitate quicker recuperation between exertion during practice and competition (Castagna et al., 2024).

Basketball motions typically consist of explosive movements that last less than 6 seconds and moderate- effort activities that continue up to 1 minute (Stolen et al., 2025). ATP, creatine phosphate (CP), and anaerobic glycolysis provide the majority of the energy for these motions during the first few seconds. The aerobic system plays a crucial role in the recovery phase by assisting in the restoration of CP levels and the removal of metabolic by - products such as lactate, even though i t contributes less th an 10 % during a s ingle high- effort bout (Wragg et al., 2025). Recovery periods are short in the hectic setting of a basketball game and frequently insufficient for complete energy restoration. Thus, by promoting energy restoration and waste elimination, the aerobic system becomes crucial for maintaining performance throughout the game (Glaister, 2025).

Fast direction changes, running, leaping, and strong plays like blocking and rebounding are further characteristics of modern Chinese basketball (Gottlieb et al., 2024). Players need to have exceptional physical qualities including strength, speed, and explosive power in order to compete well (Delextrat & Cohen, 2024). Notably, the game' s speed has risen due to major rule changes that have been implemented internationally and implemented in China since 2000. Both the strategic and physical aspects of play have changed as a result of modifications including cutting the shot c lock from 30 to 24 seconds, cutting the time to cross midcourt from 10 to 8 seconds, and dividing the game duration into four 10 - minute quarters (Meckel and Gottlieb, 2025).

Basketball players usually run between 4500 and 5000 meters in a 48 - minute game. However, research indicates that only around one - third of the time is spent actively playing; the remainder is spent standing or walking (Narazaki et al., 2025). According to Abdelkrim et al. (2023), this emphasizes the necessity of customized physical conditioning regimens that take into account the true physiological demands of the activity.

Game-critical actions in Chinese basketball, as in other sports, combine vertical efforts like jump shoots and rebounding with horizontal movements like running and abrupt direction changes. Particularly during offensive drives or defensive plays like shot blocking, these motions are commonly performed in tandem (Meckel et al., 2025; Gottlieb et al., 2024). Because of their sporadic nature, training regimens that build anaerobic power and aerobic endurance are crucial for peak performance.

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Athletes and coaches in Chinese basketball frequently equate physical condition with athletic prowess. Elite basketball performance also depends significantly on certain aspects of physical fitness, such as cardiovascular endurance, muscular strength, muscular endurance, flexibility, and ideal body composition, even though general if tenses is crucial for preserving health (Abdelkrim et al., 2023; Gottlieb et al., 2024; Shaher, 2021).

One of the most important components is cardiorespiratory endurance, which is the capacity of the heart and lungs to effectively provide oxygen and nutrients to working muscles over an extended period of physical exercise. These mechanisms work better and heart performance is strengthened with aerobic conditioning (Meckel et al., 2025). Aerobic capacity can be increased by engaging in continuous, low- intensity exercise for 20 to 60 minutes (Meckel & Gottlieb, 2025). But as everywhere else, basketball in China usually consists of short bursts of action rather than consistent, long - term effort. In order to support high- intensity activities using energy systems that don' t require oxygen, players must also build anaerobic fitness (Abdelkrim et al., 2023; Got tlieb et al., 2024; Mc Innes et al., 2024).

Designing successful basketball training regimens requires an understanding of how the anaerobic and aerobic systems function. The aerobic system uses oxygen to produce ATP and is particularly effective for prolonged efforts lasting more than three-minute s (Castagna et al., 2025; Meckel & Gottlieb, 2025). Basketball, on the other hand, depends more on anaerobic processes because of its high- intensity, brief movements. Both energy systems are active when a game begins, but how much each contributes depend s on how hard and how long the player is working. Basketball games are typically 80 % anaerobic and 20 % aerobic, however the ratio may change depending on the role and style of play of the player (Abdelkrim et al., 2023).

I t is impractical to apply a s ingle standard energy usage ratio to every basketball scenario due to the variation in playing patterns. However, it is generally acknowledged that anaerobic fitness plays a significant role in games, particularly when dividing a two- hour competition into shorter halves. For instance, athletes may have a work - to- rest ratio of about 1: 1 during a 10 – minute quarter, but because of timeouts, quarter breaks, and halftime, this increases to 1: 2 or 1: 3 for the whole game (Gottlieb et al., 2024; Meckel & Gottlieb, 2025).

Anaerobic energy systems drive most of the intensive efforts made during play, although aerobic capability is crucial for the subsequent recovery. This emphasizes how important it is for Chinese basketball training programs to balance the advancement of both systems. According to scientific research, athletes may recover over 50 % of their ATP - CP stores after just 20 seconds of rest and up to 87 % after 60 seconds. Additionally, the body' s aerobic system metabolizes lactate during the post - exercise heavy breathing period, allowing for a speedier recovery for the subsequent play sequence (Meckel & Gottlieb, 2025).

Chinese basketball players must thus have a strong aerobic foundation in order to withstand the buildup of byproducts that cause fatigue as well as to help with lactate clearance. As a result, they are better able to stay focused throughout intense gameplay and avoid getting t i red (Gottlieb et al., 2024; Meckel & Gottlieb, 2025; Meckel et al., 2025).

Numerous studies on contemporary basketball coaching techniques have been conducted within the past 20 years (Shelling & Torres, 2022). Players' physical attributes and athleticism play a major role in the sport' s quick development (Delextrat & Cohen, 202 4). The 24 - second shot c lock has sped up gaming, putting more emphasis on explosive strength and raising physical demands (Stojanovic et al., 2022). Strength and conditioning experts are thus looking for more efficient methods to improve physical capabilities and assess fitness elements unique to a given activity (Delextrat & Cohen, 2024; Meckel & Gottlieb, 2025).

Basketball mostly consists of anaerobic activities including sprinting, leaping, and direction changes, even though aerobic capacity is required for prolonged success (Abdelkrim et al., 2023; Gottlieb et al., 2024). According to Castagna et al. (2025) and (2024), players do 105 high - intensity movements on average every game, which last 2 – 6 seconds and happen around every 21 seconds. These exercises achieve 70 – 90 % of maximum heart rate and 60 – 75 % of VO_2max (Meckel & Gottlieb, 2025; Meckel et al., 2025). These sprints have asignificant impact on game results even though they make up less than 10 % of the entire distance (Wragg et al., 2025; Bishop, 2024).

Sustaining repeated efforts requires recovery mechanisms in between bouts, particularly the quick restoration of CP reserves and the elimination of lactate (Gottlieb et al., 2024). With activity shifts every two seconds, studies utilizing video analysis and physiological monitoring of professional athletes revealed 997 ± 183 movement changes per game and 105 ± 52 high - intensity runs (Ostojic et al., 2022). Players engaged in low - intensity activities for 60 % of their living time and high- intensity activities for 15 %. Lactate levels reached 6. 8 ± 2. 8 m M/ L, indicating glycolytic energy consumption, and heart rates averaged 169 ± 9 bpm, with 75 % of time over 85 % peak HR (Abdelkrim et al., 2023; Ostojic et al., 2022).

There are a number of fitness tests available, but the best ones tailored to basketball are yet unknown (Mancha - Triguero et al., 2025). By analyzing every aspect of fitness, fitness testing is essential for determining an athlete' s physical state. Coaches may use these evaluations to pinpoint areas that need work, create training plans that are effective, and track results using retests o n a regular basis. Because it enables coaches to monitor their physical growth over time, fitness testing is especially important for k ids and teenagers (Chiu et al., 2023; Gottlieb et al., 2024; Hoffman, 2022; Mujika et al., 2025).

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The capacity to produce a lot of force in a short amount of time is a crucial aspect of physical fitness and is necessary for sports like volleyball, basketball, and soccer. As a result, in these sports, strength development is prioritized for all age groups and performance levels (Gottlieb et al., 2024). Understanding physiological and t raining principles is necessary for the best possible development of strength, speed, agility, and coordination. Accurate measurement of these fitness qualities also relies on the availability of valid and trustworthy assessment instruments (Delextrat & Cohen, 2024).

The basketball literature makes extensive use of a variety of field tests to evaluate anaerobic and aerobic finess (Abdelkrim et al., 2023; Delextrat & Cohen, 2024; Gottlieb et al., 2024). These assessments give fitness experts unbiased information to guide training plans and track athletes' physical preparedness.

Through repeated 20 - meter shuttle runs at progressively faster speeds until exhaustion; this test assesses maximal aerobic capacity. I t is regarded as a trustworthy indicator of aerobic capacity in a variety of groups and has a significant connection with VO_2max ($r = 0.92$) (Clair et al., 2024). The test is appropriate for periodic aerobic evaluations because of its design, which mimics the sporadic nature of basketball play (Castagna et al., 2020; Delextrat & Cohen, 2024; Ostojic et al., 2022).

The 40 - meter runs (20 m out and 20 m back) and 10 - second rest are part of this test, which is intended for sports like basketball that need quick recovery times and high- intensity bursts. I t begins at 10 km/ h and increases by 0. 5 km/ h every level, with a modest correlation to VO_2max ($r = 0.77$) . (Bangsbo, 2022; Castagna et al., 2025; Delextrat & Cohen, 2024). With a correlation of $r = 0.89$, this 12 - minute continuous running test forecasts VO_2max (Cooper, 2024). Its continuous nature restricts its specialization to basketball, which is marked by intermittent effort, even if it offers a generic measure of aerobic capacity (Castagna et al., 2025).

Starting speed and horizontal power are measured in this test. From a standing start, athletes run 5 or 10 meters, and electronic timing devices like Optojump are typically used to monitor their performance. The optimal time is utilized for analysis once two t rials are completed (Balciunas, 2022; Gottlieb et al., 2024; Hoffman, 2022; Shaher, 2021).

This test evaluates both the ability to accelerate over extended distances and absolute sprinting speed. The 5 / 10 - m sprint and i ts testing protocols are comparable (Delextrat & Cohen, 2024; Hoffman, 2022; Mujika et al., 2025).

The metabolic demands of basketball are reflected in RSA, which assesses an athlete' s capacity to run fast and hard again with little recuperation time. With the development of time - motion analysis technologies, this test has become more and more popular (Spencer et al., 2025; Caprino et al., 2022; Meckel et al., 2025; Attene et al., 2025).

The CMJ, which is used to gauge vertical power, consists of a rapid descent and a maximal vertical leap. To stop arm swing, hands are put on the hips. Optojump systems or force plates are commonly used to achieve results (Gottlieb et al., 2024; Hoffman, 2022; Shaher, 2021). The squat jump is executed from a static squat posture without a pre - exercise dip, just as the CMJ. Concentric power is isolated by the test (García - López et al., 2025).

This test comprises a maximum leap from a standing posture and gauges horizontal power. Even though it was formerly employed in Olympic competition, i t is currently mostly utilized in environments without sophisticated testing apparatus. In basketball, agility — the capacity to change direction quickly and effectively— is essential. I t requires a blend of body control, technical skill, speed, and explosive strength (Sheppard & Young, 2022; Wragg et al., 2025). Athletes must sprint five meters, make a quick 180 - degree turn, and then sprint five meters back to the starting point in order to evaluate their change - of- direction speed. Electronic methods are used to record timing (Delextrat & Cohen, 2024; Sheppard & Young, 2022).

Multidirectional agility, which includes lateral, forward, and backward movements, is measured by the T - test. According to Sheppard and Young (2022), Wragg et al. (2025), and Young et al. (2021), it is a trustworthy indicator of directional speed and control.

Basketball players of the current generation are very skilled and physically fit athletes who are always pushing the sport to new heights (Spencer et al., 2025). Physical conditioning is crucial to sustaining peak performance over the course of a season. Although playing sports like basketball as a child can have many positive developmental effects (De Fiori et al., 2024), early specialization and overtraining can have negative effects. Early on, placing too much focus on sport- specific training might impede the development of general athletic skills and raise the risk of psychological burnout and overuse injuries (De Fiori et al., 2024).

Sports scientists are still working to develop more accurate evaluation instruments that precisely mimic the unique demands of the activity, according to a study of field testing in the literature. Basketball is distinguished by a specific blend of movement patterns, such as vertical endeavors like jumping and rebounding, horizontal activities like sprinting and direction changes, and hybrid motions that use both planes, particularly while blocking shots or driving to the basket. These sporadic, high -intensity motions differ depending on the position being played (Gottlieb et al., 2024).

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Strength and conditioning experts are investigating the best training methods for improving basketball- specific physical skills because of this intricacy (Delextrat & Cohen, 2024; Gottlieb et al., 2024). Fitness trainers put a lot of work into choosing the best practices for enhancing explosive power, but they also struggle to find valid tests to measure it. Research has shown correlations between horizontal and vertical power production (Hori et al., 2024; Sheppard et al., 2024), and there have been several attempts to build accurate power evaluation methods (Delextrat & Cohen, 2024; Ostojic et al., 2022; Sheppard & Young, 2022; Wragg et al., 2025). Sport - specific testing that assess combined horizontal and vertical power in ball sports are noticeably lacking, nevertheless (Gottlieb et al., 2024).

For example, the usefulness of the countermovement jump (CMJ) in forecasting sport- specific leaping performance in handball was investigated by Karcher and Buchheit (2022). Their results cast doubt on the test' s predictive validity for movements that combine both vertical and horizontal components since they showed no discernible relationship between airborne duration during jump shots and CMJ scores. Sheppard et al. (2008), on the other hand, found a substantial correlation between CMJ scores and performance in volleyball jump serves and spike leaps, which both entail comparable multidirectional aspects. This implies that the efficacy of these assessments can vary depending on the sport and circumstance. Whether standard procedures like the CMJ can correctly capture basketball- specific leaping skills, including one - legged takeoffs in layups or drives to the basket, is still up for debate.

Numerous intervention studies have shown that different training methods, such as sprint drills, plyometrics, maximum strength, and complex training, may greatly improve CMJ outcomes in terms of performance enhancement (De Fiori et al., 2024; Gottlieb et al., 2024; Mujika et al., 2025). Research on transferability to real - game scenarios is still necessary, though, as it is yet unknown how much these enhancements translate to in - game activities.

In basketball, aerobic ability is also essential, especially for enabling speedy recuperation from repeated sprints and hops (Meckel et al., 2025). The game' s energy requirements depend on both anaerobic and aerobic systems (Edwards et al., 2024), and per formance quality is negatively impacted by tiredness. Thus, evaluating aerobic fitness is crucial for efficient training, particularly in the preseason. Despite the high accuracy of laboratory tests like VO 2 max, their expense and complexity have prompted the creation of substitute field evaluations like the Cooper 12 - minute run test (Cooper, 2024).

Level 1 Yo-Yo intermittent recovery tests are popular and provide accurate VO 2 max estimates for intermittent sports (Bangsbo, 2022; Delextrat & Cohen, 2024). They aren' t, however, customized to fit the particulars of any one activity. These tests need to be modified to account for positional demands, recuperation times, and movement patterns unique to a certain sport. Because technical talent, tactical relationships, and situational factors all play crucial roles in performance, it is ultimately difficult to forecast how physical conditioning will translate to competitive team sports.

➤ *Muscle Strength, Anaerobic Performance, Agility, Sprint Ability and Vertical Jump Performance Among Basketball Players*

According to Delextrat & Cohen (2025); Meckell et al. (2025); Metaxas et al. (2025), basketball is classified as an aerobic - based anaerobic sport that involves a variety of high- intensity movements like sprinting, jumping, cutting, and dribbling, interspersed with lower- intensity exercises like walking and jogging. Players can maintain repeated bursts of high - intensity exercise because of the many pauses that take place throughout games, which allow for partial recuperation (Drinkwater, 2024). In order to facilitate this recovery, aerobic capacity is essential, particularly while engaging in repeated high - intensity activities (Castagna et al., 2024; Tomlin & Wenger, 2021). Additionally, physical characteristics like strength, speed, and agility are closely related to basketball success (Castagna et al., 202 3; Hedrick, 2023; Meckell et al., 2025). Elite basketball players often run between 3, 500 and 5, 000 meters throughout a game, completing 1, 000 brief, two - second bursts of activity. The location of the player affects the type and frequency of these movements (Janeira & Maia, 2024; Abdelkrim et al., 2023).

According to Erculj et al. (2025), explosive strength, acceleration, and agility are critical for efficient movement, defensive play, and ball handling, all of which have a substantial impact on technical performance and tactical execution. Motor tests that mimic sport- specific demands both with and without the ball are frequently used to evaluate these qualities, which are collectively referred to as motor potential (Colli et al., 2023; Erculj et al., 2020). Basketball motor testing is especially useful sinceitclosely resembles the movement patterns that players would experience during play.

Assessing players' physical capabilities is essential to modern sports science for identifying potential, evaluating training, and tracking performance gains (Norkowski, 2022). Research examining the connections between various motor abilities is still scarce, despite the fact that several motor assessments have been created for performance evaluation (Vescovi & Mc Guigan, 2024).

Although different motor talents in different sports have comparable biomechanical and muscular characteristics (Bobbert & van Zandwijk, 2025; Zajac, 2022), empirical results on their correlations are sometimes contradictory (Vescovi & Mc Guigan, 2024). Research on the connection between muscular strength and sprinting ability has produced typically modest and inconclusive associations (Dowson et al., 2024). This might be explained by the narrow focus of earlier research, many of which only looked at certain joint motions or types of muscle activity. Therefore, it's possible that these studies don' t fully reflect the complexity of sprint performance (Dowson et al., 2204).

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Vertical jump measures and isokinetic knee joint tests are commonly used to evaluate lower- limb strength and power. Nevertheless, research examining the connection between these two evaluations has shown conflicting findings (Iossifidou, 2025). A number of methodological variables, such as variations in participant posture, joint angular velocity, muscle length during testing, and the computational strategy employed in isokinetic dynamometry, might be blamed for these disparities (Iossifidou, 2025).

Some efforts have been made to examine the correlation between anaerobic performance, as measured by the Wingate Anaerobic Test (WAn T), and isokinetic strength testing. Arslan (2025) reported significant correlations between anaerobic performance and explosive leg strength. Similarly, Kin -İşler et al. (2024) found that concentric isokinetic knee extension strength was significantly correlated with both peak and mean power at various angular velocities (60 °, 150 °, and 240 ° / s). However, in the case of knee flexion, significant correlations with peak power were observed only at the 240 °/ s contraction velocity.

The results of several research on the connection between sprint performance and lower- limb strength have been mixed. There was no discernible correlation between knee flexion or extension strength and s ingle - sprint performance, according to Cronin and Hansen (2025) and Kin -İşler et al. (2024). In a similar vein, Baker and Nance (2025) found no correlation between rugby players' sprint performance over 10 and 40 meters and strength measurements. Conversely, concentric and eccentric knee extensor torques were found to be statistically significantly correlated with sprint timings across 0 – 15 m and 30 – 35 m by Dowson et al. (2024). This was corroborated by Alexander (2025), who found that top sprinters' concentric knee extension torque at 4. 14 rad· s^{-1} was strongly correlated with their 100 - meter sprint performance. Similarly, concentric isokinetic knee extension and f lexion strength and football players' s ingle- sprint performance was found to be significantly correlated by Newman et al. (2024).

The research participants' characteristics might be a reasonable explanation for these discrepancies (Kin - İşler et al., 2024). For instance, the observed connections may be influenced by body height, which is particularly important for basketball players, especially centers. Additionally, variations in the sprint test lengths employed in different research might possibly be a factor in the discrepancies in results.

Strong negative relationships (ranging from - 0. 67 to - 0. 91) between sprint speed and WAn T performance have been shown in earlier research (Kaczkowski et al., 2022; Tharp et al., 2025; Patton & Duggan, 2023). Although its predictive effectiveness may change depending on sprint distance, these findings imply that the WAn T may be a predictor of sprinting skill. Hoffman et al. (2025) observed that whereas longer sprint lengths are more strongly associated with mean power (MP), shorter sprint distances (e. g., 37 or 46 m) are positively connected with PP.

Significant relationships were found by Kin - İşler et al. (2024) between peak isokinetic concentric knee extension strength and anaerobic performance parameters at different contraction velocities (60 °, 150 °, and 240 °· s^{-1}). Similarly, rugby players' maximal strength and power were found to be strongly positively correlated by Baker and Nance (2025 b). In female middle - distance runners and sprinters, Thorland et al. (2023) also discovered a strong correlation between anaerobic performance and isokinetic knee strength. Additional evidence is provided by Mayhew et al. (2021 and Arslan (2025), who discovered associations between explosive leg strength and peak and mean power.

Strength and field test results, however, did not significantly correlate. Hoffman et al. (2025) suggest that the type of exercise employed in testing may be the cause of poor relationships in rank - order performance. According to Tharp et al. (2025), variations in leg power production might be caused by the limbs acting sequentially or concurrently, as well as by the active or passive upper body.

Countermovement jump (CMJ) and squat jump performance were found to have weakly negative associations with 5 m, 10 m, and 30 m sprint timings by Cronin and Hansen (2025). Additionally, Hennessy and Kilty (2021) found that the bounce drop jump index was linked to female athletes' 30 m and 100 m sprint performance, and that CMJ performance was connected to sprint test timings.

A few research have looked at the connection between agility and linear sprinting (Little & Williams, 2025; Paoule et al., 2025; Vescovi & Mc Guigan, 2024). College- aged women' s 37 - meter sprint timings and T - test scores showed a modest association, according to Paoule et al. (2025). On the other hand, Little and Williams (2025) discovered a poor relationship between the maximum speed and acceleration (10 m) in male professional soccer players during a zigzag agility test. Longer distances and the use of f lying sprint timings to measure agility seem to reinforce the relationship between agility and sprint speed (Vescovi & Mc Guigan, 2024). The range of agility tests employed may be the cause of variations across research (Vescovi & Mc Guigan, 2024).

➢ *Theoretical Framework*

This study is grounded in Self - Regulation Theory (SRT) to investigate the relationship between anaerobic power and repeated sprint performance in basketball athletes. SRT posits that individuals manage their behaviors and physiological resources through go al setting, feedback monitoring, and self - adjustment strategies in response to performance demands (Hwan & Okabe, 2021).

Within the context of high - intensity intermittent sports like basketball, the ability to self- regulate energy systems, especially under anaerobic conditions, becomes critical in sustaining repeated bouts of sprint activity (Tanaka & Zhi, 2022).

Basketball athletes are often required to execute multiple high - intensity efforts with brief recovery intervals, making anaerobic power a vital physiological determinant (Mo & Fong, 2023) . SRT suggests that self - monitoring and adaptive control are key elements that enable athletes to pace themselves during such efforts, optimizing energy output while delaying fatigue (Ko & Wei, 2021) . Moreover, athletes with higher anaerobic capacity often demonstrate superior regulation of lactate accumulation and better cognitive control under physical strain, aligning with the central principles of SRT (Ling & Tien, 2022) .

Repeated sprint performance reflects not only the athlete' s mechanical and metabolic power but also their capacity to maintain focus, adjust strategy, and recover efficiently — all domains emphasized in SRT (Cheng & Luo, 2024) . The psychological component of SRT integrates with physiological parameters by positing that cognitive control, motivation, and feedback processing influence physical outcomes, such as sustained sprint capacity (Yu & Kang, 2023) . For basketball players, this means that regulating physical output based on perceived exertion and prior sprint feedback enhances sprint repeatability and anaerobic efficiency (Zeng & Arai, 2021) .

Additionally, SRT supports the idea that goal - directed regulation— such as targeting a consistent sprint time or power output — can be trained and reinforced through systematic conditioning and mental rehearsal (Wen & Hashimoto, 2022) . This suggests that both physiological conditioning and psychological training interventions can enhance anaerobic performance and sprint recovery (Bao & Shim, 2023) . Basketball - specific studies have also shown that players who excel in self - regulated recovery protocols — like controlled breathing or cognitive focus between sprints — perform better in repeated sprint tasks, reinforcing the theory' s relevance (Liao & Fujii, 2025) .

Furthermore, SRT emphasizes feedback loops, meaning the ability to adjust future performance based on current outcomes (Xie & Mori, 2023) . Athletes who can reflect on their anaerobic power outputs and manage their pacing accordingly are more likely to maintain high levels of repeated sprint performance. In sum, Self- Regulation Theory provides a cohesive framework for understanding how athletes manage their energy systems, adapt to fatigue, and maintain performance in repeated sprint conditions typical of competitive basketball.

- *Conceptual Framework*

Figure 1 shows the research paradigm assessing the relationship between the anaerobic power and repeated sprint performance in basketball athletes in Huizhou University in Guangdong China. It will likewise present the correlation between the anaerobic power and repeated sprint performance in basketball athletes.

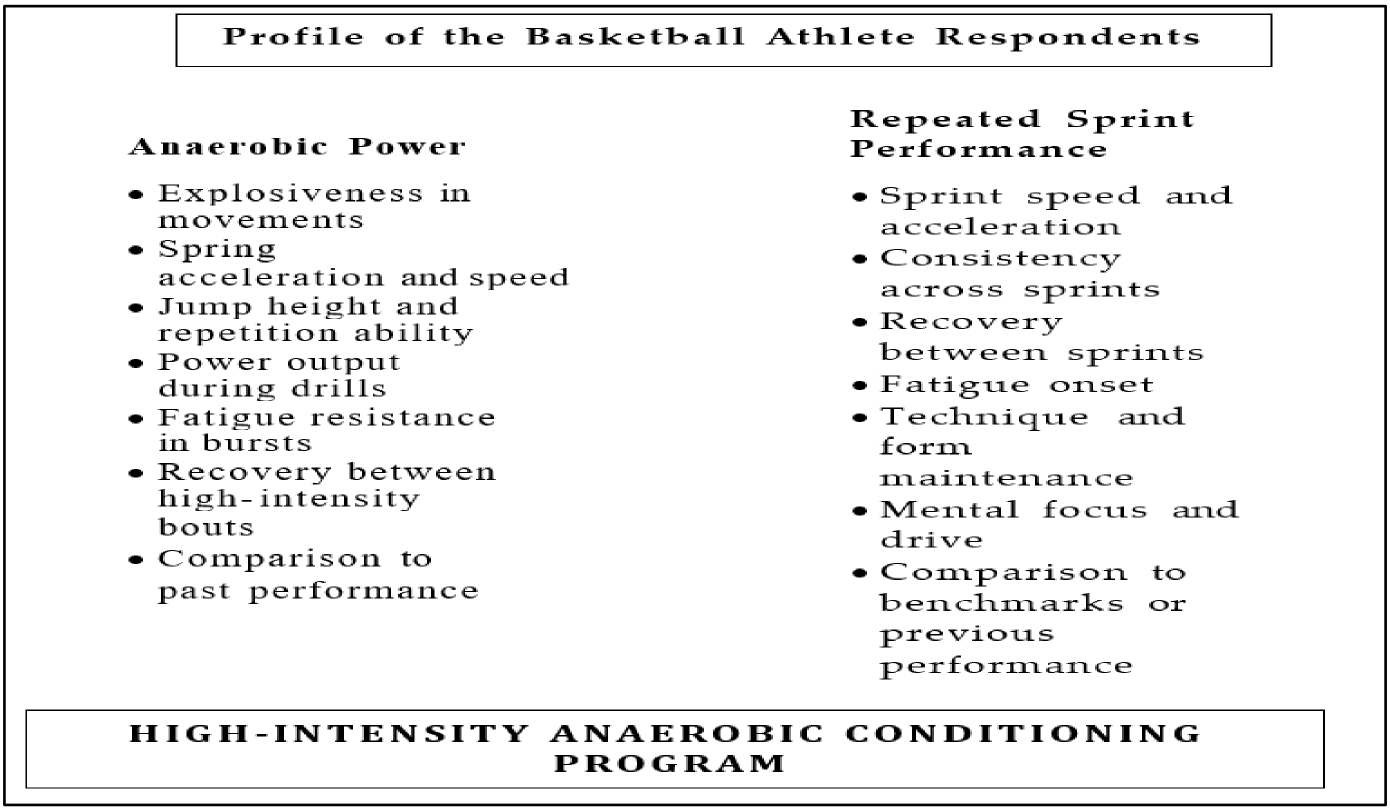

Fig 1 Research Paradigm

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Figure 1 indicates the research paradigm of the study. It presents the intervening variables, specifically the basketball athlete respondents' demographic data. It also presents the basketball athlete respondents' self-assessment of their anaerobic power and repeated sprint performance.

It shows the expected output of the study, which is the injury prevention and attentional focus training program.

➢ *Statement of the Problem*

This study will determine the aerobic power and repeated sprint performance in basketball athletes from Huizhou University in Guangdong China.

The results of the study will be used as a basis for a high - intensity anaerobic conditioning program.

Specifically, the study will answer the following questions:

- *What is the Demographic Profile of the Basketball Athletes in Terms of:*

✓ Sex;
✓ Age; and
✓ Number of years as a basketball athlete?

- *What is the Self-Assessment of the Basketball Athletes of Their Anaerobic Power in Terms of:*

✓ Explosiveness in movements;
✓ Spring acceleration and speed;
✓ Jump height and repetition ability;
✓ Power output during drills;
✓ Fatigue resistance in bursts;
✓ Recovery between high- intensity bouts;
✓ Comparison to past performance?
✓ Is There a Significant Difference in the Self -Assessment of the Basketball Athletes of Their Anaerobic Power When they are Grouped According to their Profile?

- *What is the Self-Assessment of the Basketball Athletes of their Repeated Sprint Performance in Terms of:*

✓ Sprint speed and acceleration;
✓ Consistency across sprints;
✓ Recovery between sprints;
✓ Fatigue onset;
✓ Technique and form maintenance;
✓ Mental focus and drive; and
✓ Comparison to benchmarks or previous performance?

- Is there a significant difference in the self -assessment of the basketball athletes of their repeated sprint performance when they are grouped according to their profile?
- Is there is significant relationship between anaerobic power and repeated sprint performance in basketball athletes?
- Based on the results of the study, what high - intensity anaerobic conditioning program can be proposed?

➢ *Hypothesis*

The following hypotheses will be tested:

- There is no significant difference in the self -assessment of the basketball athletes of their anaerobic power when they are
- grouped according to their profile.
- There is no significant difference in the self -assessment of the basketball athletes of their repeated sprint performance when they are grouped according to their profile.
- There is no significant relationship between anaerobic power and repeated sprint performance in basketball athletes.

➢ *Significance of the Study*

The outcomes of this study can be valuable for the following:

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- Athletes – This study will help basketball athletes understand the importance of anaerobic power in enhancing their repeated sprint performance, allowing them to optimize their training routines for improved speed, endurance, and overall game performance.
- Coaches – This study will provide coaches with valuable data on how anaerobic power influences repeated sprint ability, enabling them to design targeted training programs that improve their athletes' explosive capacity and recovery during high- intensity game situations.
- School Heads and Administrators – This study will assist school heads and administrators in recognizing the role of scientific training methods in athletic performance. This knowledge can support investment in proper training
- facilities and resources that enhance basketball programs and athlete development.
- Ministry of Education – This study will offer the Ministry of Education insights into the physiological factors that contribute to basketball performance, informing policies that promote evidence - based physical education programs and support for student-athlete development.
- Professional Development Providers – This study will aid professional development providers in creating workshops and certification programs focused on anaerobic training techniques and sports performance enhancement, helping coaches and trainers apply current research in their practices.
- Future Researchers – This study will serve as a foundation for future research exploring the relationship between anaerobic power and various aspects of basketball performance, encouraging further investigation into training optimization and injury prevention strategies in basketball athletes.

➢ *Scope and Delimitation of the Study*

The study will be carried out in Huizhou University in Guangdong China. The scope of the study will cover the assessment of the basketball athletes' anaerobic power and repeated sprint performance by basketball athletes from Huizhou University in Guangdong China. The study will evolve around the selected profile variables of the basketball athlete respondents such as sex, age, and number of years as a basketball athlete. To be specific, the basketball athlete respondents' self- assessment of their anaerobic power will be based on the following: explosiveness in movements, spring acceleration and speed, jump height and repetition ability, power output during drills, fatigue resistance in bursts, recovery between high - intensity bouts, and comparison to past performance. This variable will be correlated with the self-assessment of the basketball athlete respondents of their repeated sprint performance in terms of types of sprint speed and acceleration, consistency across sprints, recovery between sprints, fatigue onset, technique and form maintenance, mental focus and drive, and comparison to benchmarks or previous performance.

In data gathering and utilizing more complex statistical treatment, the study included descriptive statistics and correlational analysis with one- way ANOVA and post hoc analysis to interpret further and investigate the basketball athlete respondents' demographic data and the significant relationship between anaerobic power and repeated sprint performance in basketball athletes.

➢ *Definition of Terms*

- Anaerobic Capacity – The total amount of energy derived from anaerobic metabolism, critical in short bursts of high - intensity activities in basketball.
- Blood Lactate Concentration – The level of lactate in the blood following exertion, used to evaluate anaerobic stress and recovery ability.
- Comparison to Benchmarks or Previous Performance – The use of performance standards or personal bests to assess current anaerobic power or sprint effectiveness.
- Comparison to Past Performance – The evaluation of an athlete' s current sprint or power output against previous personal records to monitor progress or decline.
- Consistency Across Sprints – The athlete' s ability to replicate sprint performance multiple times with minimal drop in speed or output.
- Creatine Phosphate System – The primary energy system used in very short, explosive basketball movements such as a steal or block.
- Eccentric Strength – The ability to control force while muscles lengthen, important for landing from jumps or changing direction rapidly.
- Energy System Recovery Time – The amount of time it takes for the body to replenish phosphagen stores for repeated sprint actions.
- Explosiveness in Movements – The ability of a basketball athlete to initiate rapid and forceful actions such as jumping, sprinting, and cutting, essential for dynamic in- game movements.
- Fatigue Onset – The point at which an athlete begins to experience performance decline due to anaerobic fatigue.
- Fatigue Resistance in Bursts – The athlete' s ability to sustain performance levels during multiple high - intensity efforts without a significant drop in output.
- High- Intensity Interval Training (HIIT) – A training method used to improve anaerobic power and sprint performance through structured bursts of intense effort.

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- Jump Height and Repetition Ability – The vertical distance achieved in a single jump and the athlete' s ability to consistently repeat maximal jumps, such as during rebounding or shot blocking.
- Lactate Threshold – The exercise intensity at which lactate begins to accumulate in the bloodstream, often signaling the limit of sustained anaerobic activity.
- Mental Focus and Drive – The psychological component of effort, motivation, and concentration during high - intensity drills or game moments.
- Muscle Power Output – The rate at which muscles produce force during explosive basketball movements like layups or defensive slides.
- Plyometric Ability – The capacity for rapid stretch- shortening cycles in muscle action, crucial for jumping and fast movement initiation.
- Power Output During Drills – The amount of force generated in a short burst during exercises that mimic in - game actions, indicating the athlete' s anaerobic performance.
- Rate of Perceived Exertion (RPE) – A subjective measure of an athlete' s effort and fatigue during repeated sprint drills.

- Reactive Agility – The ability to change direction quickly in response to an external stimulus, combining sprint speed and decision - making.
- Recovery Between High- Intensity Bouts – The t ime and physiological efficiency with which an athlete regains optimal energy after intense activity, impacting repeated performance quality.
- Recovery Between Sprints – The physiological process of regaining muscular energy and reducing fatigue between repeated sprints.
- Short- Duration Anaerobic Test – Physical assessments such as 10 – 30 meter sprint drills used to gauge an athlete' s anaerobic performance profile.
- Sprint Acceleration and Speed – The capacity to rapidly reach top running velocity from a stationary position and maintain high speed during short sprints typical in basketball transitions.
- Sprint Fatigue Index – The rate at which performance declines over a series of sprints, indicating anaerobic endurance levels.
- Sprint Repetition Index – A performance metric t racking changes in sprint t ime over successive efforts to assess endurance and fatigue.
- Sprint Speed and Acceleration – The measure of how quickly an athlete reaches and maintains sprinting speed across court distances, important in both offense and defense.
- Technique and Form Maintenance – The athlete' s ability to sustain proper biomechanical movements during fatigue to maximize efficiency and prevent injury.
- Vertical Power Output – A measure of force generated in vertical jumps, reflective of lower- body anaerobic power in basketball.
- Wingate Test – A commonly used laboratory test to evaluate peak anaerobic power and fatigue index.

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CHAPTER TWO
METHODOLOGY

➢ *Research Design*

This study adopts a descriptive - comparative- correlational methodology, characterized by precise variable identification, systematic data recording, in - depth analytical procedures, and a deep understanding of contextual dynamics. As emphasized by Nakashima and Eto (2022) , descriptive research focuses on the systematic observation and analysis of phenomena, aiming to reveal fundamental characteristics, behavioral tendencies, and contextual patterns as they exist in their natural environments. Such an approach supports the construction of accurate representations of social realities and forms a reliable basis for further empirical inquiries.

Expanding upon Nakashima and Eto' s (2022) framework, descriptive research plays a pivotal role in psychological and social studies by facilitating the collection of objective and detailed information about individuals' experiences, attitudes, and behaviors. This methodology allows researchers to identify meaningful patterns and variations within a target population, contributing significantly to the interpretation of complex societal processes and individual responses.

In addition, Kobayashi and Ueno (2023) highlight the role of comparative methodologies in identifying influential variables across different demographic or contextual groups. They further argue that correlational analysis enhances the explanatory potential of research by uncovering statistically significant relationships between variables. Within this study, correlational methods will be employed to examine associations between demographic features and behavioral or attitudinal constructs relevant to the research focus, thereby informing the refinement of theoretical models and guiding intervention strategies.

By combining thorough description, comparative insights, and correlational evaluation, this methodological framework integrates the analytical contributions of Nakashima and Eto (2022) with the empirical strategies outlined by Kobayashi and Ueno (2023). Th is comprehensive approach strengthens the depth, credibility, and practical applicability of the study' sfindings, laying a solid foundation for both scholarly advancement and real - world implementation. This study aims to investigate the basketball athletes' injury history and attentional focus disruption in sanda competitions.

This research approach allows the researcher to numerically analyze, compare, and correlate the relationships amongst the dependent variables included in the study. By utilizing this approach, the researcher will be able to find any significant difference or relationship between the basketball athlete respondents' self-assessment of their anaerobic power and their demographic data such as age, sex, and number of years as a basketball athlete. Also, the researcher will be able to find any significant difference or relationship in the basketball athletes' self - assessment of their repeated sprint performance and their demographic data such as age, sex, and number of years as a basketball athlete. The basketball athletes' self-assessment of their between anaerobic power and repeated sprint performance will then be correlated. All the above discussions on the descriptive research method will suit the nature of research that this present study would do; hence this method will be adopted.

➢ *Research Locale*

The study will be conducted at Huizhou University in Guangdong China. Huizhou University is located in Huizhou, a national civilized city, a national historical and cultural city, and an important node city in the Guangdong- Hong Kong- Macao Greater Bay Area. It is a provincial full -time public undergraduate university, a vice-chairman unit of the National Alliance of New Undergraduate Universities, a pilot university for ordinary undergraduate transformation, a provincial master's degree project construc t ion unit, a provincial project construction unit for the creation of a national teacher education innovation experimental zone, a provincial university "three-dimensional education" system and mechanism construction pilot unit, and a provincial curriculum ideological and political reform demonstration university.

The predecessor of the school was the Guangdong Provincial Huizhou Normal School founded in 1946. It was upgraded to Huiyang Normal College in 1978 and upgraded to a full -time general undergraduate college in 2000. The school adheres to the school motto of "honoring discernment, seeking truth and applying it to practice", strives to build a high- level applied university with distinctive characteristics of science and engineering and coordinated development of teacher education, and cultivates high - quality applied talents with scientific spirit, humanistic qualities, international vision and innovative thinking. It is an important talent cradle in the Dongjiang River Basin.

The school currently has 17 secondary colleges and 58 undergraduate majors, including 1 national characteristic major, 18 national and provincial first -class undergraduate major construction point majors, 4 majors that have passed the second - level certification of the Ministry of Education' s teacher majors, and 1 major that has passed the IEET certification. There are 4 certified majors in engineering education; 1 national teaching achievement award, 4 provincial special prizes, and nearly 20 first and second prizes; nearly 100 national and provincial quality courses; 1 second batch of new engineering research and practice projects of the Ministry of Education, 3 provincial demonstration industrial colleges, and more than 70 national and provincial practical teaching bases and platforms; in the " Top 300 of the National General Colleges and Universities Student Competition Seven Rounds (2012

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-2022)", it ranks 220th in the country and 10th in Guang dong Province, and ranks first in Guangdong Province among the newly built undergraduate colleges in the country. In the "Top 100 National New Undergraduate Colleges and Universities Student Competition Rankings 2018 -2022", it ranks 26th in the country and 2nd in Guangdong Province.

➢ *Sampling Technique*

The respondents of the study will be the basketball athletes from Huizhou University in Guangdong China. In selecting the basketball athlete respondents, purposive sampling technique will be used among the basketball athlete respondent.

➢ *Research Instrument*

In gathering the needed data, the researcher will make researcher-made questionnaires on the basketball athlete respondents' self-assessment of their anaerobic power and repeated sprint performance.

The researcher will use face to face or onsite in administering this questionnaire.

The questionnaire will be composed of the following parts.

Part 1 – This section determines the demographic profile of the basketball athlete respondents.

Part 2 – This section determines the basketball athlete respondents' anaerobic power.

Part 3 – This section identifies the basketball athlete respondents' repeated sprint performance.

➢ *Basketball Athletes' Anaerobic Power*

- *Scale Verbal Interpretation*

✓ *3.51 - 4.00 Exceptionally Performing*
If the statements are very true of them, 76%-100% level of performance.

✓ *2.51 -3.50 Consistently Performing*
If the statements are very true of them, 51%-75% level of performance.

✓ *1.51 -2.50 Occasionally Performing*
If the statements are very true of them, 26%-50% level of performance.

✓ *1.00-1.50 Rarely Performing*
If the statements are very true of them, 1%-25% level of performance.

➢ *Basketball Athletes' Repeated Sprint Performance*

- *Scale Verbal Interpretation*

✓ *3.51 - 4.00 Exceptionally Performing*
If the statements are very true of them, 76%-100% level of performance.

✓ *2.51 -3.50 Consistently Performing*
If the statements are very true of them, 51%-75% level of performance.

✓ *1.51 -2.50 Occasionally Performing*
If the statements are very true of them, 26%-50% level of performance.

✓ *1.00-1.50 Rarely Performing*
If the statements are very true of them, 1%-25% level of performance.

The adapted questionnaire and the researcher -made questionnaire will be subjected to content validation of the experts who are knowledgeable in the field of research. The suggestions of the experts will be made integral in the instrument.

The same instrument will be submitted for face validation with at least five experts. The questionnaires will be pilot tested to measure reliability. The pilot testing will be computed using Cronbach's Alpha through the Statistical Package of Social Science

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(SPSS). The researcher welcomes the suggestions of the experts and will make necessary revisions to construct the said instruments valid. The overall reliability of the questionnaire obtained Cronbach' s Alpha = 0. 851 showing a very consistent result for all of the items. The reliability test result indicated that the research instrument is statistically reliable.

➢ *Data Gathering Procedure*

The researcher will get permission from the office of the university of Huizhou University in Guangdong China. When permission is approved, the researcher will ask permission from the sanda athletes by distributing a letter of consent form to the basketball athletes, which will be signed by them and will be returned to the researcher. After, the purpose of the study and instructions on how the items on the survey should be answered will be explained to the basketball athletes' respondents. Then, the survey will be administered using face to face and they will be given enough time to answer the survey.

After completing the survey, the researcher will collect the questionnaires from the basketball athlete respondents. The data will be gathered, tallied, and processed with Statistical Package for Social Science (SPSS). The processed data will be interpreted and analyzed, and the results will be used to propose an injury prevention and attentional focus training program. Finally, the interpretation and analysis of data will be done. Summary of findings, conclusions, and recommendations will be formulated.

➢ *Statistical Treatment of the Data*

The responses to the survey questionnaire will be tallied using the SPSS, and then they will be tabulated and organized accordingly. The data will be presented, analyzed, and interpreted using frequency, percentage, mean, standard deviation, independent samples t-test, one- way ANOVA, and Pearson' s rcorrelation.

- For research question no. 1 , descriptive statistics such as frequency counts and percentages will be used to treat responses in the demographic profile of the basketball athlete respondents.
- For research question nos. 2 and 4 , weighted means will be utilized to treat the self- assessment of the basketball athlete respondents of their anaerobic power in terms of explosiveness in movements, spring acceleration and speed, jump height and repetition ability, power output during drills, fatigue resistance in bursts, recovery between high- intensity bouts, and comparison to past performance.

Weighted means will also be used to compute for the self-assessment of the basketball athlete respondents of their repeated sprint performance in terms of sprint speed and acceleration, consistency across sprints, recovery between sprints, fatigue onset, technique and form maintenance, mental focus and drive, and comparison to benchmarks or previous performance.

The following will be used to interpret the WM of the basketball athlete respondents' responses:

Table 1 Statistical Treatment of the Data

Mean Range	Verbal Description
3. 51 - 4. 00	Very True of Me
2. 51 - 3. 50	True of Me
1. 51 - 2. 50	Slightly True of Me
1. 00 - 1. 50	Not True of Me

- For research question nos. 3 and 5 , one way ANOVA with post - hoc analysis (Scheffe) will be used to find out the significant difference in the self- assessment of the basketball athlete respondents' anaerobic power and repeated sprint performance.
- For research question no. 6 , Pearson' s r correlation analysis will be utilized to determine the significant relationship between the anaerobic power and repeated sprint performance in basketball athletes.

➢ *Ethical Considerations*

The researcher will constructively consider and carefully follow the ethical considerations that must be met to protect the rights of all the respondents. The following are the ethical considerations:

- *Conflict of Interest*

The researcher of this study ensured that there would be no conflict of interest. The researcher needed to elaborate and clearly state the purpose of this research and study to the chosen respondents. It is also a must that the researcher must stick to th e purpose of gathering personal information and data. All gathered data must not be used for any form of exploitation against the respondents. The researcher must stick to the objective of the research and its purpose.

- *Privacy and Confidentiality*

Before conducting this research, the respondents will be assured that whatever information would be gathered would be confidential, and the survey results cannot be given to anyone aside from the researcher himself and the person who answered the survey – questionnaire. The researcher must not mention the respondents' names in presenting the data gathered to protect their

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privacy. The identity of the respondents would remain anonymous or free from any clues and suggestions that would lead others to connect or relate with the respondents.

- *Informed Consent Process*

Before conducting the survey questionnaire, the researcher will secure a consent form that gives confirmation and consent from the respondents that they understand the purpose and objective of this study and agreed that the data gathered would strengthen the researcher's study. The researcher will make sure that she explains thoroughly and clearly everything to the respondents without any deception. The process and the possible risks in participating in this study will also be discussed.

- *Recruitment*

The respondents of this study will be the physical education athletes. The respondents will be free to exercise their rights to disagree and agree in participating in this study. The respondents will not be forced to participate and will be given the freedom to refuse at any point in time.

- *Risk*

The researcher of this study will ensure that there would be no risk in participating in this study. The respondents will ensure that whatever data and information would be gathered would not harm respondents' life and name. The respondents had all the rights to freely stop the conduct of questions at any given time if they felt harassed, questions were too personal and or violated.

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CHAPTER THREE
RESULTS

This chapter deals with the presentation of the gathered data together with the analysis and interpretation according to the statement of the problem. The gathered data on the profile of the respondents and their assessment of their present situation are hereby presented.

➢ *Profile of the Respondents*

Table 2 shows the demographic profile of the student respondents in terms of their age, and sex.

Table 2 Frequency Distribution of the Basketball Athletes' Profile

Profile	Frequency	Percentage
Age		
15-16 years old	118	59%
17-18 years old	64	32%
19 years old and above	18	9%
Total	200	100%
Sex		
Male	150	75%
Female	50	25%
Total	200	100%
Years of Physical Activity		
2-3 years	59	29.5%
4-5 years	135	67.5%
6-7 years	6	3%
Total	200	100%

In terms of age, one hundred eighteen (118) or about 59% of the Basketball Athlete respondents are 15 –16 years old, sixty-four (64) or about 32 % are 17 –18 years old, and eighteen (18) or about 9% are 19 years old and above.

This means that the majority of the Basketball Athlete respondents are 15 –16 years old. This illustrates that most of the basketball athletes are in their mid -adolescent stage, which is typically the peak period of skill development and physical growth for sports participation. In terms of sex, one hundred fifty (150) or about 75% of the Basketball Athlete respondents are male, while fifty (50) or about 25% are female. This means that the majority of the Basketball Athlete respondents are male. This illustrates that basketball as a sport is still male-dominated, although there is noticeable participation from female athletes, showing inclusivity in the sport.

In terms of years of physical activity, fifty-nine (59) or about 29.5% of the Basketball Athlete respondents have 2 –3 years of physical activity, one hundred thirty-five (135) or about 67.5% have 4–5 years, and six (6) or about 3% have 6 –7 years. This means that the majority of the Basketball Athlete respondents have been engaged in physical activity for 4 –5 years. This illustrates that most of the athletes already have substantial experience and consistent exposure to training, which may contribute positively to their performance and discipline in basketball.

➢ *Self- Assessment of the Basketball Athletes of their Anaerobic Power*

Table 3 to 9 show the self-assessment of the basketball athletes of their anaerobic power in terms of explosiveness in movements, spring acceleration and speed, jump height and repetition ability, power output during drills, fatigue resistance in bursts, recovery between high- intensity bouts, and comparison to past performance.

Table 3 Self- Assessment of the Basketball Athletes of their Anaerobic Power in terms of Explosiveness in Movements

	Mean	SD	Qualitative Description	Interpretati on	Rank
1. I can quickly explode off the ground during drives or cuts.	3.63	.52	Strongly Agree	Exceptionally Performing	1
2. I feel powerful when initiating movement from a stationary position.	3.60	.56	Strongly Agree	Exceptionally Performing	2
3. My movements feel forceful when changing direction rapidly.	3.02	.85	Agree	Consistently Performing	3
4. I often outpace Defenders during sudden bursts.	2.56	.61	Agree	Consistently Performing	4
Composite Mean	3.20	.37	Agree	Consistently Performing	

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Leg end: 3 . 5 1 - 4 . 00 Strongly Agre e/ Ex ceptionally Per forming ; 2 . 51 - 3 . 50 A gr ee/ Co ns istently Performing; 1 . 51 - 2 . 50 D is a gree/ Occ as ion al l y Performing; 1 . 0 0 - 1 . 5 0 Strongly Dis agree/ Rarely Perf orming.

The statement "I can quickly explode off the ground during drives or cuts" obtained the highest mean of 3.63, described as Strongly Agree and interpreted as Exceptionally Performing. This means that the basketball athletes recognize their strong ability to generate explosive power when making sudden upward or forward movements on the court. This illustrates that quick bursts of energy, particularly in drives and cuts, are a dominant strength among the respondents, which is vital for offensive plays.

The lowest-rated statement was "I often outpace defenders during sudden bursts," with a mean of 2.56, described as Agree and interpreted as Consistently Performing. This means that while the athletes acknowledge having some capacity to outpace opponents, it is not as strongly developed as their other explosive abilities. This illustrates that the athletes may need improvement in maintaining speed advantage during high- intensity bursts, especially in competitive defensive matchups.

The overall composite mean for explosiveness in movements was 3.20, described as Agree and interpreted as Consistently Performing. This means that, on average, the basketball athletes believe they possess a reliable level of explosive movement. This illustrates that while explosiveness is generally a consistent part of their performance, there is still room to further strengthen sudden burst capabilities to achieve higher efficiency in game situations.

Table 4 Self- Assessment of the Basketball Athletes of their Anaerobic Power in Terms of Spring Acceleration and Speed

	Mean	**SD**	**Qualitative Description**	**Interpretati on**	**Rank**
1. I reach my top sprinting speed quickly.	2.97	.78	Agree	Consistently Performing	4
2. My first few steps after a sprint start are powerful.	3.60	.53	Strongly Agree	Exceptionally Performing	1
3. I can accelerate rapidly during fast breaks.	3.24	.74	Agree	Consistently Performing	3
4. I maintain high speed over short distances in the game.	3.59	.53	Strongly Agree	Exceptionally Performing	2
Composite Mean	3.35	.31	Agree	Consistently Performing	

Leg end: 3 . 5 1 - 4 . 00 Strongly Agre e/ Ex c eptionally Per forming; 2 . 51 - 3 . 50 A gr ee/ Co ns is tently Performing; 1 . 51 - 2 . 50 D is agree/ Occ as ion al l y Performing; 1 . 0 0 - 1 . 5 0 Strongly Dis agree/ Rarely Perf orming.

The statement " My first few steps after a sprint start are powerful" received the highest mean of 3.60, described as Strongly Agree and interpreted as Exceptionally Performing. This means that basketball athletes perceive their initial acceleration to be a strong aspect of their performance. This illustrates that quick and powerful first steps give them a competitive advantage in fast plays, such as initiating sprints or reacting to game situations.

The lowest- rated statement was "I reach my top sprinting speed quickly," with a mean of 2.97, described as Agree and interpreted as Consistently Performing. This means that athletes acknowledge having the ability to build speed, but not as quickly as their initial steps or short-distance bursts. This illustrates that while their starting power is strong, they may need to improve the transition toward reaching maximum sprinting speed for sustained advantages during fast plays.

The overall composite mean for spring acceleration and speed was 3.35, described as Agree and interpreted as Consistently Performing. This means that, in general, basketball athletes believe they perform consistently in terms of acceleration and short -distance speed. This illustrates that while they are reliable in quick bursts and maintaining speed, further enhancement of top -speed attainment could elevate their overall game performance, particularly in fast breaks and defensive recoveries.

Table 5 Self- Assessment of the Basketball Athletes of their Anaerobic Power in Terms of Jump Height and Repetition Ability

	Mean	**SD**	**Qualitative Description**	**Interpretation**	**Rank**
1. I can jump high Repeatedly without immediate fatigue.	2.98	.79	Agree	Consistently Performing	**3**
2. My vertical jump helps Me during rebounds and blocks.	2.76	.85	Agree	Consistently Performing	**4**
3. I recover quickly after consecutive jumps.	3.21	.69	Agree	Consistently Performing	**2**
4. My legs feel strong during repeated leaping motions.	3.55	.55	Strongly Agree	Exceptionally Performing	**1**
Composite Mean	3.12	.33	Agree	Consistently Performing	

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Leg end: 3 . 5 1 - 4 . 00 Strongly Agre e/ Exceptionally Performing; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 D is agree/ Occasion ally Performing; 1 . 0 0 - 1 . 5 0 Strongly Dis agree/ Rarely Performing.

The statement “My legs feel strong during repeated leaping motions” obtained the highest mean of 3.55, described as Strongly Agree and interpreted as Exceptionally Performing. This means that the basketball athletes recognize the strength and endurance of their legs as a key asset in their performance. This illustrates that lower - body strength plays a crucial role in sustaining repeated jumping actions, which are essential in rebounding, blocking, and other vertical movements in the game.

The lowest-rated statement was “My vertical jump helps me during rebounds and blocks,” with a mean of 2.76, described as Agree and interpreted as Consistently Performing. This means that while athletes agree that their vertical jump contributes to defensiv e and offensive plays, they do not see it as their strongest ability. This illustrates that improving vertical jump height could enhance their effectiveness in rebounds and shot contests, which are vital in competitive basketball.

The overall composite mean for jump height and repetition ability was 3.12, described as Agree and interpreted as Consistently Performing. This means that, on average, the basketball athletes see themselves as consistently capable of performing jumping act ions repeatedly with sufficient recovery. This illustrates that while their jumping ability is reliable, there is still room for development in maximizing vertical leap and efficiency during high -demand game situations.

Table 6 Self- Assessment of the Basketball Athletes of their Anaerobic Power in terms of Power Output During Drills

	Mean	SD	Qualitative Description	Interpretation	Rank
1. My effort during short, high-power drills is strong.	3.01	.85	Agree	Consistently Performing	**4**
2. I give maximum intensity during Explosive training exercises.	3.13	.72	Agree	Consistently Performing	**3**
3. I often lead or keep up with teammates in power- based drills.	3.49	.61	Agree	Consistently Performing	**2**
4. My coaches acknowledge my powerful execution in practice.	3.54	.58	Strongly Agree	Exceptionally Performing	**1**
Composite Mean	3.29	.36	Agree	Consistently Performing	

Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Per forming; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Dis agree/ Rarely Performing

The statement “ My coaches acknowledge my powerful execution in practice” garnered the highest mean of 3.54 , described as Strongly Agree and interpreted as Exceptionally Performing. This means that basketball athletes feel recognized by their coaches for their power output during drills. This illustrates that external validation from coaches reinforces their confidence and highlights their ability to deliver strong performance in high -intensity practice sessions.

The lowest- rated statement was “My effort during short, high - power drills is strong,” with a mean of 3.01, described as Agree and interpreted as Consistently Performing. This means that while athletes acknowledge putting in effort during short bursts of dr ills, they see this as less developed compared to other aspects of their power output. This illustrates that improving effort consistency in high- intensity drill execution could strengthen their anaerobic capacity further.

The overall composite mean for power output during drills was 3.29, described as Agree and interpreted as Consistently Performing. This means that the athletes generally view themselves as reliable performers in drills requiring strength and power. This il lustrates that while their output is consistently strong, further emphasis on maximizing intensity and sustaining power across different drills could enhance overall training performance.

Table 7 Self- Assessment of the Basketball Athletes of their Anaerobic Power in Terms of Fatigue Resistance in Bursts

	Mean	SD	Qualitative Description	Interpretation	Rank
1. I can perform several high- effort plays in a row without tiring quickly.	3.54	.59	Strongly Agree	Exceptionally Performing	**1**
2. My body maintains strength during intense game sequences.	3.08	.71	Agree	Consistently Performing	**4**
3. I resist fatigue during quick offensive and defensive bursts.	3.11	.74	Agree	Consistently Performing	**3**
4. I rarely slow down when the game requires repeated effort.	3.16	.59	Agree	Consistently Performing	**2**
Composite Mean	3.22	.36	Agree	Consistently Performing	

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Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Per forming; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Dis agree/ Rarely Performing

The statement "I can perform several high -effort plays in a row without t iring quickly" obtained the highest mean of 3.54, described as Strongly Agree and interpreted as Exceptionally Performing. This means that basketball athletes recognize their ability to sustain energy through consecutive high- intensity plays. This illustrates that they possess a strong level of fatigue resistance, which is crucial in maintaining performance during fast- paced game sequences.

The lowest-rated statement was " My body maintains strength during intense game sequences," with a mean of 3.08, described as Agree and interpreted as Consistently Performing. This means that while athletes believe they can manage their strength in demanding g situations, it is not as prominent as their capacity to perform repeated efforts. This illustrates that although their endurance is reliable, further development is needed to sustain strength consistently during prolonged intensity.

The overall composite mean for fatigue resistance in bursts was 3.22, described as Agree and interpreted as Consistently Performing. This means that the athletes generally perceive themselves as capable of withstanding fatigue across multiple high - intensity plays. This illustrates that while they are consistently resilient, enhancing their endurance in maintaining strength over longer or more frequent bursts could further improve their competitive edge.

Table 8 Self- Assessment of the Basketball Athletes of their Anaerobic Power in terms of Recovery Between High-Intensity Bouts

	Mean	SD	Qualitative Description	Interpretation	Rank
1. I recover quickly after short, intense bursts of play.	3.41	.62	Agree	Consistently Performing	2
2. A short break allows me to perform strongly again.	2.85	.79	Agree	Consistently Performing	4
3. I regain my energy quickly between drills or game sequences.	3.44	.68	Agree	Consistently Performing	1
4. My breathing and heart rate stabilize fast after high effort.	3.04	.73	Agree	Consistently Performing	3
Composite Mean	3.18	.39	Agree	Consistently Performing	

Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Per forming; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Disagree/ Rarely Performing

The statement "I regain my energy quickly between drills or game sequences" received the highest mean of 3.44, described as Agree and interpreted as Consistently Performing. This means that basketball athletes believe they are able to recover their energy efficiently in between sequences of play. This illustrates that their recovery ability allows them to sustain performance across repeated high- intensity demands during both practice and games.

The lowest-rated statement was "A short break allows me to perform strongly again," with a mean of 2.85, described as Agree and interpreted as Consistently Performing. This means that athletes see their performance after short rest periods as less reliable compared to other recovery aspects. This illustrates that while they can recover between drills, maximizing quick recovery during limited breaks remains an area for improvement to boost overall endurance.

The overall composite mean for recovery between high - intensity bouts was 3.18, described as Agree and interpreted as Consistently Performing. This means that basketball athletes generally view themselves as capable of recovering well between bursts of intense play. This illustrates that their recovery capacity supports consistent performance, though enhancing rapid recovery after brief rests could further elevate their competitive resilience.

Table 9 Self- Assessment of the Basketball Athletes of their Anaerobic Power in terms of Comparison to Past Performance

	Mean	SD	Qualitative Description	Interpretation	Rank
1. I feel stronger and more explosive than I did last season.	3.03	.82	Agree	Consistently Performing	3
2. My current power output is better than in past games.	3.25	.70	Agree	Consistently Performing	1
3. I recover faster now compared to earlier stages of t raining.	2.94	.79	Agree	Consistently Performing	4
4. I outperform my previous self in anaerobic drills.	3.22	.71	Agree	Consistently Performing	2
Composite Mean	3.11	.37	Agree	Consistently Performing	

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Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Per forming; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Disagree/ Rarely Performing

The statement "My current power output is better than in past games" obtained the highest mean of 3.25, described as Agree and interpreted as Consistently Performing. This means that basketball athletes recognize improvements in their power compared to their previous game performances. This illustrates that they perceive steady progress in their anaerobic abilities, showing the effectiveness of their training and game experiences.

The lowest- rated statement was "I recover faster now compared to earlier stages of training," with a mean of 2.94, described as Agree and interpreted as Consistently Performing. This means that athletes feel their recovery rate has not improved as much as other aspects of performance. This illustrates that while they acknowledge growth in explosiveness and output, recovery between efforts remains an area that needs further development.

The overall composite mean for comparison to past performance was 3.11, described as Agree and interpreted as Consistently Performing. This means that athletes generally see themselves as consistently improving compared to their past performances. This illustrates that while their progress is evident, continued training and conditioning are necessary to further enhance both explosive power and recovery efficiency.

➢ *Summary of the Self- Assessment of the Basketball Athletes of their Anaerobic Power*

Table 10 shows the summary of the self-assessment of the basketball athletes of their anaerobic power in terms of explosiveness in movements, spring acceleration and speed, jump height and repetition ability, power output during drills, fatigue resistance in bursts, recovery between high - intensity bouts, and comparison to past performance.

Table 10 Summary Self-Assessment of the Basketball Athletes of their Anaerobic Power

	Mean	**SD**	**Qualitative Description**	**Interpretation**	**Rank**
Explosiveness in Movements	3.20	.37	Agree	Consistently Performing	**4**
Spring Acceleration and Speed	3.35	.31	Agree	Consistently Performing	**1**
Jump Height and Repetition Ability	3.12	.33	Agree	Consistently Performing	**6**
Power Output During Drills	3.29	.36	Agree	Consistently Performing	**2**
Fatigue Resistance in Bursts	3.22	.36	Agree	Consistently Performing	**3**
Recovery Between High-Intensity Bouts	3.18	.39	Agree	Consistently Performing	**5**
Comparison to Past Performance	3.11	.37	Agree	Consistently Performing	**7**
Overall	3.21	.15	Agree	Consistently Performing	

Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Per forming; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Disagree/ Rarely Performing

The highest-rated aspect of anaerobic power was Spring Acceleration and Speed with a mean of 3.35, described as Agree and interpreted as Consistently Performing. This means that basketball athletes perceive themselves as capable of accelerating rapidly and reaching competitive speeds in game situations. This illustrates that quickness and acceleration are key strengths of the respondents, supporting their ability to execute fast breaks and respond effectively during both offensive and defensive plays.

The lowest-rated aspect was Comparison to Past Performance with a mean of 3.11, described as Agree and interpreted as Consistently Performing. This means that while athletes acknowledge improvements in their anaerobic abilities, they do not view their progress over time as strongly as their performance in other areas. This illustrates that although development is present, the athletes may not be fully maximizing long- term gains, suggesting a need for more targeted training to sustain continuous growth.

The overall composite mean for anaerobic power was 3.21, described as Agree and interpreted as Consistently Performing. This means that, in general, basketball athletes view their anaerobic power as consistently reliable across various dimensions, from explosiveness to fatigue resistance. This illustrates that while their anaerobic performance is solid and dependable, further specialized training may help elevate their abilities from consistent to exceptional, strengthening their competitive edge in high - intensity basketball situations.

➢ *Self- Assessment of the Basketball Athletes of their Repeated Sprint Performance*

Table 11 to 17 show the self-assessment of the basketball athletes of their repeated sprint performance in terms of sprint speed and acceleration, consistency across sprints, recovery between sprints, fatigue onset, technique and form maintenance, mental focus and drive, and comparison to benchmarks or previous performance.

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Table 11 Sprint Performance in Terms of Sprint Speed and Acceleration

	Mean	SD	Qualitative Description	Interpretation	Rank
1. I can reach top speed quickly after starting a sprint.	3.31	.61	Agree	Consistently Performing	**1**
2. I accelerate smoothly from a stationary position.	2.96	.76	Agree	Consistently Performing	**4**
3. My sprint speed gives me an advantage in fast breaks.	3.15	.78	Agree	Consistently Performing	**2**
4. I respond quickly when required to sprint during play.	3.12	.70	Agree	Consistently Performing	**3**
Composite Mean	3.13	.37	Agree	Consistently Performing	

Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Performing ; 2 . 51 - 3 . 50 Agree/ Consistently Performing ; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Disagree/ Rarely Performing

The statement “I can reach top speed quickly after starting a sprint” obtained the highest mean of 3.31, described as Agree and interpreted as Consistently Performing. This means that basketball athletes recognize their ability to build speed effectively r ight after initiating a sprint. This illustrates that rapid acceleration is a strength that supports them in creating separation from defenders and maximizing their role during fast transitions.

The lowest- rated statement was “I accelerate smoothly from a stationary position,” with a mean of 2.96, described as Agree and interpreted as Consistently Performing. This means that while athletes can accelerate from rest, they do not see it as a strongly developed ability compared to other sprinting aspects. This illustrates that smoother and more efficient transitions from a static start may require improvement to enhance their sprint performance in sudden game situations.

The overall composite mean for sprint speed and acceleration was 3.13, described as Agree and interpreted as Consistently Performing. This means that, on average, basketball athletes view their sprinting ability as reliable and consistent. This illustrates that while they are capable of performing well in acceleration and speed, further refinement in initial acceleration mechanics could strengthen their overall sprint performance during repeated game scenarios.

Table 12 Self- Assessment of the Basketball Athletes of their Repeated Sprint Performance in terms of Consistency across Sprints

	Mean	SD	Qualitative Description	Interpretation	Rank
1. I can maintain a similar sprint time across multiple sprints.	2.97	.71	Agree	Consistently Performing	**4**
2. My performance does not drop significantly across repeated sprints.	3.27	.71	Agree	Consistently Performing	**3**
3. I feel I sprint at a consistent level Throughout training drills.	3.30	.73	Agree	Consistently Performing	**1**
4. I rarely slow down when doing repeated sprints.	3.29	.71	Agree	Consistently Performing	**2**
Composite Mean	3.20	.40	Agree	Consistently Performing	

Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Performing; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Disagree/ Rarely Performing

The statement “I feel I sprint at a consistent level throughout training drills” received the highest mean of 3.30, described as Agree and interpreted as Consistently Performing. This means that basketball athletes believe they are able to maintain a stead y sprinting pace during practice. This illustrates that their conditioning allows them to sustain performance in repeated drills, which is essential in developing game endurance.

The lowest- rated statement was “I can maintain a similar sprint time across multiple sprints,” with a mean of 2.97, described as Agree and interpreted as Consistently Performing. This means that while athletes acknowledge some level of consistency, they re cognize that their sprint times may vary when repetitions increase. This illustrates that sustaining speed over consecutive sprints is a challenge, suggesting the need for further stamina and anaerobic conditioning.

The overall composite mean for consistency across sprints was 3.20, described as Agree and interpreted as Consistently Performing. This means that, in general, athletes view their sprint performance as steady across repetitions. This illustrates that while their performance does not drop drastically, enhancing their ability to maintain near-identical sprint t imes could further strengthen their resilience in repeated high- intensity efforts during games.

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Table 13 Self- Assessment of the Basketball Athletes of their Repeated Sprint Performance in terms of Recovery between Sprints

	Mean	**SD**	**Qualitative Description**	**Interpretation**	**Rank**
1. I recover quickly after each sprint.	3.22	.71	Agree	Consistently Performing	2
2. My breathing returns to Normal between sprints.	3.26	.69	Agree	Consistently Performing	1
3. I feel ready for the next sprint after short rest periods.	3.21	.81	Agree	Consistently Performing	3
4. My heart rate settles efficiently between sprints.	3.09	.77	Agree	Consistently Performing	4
Composite Mean	3.19	.36	Agree	Consistently Performing	

Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Performing; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Disagree/ Rarely Performing

The statement “My breathing returns to normal between sprints” garnered the highest mean of 3. 26, described as Agree and interpreted as Consistently Performing. This means that basketball athletes perceive themselves as being able to regulate their breathing effectively after sprint efforts. This illustrates that proper respiratory recovery enables them to sustain energy and maintain readiness for subsequent sprints during training or gameplay.

The lowest- rated statement was “My heart rate settles efficiently between sprints,” with a mean of 3.09, described as Agree and interpreted as Consistently Performing. This means that while athletes can manage their heart rate recovery, they find it slightly more challenging compared to other recovery aspects. This illustrates that improving cardiovascular recovery could further enhance their endurance and performance consistency during repeated sprint sequences.

The overall composite mean for recovery between sprints was 3.19, described as Agree and interpreted as Consistently Performing. This means that basketball athletes generally see themselves as capable of recovering adequately between sprint intervals. This illustrates that their recovery responses are reliable, though continued focus on conditioning and recovery strategies may help optimize performance during high -intensity repetitions.

Table 14 Self- Assessment of the Basketball Athletes of their Repeated Sprint Performance in terms of Fatigue Onset

	Mean	**SD**	**Qualitative Description**	**Interpretation**	**Rank**
1. I do not tire easily during repeated sprint drills.	3.48	.64	Agree	Consistently Performing	**1**
2. Fatigue only sets in After several intense sprints.	3.02	.85	Agree	Consistently Performing	**2**
3. I can resist tiredness during repeated short bursts.	2.56	.61	Agree	Consistently Performing	**4**
4. I maintain effort even when I begin to feel fatigued.	2.97	.78	Agree	Consistently Performing	**3**
Composite Mean	3.01	.32	Agree	Consistently Performing	

Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Performing; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Disagree/ Rarely Performing

The statement “I do not tire easily during repeated sprint drills” obtained the highest mean of 3.48, described as Agree and interpreted as Consistently Performing. This means that basketball athletes believe they are capable of maintaining their energy an d stamina throughout multiple sprint repetitions. This illustrates that their conditioning enables them to handle the physical demands of repeated high- intensity movements, a crucial component for sustained in-game performance.

The lowest- rated statement was “I can resist tiredness during repeated short bursts,” with a mean of 2.56, described as Agree and interpreted as Consistently Performing. This means that while athletes acknowledge some resistance to fatigue, they find it challenging to sustain energy during quick, successive bursts of activity. This illustrates that enhancing short -burst endurance and recovery could help delay fatigue onset and maintain explosiveness throughout the game.

The overall composite mean for fatigue onset was 3.01, described as Agree and interpreted as Consistently Performing. This means that basketball athletes generally perceive themselves as able to manage fatigue effectively during repeated sprint activities. This illustrates that although their endurance is consistent, focused training to extend their resistance to t iredness in rapid, successive efforts would further boost their anaerobic performance.

Table 15 Self- Assessment of the Basketball Athletes of their Repeated Sprint Performance in terms of Technique and Form Maintenance

	Mean	SD	Qualitative Description	Interpretation	Rank
1. I maintain proper sprinting form even when tired.	2.99	.81	Agree	Consistently Performing	4
2. My running posture Stays strong throughout drills.	3.32	.75	Agree	Consistently Performing	2
3. I keep my stride technique consistent across all sprints.	2.99	.72	Agree	Consistently Performing	4
4. My arm movement and leg coordination remain controlled.	3.35	.69	Agree	Consistently Performing	1
Composite Mean	3.16	.37	Agree	Consistently Performing	

Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Performing; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Disagree/ Rarely Performing

The statement “My arm movement and leg coordination remain controlled” garnered the highest mean of 3.35, described as Agree and interpreted as Consistently Performing. This means that basketball athletes are able to sustain coordination and rhythm between their upper and lower body during sprints. This illustrates that they possess good neuromuscular control, allowing for efficient movement patterns and reduced energy waste, even in high -intensity sprint repetitions.

The lowest- rated statements were “I maintain proper sprinting form even when tired” and “I keep my stride technique consistent across all sprints,” both with a mean of 2.99, described as Agree and interpreted as Consistently Performing. This means that athletes experience slight difficulty sustaining their sprinting form and stride uniformity under fatigue. This illustrates that while they generally perform well, fatigue tends to compromise their form, suggesting a need for further focus on maintaining technique integrity under physical strain.

The composite mean of 3.16, described as Agree and interpreted as Consistently Performing, indicates that basketball athletes generally perceive themselves as capable of maintaining good sprinting technique and form throughout repeated sprint drills. This illustrates that while their performance is stable, consistent technical reinforcement during fatigue -based training could further optimize efficiency and prevent form deterioration during games.

Table 16 Self- Assessment of the Basketball Athletes of their Repeated Sprint Performance in terms of Mental Focus and Drive

	Mean	SD	Qualitative Description	Interpretation	Rank
1. I stay mentally focused during repeated sprint activities.	3.15	.70	Agree	Consistently Performing	3
2. I push myself to give maximum effort every sprint.	3.39	.70	Agree	Consistently Performing	1
3. I do not give up mentally, even when physically tired.	2.85	.78	Agree	Consistently Performing	4
4. I remain motivated to perform well in repeated sprints.	3.23	.76	Agree	Consistently Performing	2
Composite Mean	3.15	.35	Agree	Consistently Performing	

Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Performing; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Disagree/ Rarely Performing

The statement “I push myself to give maximum effort every sprint” obtained the highest mean of 3.39, described as Agree and interpreted as Consistently Performing. This means that basketball athletes demonstrate strong mental drive and determination to exe rt full effort during repeated sprint activities. This illustrates that they possess a high level of competitive motivation, allowing them to sustain intensity and effort despite the physical demands of consecutive sprints.

The lowest- rated statement, “I do not give up mentally, even when physically tired,” with a mean of 2.85, described as Agree and interpreted as Consistently Performing, means that while athletes generally maintain focus, their mental endurance tends to wea ken as fatigue sets in. This illustrates that although their overall mental resilience is adequate, they may require strategies to strengthen psychological toughness and focus under physical stress.

The composite mean of 3.15, described as Agree and interpreted as Consistently Performing, indicates that basketball athletes maintain a stable level of mental focus and drive during repeated sprint performance. This illustrates that their mindset supports consistent effort and motivation, but continuous mental conditioning and focus drills could further enhance their resilience and ability to perform optimally under fatigue and pressure.

Table 17 Self- Assessment of the Basketball Athletes of their Repeated Sprint Performance in terms of Comparison to Benchmarks or Previous Performance

	Mean	SD	Qualitative Description	Interpretation	Rank
1. I feel my sprint performance has improved over time.	3.27	.72	Agree	Consistently Performing	1
2. My current repeated sprint times are better than last season.	2.85	.81	Agree	Consistently Performing	4
3. I consistently meet or Exceed performance targets in t raining.	3.24	.74	Agree	Consistently Performing	2
4. I notice visible gains in my speed and recovery compared to before.	3.14	.77	Agree	Consistently Performing	3
Composite Mean	3.12	.35	Agree	Consistently Performing	

Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Performing; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Disagree/ Rarely Performing

The statement "I feel my sprint performance has improved over time" obtained the highest mean of 3.27, described as Agree and interpreted as Consistently Performing. This means that basketball athletes perceive a notable improvement in their repeated sprint abilities compared to previous performance levels. This illustrates that their ongoing training and conditioning efforts are effectively contributing to better sprint execution, speed, and endurance over time.

The lowest-rated statement, "My current repeated sprint times are better than last season," with a mean of 2.85, described as Agree and interpreted as Consistently Performing, means that while athletes recognize some progress, they perceive that their improvement in actual sprint times since last season is moderate rather than substantial. This illustrates that further emphasis on speed-specific drills and strength training may be needed to achieve measurable improvements in time -based sprint benchmarks.

The composite mean of 3.12, described as Agree and interpreted as Consistently Performing, indicates that basketball athletes generally observe progress in their repeated sprint performance compared to past benchmarks. This illustrates that they maintain consistent growth and performance development through training, although there remains room for more targeted enhancement to translate perceived improvement into quantifiable performance gains.

➤ *Summary of the Self- Assessment of the Basketball Athletes of their Repeated Sprint Performance*

Table 18 shows the summary of the self-assessment of the basketball athletes of their repeated sprint performance in terms of sprint speed and acceleration, consistency across sprints, recovery between sprints, fatigue onset, technique and form maintenance, mental focus and drive, and comparison to benchmarks or previous performance.

Table 18 Summary Self-Assessment of the Basketball Athletes of their Repeated Sprint Performance

	Mean	SD	Qualitative Description	Interpretation	Rank
Sprint Speed and Acceleration	3.13	.37	Agree	Consistently Performing	6
Consistency across Sprints	3.20	.40	Agree	Consistently Performing	1
Recovery between Sprints	3.19	.36	Agree	Consistently Performing	2
Fatigue Onset	3.01	.32	Agree	Consistently Performing	
Technique and Form Maintenance	3.16	.37	Agree	Consistently Performing	3
Mental Focus and Drive	3.15	.35	Agree	Consistently Performing	4
Comparison to Benchmarks or Previous Performance	3.12	.35	Agree	Consistently Performing	5
Overall	3.14	.18	Agree	Consistently Performing	

Leg end: 3 . 5 1 - 4 . 00 Strongly Agree/ Exceptionally Performing; 2 . 51 - 3 . 50 Agree/ Consistently Performing; 1 . 51 - 2 . 50 Disagree/ Occasionally Performing; 1 . 0 0 - 1 . 5 0 Strongly Disagree/Rarely Performing

The highest-rated dimension, * Consistency across Sprints*, obtained a mean of 3.20, described as *Agree* and interpreted as*Consistently Performing*. This means that basketball athletes can sustain their sprinting performance over multiple repetitions without significant decline in speed or quality. This illustrates that they have developed endurance and pacing strategies that allow them to perform repeated sprints efficiently, a vital attribute for maintaining competitiveness during transitions and fast -paced sequences in games.

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The lowest-rated factor, *Fatigue Onset*, garnered a mean of 3.01, described as *Agree* and interpreted as * Consistently Performing*. This means that athletes experience the early signs of fatigue during repeated sprint activities, suggesting that their en ergy reserves and muscle endurance may decline after several bouts of intense effort. This illustrates the need for continued conditioning and anaerobic capacity development to help them delay fatigue and sustain explosive performance throughout training a nd gameplay.

The overall composite mean of 3.14, described as *Agree* and interpreted as *Consistently Performing*, indicates that basketball athletes generally perceive themselves as capable of maintaining effective performance in repeated sprint situations. This illustrates that their training has built a reliable level of sprint consistency, recovery ability, and technical control, though there remains room to further enhance fatigue management and speed optimization to achieve peak athletic performance.

➢ *Significant Differences in the Self- Assessment of the Basketball Athletes of their Anaerobic Power*

Table 19 shows the significant differences in the self- assessment of the basketball athletes of their anaerobic power in terms of explosiveness in movements, spring acceleration and speed, jump height and repetition ability, power output during drills, fatigue resistance in bursts, recovery between high - intensity bouts, and comparison to past performance when the respondent' s demographic profiles are taken as test factors.

Table 19 Differences in the Self-Assessment of the Basketball Athletes of their Anaerobic Power According to Profile

	Group	Mean	SD	F-value	Sig	Decision on Ho	Interpretation
Explosiveness in Movements	15-16 years old	3.2034	.36683	.016	.984	Accepted	Not Significant
	17-18 years old	3.2109	.40635				
	19 years old and above	3.1944	.38877				
Spring Acceleration and Speed	15-16 years old	3.3644	.31291	.966	.382	Accepted	Not Significant
	17-18 years old	3.3125	.31810				
	19 years old and above	3.4167	.33211				
Jump Height and Repetition Ability	15-16 years old	3.1525	.32855	.867	.422	Accepted	Not Significant
	17-18 years old	3.0859	.37059				
	19 years old and above	3.0972	.29876				
	15-16 years old	3.3093	.37791	.385	.681	Accepted	

- *Age*

Since the null hypothesis (Ho) was accepted in all subcategories, it indicates that there are no significant differences in the self-assessment of basketball athletes of their anaerobic power when grouped according to age. This means that regardless of whether the athletes were 15 –16 years old, 17 –18 years old, or 19 years old and above, they demonstrated a comparable level of anaerobic power across all dimensions In terms of explosiveness in movements, all age groups agreed that they consistently performed well, with mean scores of 3.20, 3.21, and 3.19, respectively. This shows that athletes, regardless of age, exhibited similar capacity to generate quick, forceful actions essential for basketball movements like jumping and sprinting. For spring acceleration and speed, mean values ranged closely from 3 .31 to 3.42, indicating that all groups performed consistently in quick bursts and speed transitions.

Likewise, for jump height and repetition ability (means from 3.09 to 3.15) and power output during drills (means from 3.26 to 3.32), all athletes displayed relatively uniform strength and power generation during repetitive actions and high - intensity drills. The same trend was evident in fatigue resistance in bursts (means from 3.20 to 3.35), recovery between high-intensity bouts (means from 3.18 to 3.19), and comparison to past performance (means from 2.97 to 3.13), reflecting similar endurance and recovery capacities regardless of age group.

Overall, the composite means — 3.23 for 15 –16 years old, 3.20 for 17–18 years old, and 3.22 for 19 years old and above — support that age does not significantly affect anaerobic power among basketball athletes. This implies that training programs and conditioning routines were effective in developing and maintaining anaerobic strength and performance evenly across all age brackets.

- *Sex*

Since the null hypothesis (Ho) was accepted across all subcategories, it means that there are no significant differences in the self-assessment of the basketball athletes of their anaerobic power when grouped according to sex. Both male and female athletes evaluated themselves similarly in terms of explosiveness, speed, fatigue resistance, recovery, and power output, indicating a comparable perception of their anaerobic performance capabilities.

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In terms of explosiveness in movements, both males (M = 3.20) and females (M = 3 .22) agreed that they consistently perform well in executing rapid and forceful actions like jumps and sprints. Similarly, for spring acceleration and speed, male athletes (M = 3.36) and female athletes (M = 3 .33) both reflected consistent ability to accelerate quickly during gameplay, demonstrating similar speed performance levels.

For jump height and repetition ability (M = 3.13 for males, M = 3.12 for females) and power output during drills (M = 3.31 for males, M = 3.26 for females), both groups exhibited uniform strength and explosive performance in repetitive training routines. I n terms of fatigue resistance in bursts (M = 3.22 for males, M = 3.26 for females) and recovery between high- intensity bouts (M = 3.19 for males, M = 3.18 for females), both sexes displayed similar endurance and recovery capacities during high- effort activities. Lastly, for comparison to past performance, males (M = 3.10) and females (M = 3.15) showed parallel perceptions of improvement over time.

Overall, with composite means of 3.22 for males and 3. 21 for females, it can be interpreted that sex does not significantly influence anaerobic power performance among basketball athletes. This suggests that both male and female players possess and perceive similar levels of anaerobic ability, likely due to comparable training intensity, coaching approaches, and conditioning programs.

- *Years of Physical Activity*

Since the null hypothesis (Ho) was rejected, it indicates that there are significant differences in the self -assessment of basketball athletes of their anaerobic power when grouped according to their years of physical activity. This means that the athletes ' perception of their anaerobic power varies depending on how long they have been engaged in physical training and conditioning.

For explosiveness in movements, the result was significant (p= .029). Athletes with 6 –7 years of physical activity (M = 3.33) rated themselves the highest, showing greater confidence in their ability to perform quick and forceful movements such as jumping and sprinting. This suggests that longer training experience improves muscle coordination and power generation. In contrast, those with 2 –3 years (M = 3.10) rated themselves the lowest, implying that less experienced players are still developing explosive strength and movement efficiency.

In jump height and repetition ability, a significant difference (p= .003) was also observed. Athletes with 4 –5 years of physical activity (M = 3.18) had the highest assessment, reflecting better jump endurance and recovery between leaps, possibly due to improved leg conditioning. Conversely, those with 2 –3 years (M = 3. 00) had the lowest, showing limited ability to sustain jumping performance without fatigue, which can be attributed to lesser exposure to plyometric and strength training routines.

For fatigue resistance in bursts, the difference was significant (p = .048). Respondents with 2 –3 years of physical activity (M = 3.32) rated themselves the highest, suggesting that despite their shorter experience, they perceive themselves as capable of maintaining energy during intense game sequences, possibly due to youthful stamina or recent intensive training. However, those with 6 –7 years (M = 3.13) rated themselves the lowest, which may indicate increased self-awareness and stricter self-evaluation among more seasoned players.

In comparison to past performance, a significant result (p =.003) revealed that athletes with 6 –7 years of physical activity (M = 3.38) rated themselves the highest, recognizing improvements in their explosiveness, endurance, and recovery compared to previous seasons. Meanwhile, those with 2 –3 years (M = 2.98) scored the lowest, possibly due to still being in the early stages of developing consistent anaerobic strength and power gains.

Overall, the difference was statistically significant (p = . 009), with the 6 –7 years group obtaining the highest composite mean (M = 3.29) and the 2 –3 years group the lowest (M = 3.17). This finding suggests that longer years of physical activity contribute to higher self-assessed anaerobic power, likely due to accumulated training adaptations, improved physical conditioning, and better familiarity with high- intensity basketball demands.

➢ *Significant Differences in the Self- Assessment of the Basketball Athletes of their Repeated Sprint Performance*

Table 19 shows the significant differences in the self- assessment of the basketball athletes of their repeated sprint performance in terms of sprint speed and acceleration, consistency across sprints, recovery between sprints, fatigue onset, technique and form maintenance, mental focus and drive, and comparison to benchmarks or previous performance when the respondent's demographic profiles are taken as test factors.

- *Age*

Since the null hypothesis (Ho) was accepted, it means there are no significant differences in the self -assessment of the basketball athletes of their repeated sprint performance when grouped according to age. This indicates that athletes across the different age brackets—15–16 years old, 17 –18 years old, and 19 years old and above—perceive their sprint-related performance similarly. Thus, age does not appear to be a determining factor in how they evaluate their sprint capabilities and consistency during high- intensity play.

In terms of sprint speed and acceleration, the athletes aged 15 –16 years old (M = 3.15) rated themselves slightly higher than the other groups, followed closely by those aged 17 –18 years old (M = 3.13) and 19 years old and above (M = 3.10). This suggests that the youngest group may have a marginal advantage in initial speed and quick bursts, likely due to youthful agility, but the differences are too small to be statistically meaningful.

For consistency across sprints, the 15 –16 years old group (M = 3.23) again rated themselves marginally higher, while the 17–18 years old (M = 3.17) and 19 years old and above (M = 3.21) followed closely. This reflects that all age groups maintain comparable levels of performance stability during repeated sprints, demonstrating uniformity in endurance and pacing control.

In terms of recovery between sprints, those aged 19 years old and above (M = 3.26) reported the highest mean, indicating a slightly stronger ability to recover between efforts, possibly due to experience in managing energy during play. However, the difference from the 15 – 16 years old (M = 3.17) and 17 –18 years old (M = 3.21) groups is minimal, reinforcing that recovery abilities are consistent across age levels.

With regard to fatigue onset, the means for all groups were closely aligned, ranging from 2.96 to 3.02, showing that players across all ages experience fatigue similarly during repeated sprints. Similarly, in technique and form maintenance, the 17 –18 years old (M = 3.20) rated slightly higher than the other age groups, suggesting slightly better body control and form retention, though still not significantly different.

For mental focus and drive, the 15 –16 years old group (M = 3.16) had a slightly higher mean than the older groups, suggesting high motivation and concentration among younger athletes, possibly reflecting eagerness and energy in training and competition. Likewise, in comparison to benchmarks or previous performance, the 19 years old and above group (M = 3.15) rated slightly higher, indicating greater awareness and self -evaluation of their development over time.

Overall, the composite means are nearly identical —15–16 years old (M = 3.15), 17 –18 years old (M = 3.14), and 19 years old and above (M = 3 .14)—confirming that age does not significantly influence the athletes' perception of their repeated sprint performance. This illustrates that regardless of age, the athletes share similar sprinting abilities, recovery patterns, and mental consistency, likely due to uniform training exposure and comparable physical conditioning within the basketball program.

- *Sex*

Since the computed p-values for all variables are greater than the 0.05 level of significance, the null hypothesis is accepted, indicating that there are no significant differences in the self - assessment of the basketball athletes of their repeated sprint performance when grouped according to sex. This means that both male and female respondents share comparable perceptions of their sprint- related abilities.

In particular, male athletes obtained slightly lower mean scores across most indicators, such as sprint speed and acceleration (3.12) and technique and form maintenance (3.14), compared to their female counterparts (3.19 and 3.23, respectively). However, these variations were not large enough to indicate statistical significance. Both groups viewed themselves as performing moderately well in maintaining consistency across sprints, recovering between bouts, and sustaining mental focus and drive during repeated sprint efforts.

Overall, the results imply that sex does not substantially influence how basketball athletes evaluate their repeated sprint performance. Both male and female players demonstrate a similar level of self-awareness and performance capability in executing and sustaining sprint activities, suggesting that training programs can be designed without differentiation based solely on sex for this particular performance domain.

- *Years of Physical Activity*

The results reveal that there are significant differences in the self-assessment of the basketball athletes of their repeated sprint performance when grouped according to their years of physical activity, as indicated by the rejected null hypothesis (p = . 014 and .020) in recovery between sprints and technique and form maintenance. This suggests that the length of time athletes have been physically active meaningfully affects how they perceive their sprint recovery and technical execution.

Athletes with 6 –7 years of physical activity obtained the highest mean scores in both recovery between sprints (3.46) and technique and form maintenance (3.38), indicating a stronger ability to recover quickly between high-intensity sprint efforts and to maintain proper sprint mechanics despite fatigue. This reflects the benefits of long - term training experience, where repeated exposure to structured drills enhances both physiological adaptation and technical proficiency. Conversely, athletes with 2 –3 years of activity had the lowest means (3.10 and 3.06, respectively), implying that they may still be developing the endurance and technique consistency needed for repeated sprint performance.

For the other indicators—such as sprint speed and acceleration, consistency across sprints, fatigue onset, mental focus and drive, and comparison to benchmarks or previous performance — the null hypothesis was accepted, indicating no significant differences among groups. This means that while overall sprint ability is relatively comparable regardless of years of experience, more seasoned athletes show clear advantages in recovery and technical maintenance during repeated sprints.

Overall, the data suggest that longer engagement in physical activity contributes positively to athletes' self -assessed capacity to sustain high- intensity efforts and preserve sprint form, highlighting the importance of continuous, long -term conditioning in basketball performance development.

➢ *Relationship between the Self- Assessment of the Basketball Athletes of their Anaerobic Power and the Self-Assessment of the Basketball Athletes of their Repeated Sprint Performance*

Table 20 shows the relationship between the self-assessment of the basketball athletes of their anaerobic power in terms of explosiveness in movements, spring acceleration and speed, jump height and repetition ability, power output during drills, fatigue resistance in bursts, recovery between high - intensity bouts, and comparison to past performance and self-assessment of the basketball athletes of their repeated sprint performance in terms of sprint speed and acceleration, consistency across sprints, recovery between sprints, fatigue onset, technique and form maintenance, mental focus and drive, and comparison to benchmarks or previous performance.

Table 20 Relationship Between the Self- Assessment of the Basketball Athletes of their Anaerobic Power and the Self- Assessment of the Basketball Athletes of their Repeated Sprint Performance

		Computed r	Sig	Decision on Ho	Interpretation
Explosiven ess in Movements	Sprint Speed and Acceleration	. 147	. 038	Rejected	Significant
	Consistency across Sprints	. 197	. 005	Rejected	Significant
	Recovery between Sprints	. 130	. 066	Accepted	Not Significant
	Fatigue Onset	. 728	. 000	Rejected	Significant
	Technique and Form Maintenance	. 333	. 000	Rejected	Significant
	Mental Focus and Drive	. 152	. 032	Rejected	Significant
	Comparison to Benchmarks or Previous Performance	- . 085	. 229	Accepted	Not Significant
	Total	. 438	. 000	Rejected	Significant
Spring Acceleratio n and Speed	Sprint Speed and Acceleration	- . 086	. 226	Accepted	Not Significant
	Consistency across Sprints	- . 085	. 233	Accepted	Not Significant
	Recovery between Sprints	- . 167	. 018	Rejected	Significant
	Fatigue Onset	. 202	. 004	Rejected	Significant
	Technique and Form Maintenance	- . 181	. 010	Rejected	Significant
	Mental Focus and Drive	- . 055	. 442	Accepted	Not Significant

	Comparison to Benchmarks or Previous Performance	.037	.604	Accepted	Not Significant
	Total	-.104	.143	Accepted	Not Significant
Jump Height and Repetition Ability	Sprint Speed and Acceleration	.230	.001	Rejected	Significant
	Consistency across Sprints	.226	.001	Rejected	Significant
	Recovery between Sprints	.317	.000	Rejected	Significant
	Fatigue Onset	.081	.252	Accepted	Not Significant
	Technique and Form Maintenance	.211	.003	Rejected	Significant
	Mental Focus and Drive	.265	.000	Rejected	Significant
	Comparison to Benchmarks or Previous Performance	.085	.233	Accepted	Not Significant
	Total	.401	.000	Rejected	Significant
Power Output During Drills	Sprint Speed and Acceleration	.083	.243	Accepted	Not Significant
	Consistency across Sprints	.223	.002	Rejected	Significant
	Recovery between Sprints	.131	.064	Accepted	Not Significant
	Fatigue Onset	-.040	.575	Accepted	Not Significant
	Technique and Form Maintenance	.229	.001	Rejected	Significant
	Mental Focus and Drive	.015	.833	Accepted	Not Significant
	Comparison to Benchmarks or Previous Performance	-.068	.339	Accepted	Not Significant
	Total	.171	.015	Rejected	Significant
Fatigue Resistance in Bursts	Sprint Speed and Acceleration	-.270	.000	Rejected	Significant
	Consistency	-.327	.000	Rejected	Significant

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	across Sprints				
	Recovery between Sprints	-.051	.476	Accepted	Not Significant
	Fatigue Onset	-.154	.030	Rejected	Significant
	Technique and Form Maintenance	-.452	.000	Rejected	Significant
	Mental Focus and Drive	-.012	.864	Accepted	Not Significant
	Comparison to Benchmarks or Previous Performance	.127	.074	Accepted	Not Significant
	Total	-.331	.000	Rejected	Significant
Recovery Between High-	Sprint Speed and Acceleration	.192	.006	Rejected	Significant
	Consistency across Sprints	.004	.957	Accepted	Not Significant
	Recovery between Sprints	.186	.008	Rejected	Significant
Intensity Bouts	Fatigue Onset	.046	.515	Accepted	Not Significant
	Technique and Form Maintenance	.346	.000	Rejected	Significant
	Mental Focus and Drive	.128	.072	Accepted	Not Significant
	Comparison to Benchmarks or Previous Performance	-.332	.000	Rejected	Significant
	Total	.164	.020	Rejected	Significant
Compariso n to Past Performan ce	Sprint Speed and Acceleration	.294	.000	Rejected	Significant
	Consistency across Sprints	.255	.000	Rejected	Significant
	Recovery between Sprints	.233	.001	Rejected	Significant
	Fatigue Onset	.133	.061	Accepted	Not Significant
	Technique and Form Maintenance	.396	.000	Rejected	Significant
	Mental Focus and Drive	.077	.280	Accepted	Not Significant
	Comparison to Benchmarks or Previous Performance	-.189	.007	Rejected	Significant

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	Total	. 346	. 000	Rejected	Significant
Ov eral l Sc hool' s Utiliz at io n of Authentic Lea rni ng Env i ronm ent	Ov eral l Students ' Engag eme nt and Ac hiev ement	. 376	. 000	Rejected	Significant

The analysis of the relationship between the basketball athletes' self-assessment of anaerobic power and their self - assessment of repeated sprint performance reveals several significant correlations, indicating a strong interconnection between the two physical performance domains.

Results show that most of the subcategories under anaerobic power have significant relationships with repeated sprint performance, as evidenced by multiple computed r values marked with asterisks ($p < 0.05$). The overall correlation between the two main variables yielded an r value of .376 with a p -value of .000, leading to the rejection of the null hypothesis. This suggests a moderate positive relationship, meaning that improvements in anaerobic power are generally associated with enhanced repeated sprint performance among the basketball athletes.

Among the subcategories, "Explosiveness in Movements" demonstrated strong and significant correlations with sprint - related indicators, particularly with Fatigue Onset (r = .728, p = .000), reflecting that athletes who are more explosive tend to delay fatig ue during repeated sprints. Similarly, significant positive correlations were also noted with Technique and Form Maintenance (r = .333, p =.000) and Consistency Across Sprints (r = .197, p = .005), implying that explosive strength contributes to sustainin g performance efficiency and movement precision during high - intensity repetitions.

In contrast, "Fatigue Resistance in Bursts" showed a negative yet significant relationship with multiple indicators, including Technique and Form Maintenance (r = –.452, p = .000) and Consistency Across Sprints (r = –.327, p = .000). These inverse relationships suggest that when athletes perceive themselves as having greater fatigue resistance, they may not necessarily maintain consistent sprint mechanics or form, possibly due to differing pacing strategies or energy allocation.

Meanwhile, " Comparison to Past Performance" also recorded several significant positive correlations, such as with Technique and Form Maintenance (r = .396, p = .000) and Recovery Between Sprints (r = .233, p = .001), showing that athletes who report improvements in anaerobic measures also observe better sprint recovery and technical control.

Overall, the data imply that enhanced anaerobic power translates into improved sprint- related abilities, particularly in explosiveness, recovery efficiency, and technical consistency. The significant relationships underscore how anaerobic capacity directly influences the athletes' ability to perform repeated sprints with sustained intensity, while the few negative correlations may reflect variations in pacing and endurance strategies during repeated high - intensity exertion.

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CHAPTER FOUR
SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

This chapter contains the summary of findings obtained through the conduct of this research. It also includes the conclusions and recommendations formulated by the researcher, which were based on the gathered and analyzed data.

A. *Findings*

➢ *Profile of the Respondents*

In terms of age, the majority of the Basketball Athlete respondents are 15 –16 years old. This illustrates that most of the basketball athletes are in their mid - adolescent stage, which is typically the peak period of skill development and physical growth for sports participation.

In terms of sex, the majority of the Basketball Athlete respondents are male. This illustrates that basketball as a sport is still male-dominated, although there is noticeable participation from female athletes, showing inclusivity in the sport.

In terms of years of physical activity, the majority of the Basketball Athlete respondents have been engaged in physical activity for 4 –5 years. This illustrates that most of the athletes already have substantial experience and consistent exposure to training, which may contribute positively to their performance and discipline in basketball.

- *Self- Assessment of the Basketball Athletes of their Anaerobic Power*

✓ *Explosiveness in Movements*

Basketball athletes rated their explosiveness in movements with an overall composite mean of 3.20, described as Agree and interpreted as Consistently Performing. The highest- rated indicator was their ability to quickly explode off the ground during drives or cuts (M = 3. 63), showing strong confidence in executing sudden, forceful movements vital for offensive plays. Conversely, the lowest-rated statement, “I often outpace defenders during sudden bursts” (M = 2.56), indicates a need to improve sustained spee d advantage during high-intensity sequences. Overall, athletes perceive themselves as reliably explosive but still capable of refining burst control and acceleration during play.

✓ *Spring Acceleration and Speed*

In terms of acceleration and speed, the athletes obtained an overall mean of 3.35, described as Agree and interpreted as Consistently Performing. The highest- rated aspect was “My first few steps after a sprint start are powerful” (M = 3.60), suggesting strong initial acceleration—a critical advantage in quick reactions and transitions. The lowest mean, “I reach my top sprinting speed quickly” (M = 2.97), implies that while they start powerfully, maintaining and reaching maximum velocity remains a developmental area. This shows that their short - distance acceleration is reliable, though improving peak sprinting speed could enhance performance in fast breaks and recoveries.

✓ *Jump Height and Repetition Ability*

For jumping ability, the overall composite mean was 3.12, described as Agree and interpreted as Consistently Performing. The highest mean was “My legs feel strong during repeated leaping motions” (M = 3.55), showing that athletes value their lower-body strength in sustaining vertical movements. The lowest-rated statement, “My vertical jump helps me during rebounds and blocks” (M = 2.76), indicates that their jump height, while functional, may not be optimized for game -defining actions like rebounding. This reflects dependable endurance in jumping but highlights the need for enhanced vertical explosiveness for better defensive and offensive plays.

✓ *Power Output During Drills*

The athletes’ assessment of power output during drills produced an overall mean of 3.29, interpreted as Consistently Performing. The highest- rated statement, “My coaches acknowledge my powerful execution in practice” (M = 3.54), signifies that athletes feel recognized for their physical strength during training. The lowest - rated, “My effort during short, high-power drills is strong” (M = 3.01), suggests they could improve in sustaining intensity during short, high - energy drills. Overall, the findings show that athletes consistently perform powerfully in drills, but focusing on maintaining maximal output across all drill types could further strengthen anaerobic capacity.

✓ *Fatigue Resistance in Bursts*

In terms of fatigue resistance, the composite mean was 3.22, described as Agree and interpreted as Consistently Performing. The highest mean, “I can perform several high-effort plays in a row without tiring quickly” (M = 3.54), highlights strong endurance during repeated high-effort plays. The lowest- rated statement, “My body maintains strength during intense game sequences” (M = 3.08), implies some limitations in sustaining strength during prolonged activity. This indicates that while athletes can manage short bursts well, increasing endurance for extended periods of intensity would strengthen their overall stamina and game resilience.

✓ *Recovery Between High-Intensity Bouts*

Athletes rated their recovery between high - intensity bouts with a composite mean of 3.18, described as Agree and interpreted as Consistently Performing. The highest- rated statement, "I regain my energy quickly between drills or game sequences" (M = 3.44), demonstrates efficient recovery capability between intense efforts. However, the lowest- rated item, "A short break allows me to perform strongly again" (M = 2.85), suggests that quick recovery during very brief rest periods is less developed. This shows that while athletes recover well during regular intervals, optimizing short-term recovery could enhance consistency during fast-paced transitions in competition.

✓ *Comparison to Past Performance*

The comparison to past performance resulted in a composite mean of 3.11, described as Agree and interpreted as Consistently Performing. The highest- rated statement, "My current power output is better than in past games" (M = 3.25), indicates athletes' recognition of steady progress in power and conditioning. The lowest- rated, " I recover faster now compared to earlier stages of training" (M = 2.94), reveals that perceived improvement in recovery remains limited. Overall, athletes see consistent development in their anaerobic power, particularly in explosiveness and output, though recovery and endurance enhancement remain key areas for continuous growth.

- *Self- Assessment of the Basketball Athletes of their Repeated Sprint Performance*

✓ *Sprint Speed and Acceleration*

Basketball athletes obtained a composite mean of 3.13, described as Agree and interpreted as Consistently Performing. They rated highest their ability to reach top speed quickly after starting a sprint, showing confidence in rapid acceleration that supports offensive transitions. However, their lowest rating in accelerating smoothly from a stationary position indicates that they find initial movement less fluid. Overall, the athletes view their sprint speed as reliable but see the need to refine acceleration mechanics for quicker takeoffs during games.

✓ *Consistency across Sprints*

The athletes' assessment of their consistency across sprints yielded a composite mean of 3.20, described as Agree and interpreted as Consistently Performing. They rated highest their ability to maintain steady sprint levels during drills, showing good pacing control and endurance. The lowest mean, on maintaining similar sprint t imes across repetitions, suggests difficulty sustaining uniform speed under repeated exertion. This means that while their overall performance remains steady, further development of anaerobic endurance could improve sprint uniformity during high- intensity repetitions.

✓ *Recovery between Sprints*

For recovery between sprints, the composite mean of 3.19 was described as Agree and interpreted as Consistently Performing. Athletes rated highest their ability to normalize breathing between efforts, reflecting good respiratory recovery. However, they rated lowest their ability to settle heart rate efficiently, implying a need for enhanced cardiovascular conditioning. Overall, they see themselves as recovering well between sprints, though optimizing recovery speed could sustain better energy levels during consecutive efforts.

✓ *Fatigue Onset*

In terms of fatigue onset, the athletes recorded a composite mean of 3.01, described as Agree and interpreted as Consistently Performing. Their strongest area was resisting t iredness during repeated drills, showing good stamina and conditioning. The lowest rating on sustaining energy during short bursts, however, indicates a challenge in maintaining explosiveness during rapid sequences. This suggests that targeted anaerobic endurance training may help delay fatigue and improve performance in quick, successive plays.

✓ *Technique and Form Maintenance*

The self-assessment on technique and form maintenance produced a composite mean of 3.16, described as Agree and interpreted as Consistently Performing. The highest mean reflected controlled arm and leg coordination, showing strong neuromuscular efficiency. However, athletes rated lowest their ability to maintain form when t ired, indicating that fatigue slightly disrupts technique. Overall, they maintain stable form, but reinforcing technical control during fatigue could improve sprint efficiency and prevent form breakdown.

✓ *Mental Focus and Drive*

Athletes' self-assessment of their mental focus and drive yielded a composite mean of 3.15, described as Agree and interpreted as Consistently Performing. They rated highest their determination to exert full effort in every sprint, showing strong motivation and competitive spirit. However, their lowest rating on maintaining mental endurance under fatigue suggests susceptibility to decreased focus when physically strained. This implies that while mental drive is consistent, enhancing psychological resilience could strengthen focus and performance under pressure.

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✓ *Comparison to Benchmarks or Previous Performance*

The athletes' comparison to past performance produced a composite mean of 3.12, described as Agree and interpreted as Consistently Performing. The highest rating on perceived improvement over time shows athletes' recognition of progress in sprint ability. Meanwhile, the lowest rating on improved sprint t imes compared to last season suggests modest measurable gains. Overall, athletes perceive steady growth through training but may benefit from focused performance tracking to convert perceived improvement into quantifiable results.

- *Significant Differences in the Self -Assessment of the Basketball Athletes of their Anaerobic Power*

✓ *Age*

The findings revealed that there were no significant differences in the self-assessment of basketball athletes of their anaerobic power when grouped according to age, as the null hypothesis (Ho) was accepted across all subcategories. This means that athletes aged 15 –16, 17 –18, and 19 years old and above shared similar perceptions of their anaerobic performance, suggesting that age did not influence their strength, speed, or recovery capacities. The close mean scores across subcategories— ranging from 3.09 to 3. 42—indicate consistent performance in explosiveness, jump ability, power output, and fatigue resistance regardless of age. With composite means of 3.23, 3.20, and 3.22, respectively, this result implies that uniform training exposure and conditioning ro utines have effectively developed anaerobic abilities across all age brackets.

✓ *Sex*

Results showed that there were no significant differences in the self-assessment of basketball athletes of their anaerobic power when grouped according to sex. Both male and female athletes rated themselves similarly across all dimensions, indicating comparable perceptions of their explosiveness, speed, endurance, and recovery. The mean values between groups were nearly identical, with composite means of 3 . 22 for males and 3.21 for females, reflecting a consistent level of anaerobic performance. This suggests that both sexes have undergone similar training intensities and conditioning programs, leading to equal levels of power generation and physical efficiency in basketball- specific movements.

✓ *Years of Physical Activity*

The results indicated significant differences in the self-assessment of basketball athletes of their anaerobic power when grouped according to years of physical activity, as the null hypothesis (Ho) was rejected. The findings show that athletes with more years of training perceived themselves as stronger and more capable in terms of anaerobic performance. Specifically, those with 6 –7 years of physical activity rated themselves highest in explosiveness in movements (M = 3.33) and comparison to past performance (M = 3.38), reflecting greater muscle coordination, power output, and training-induced improvement. Meanwhile, athletes with 2 – 3 years of experience consistently rated themselves lowest in most categories, such as explosiveness (M = 3.10) and jump height and repetition ability (M = 3 .00), indicating developing anaerobic capacity. Interestingly, they rated themselves higher in fatigue resistance (M = 3.32), possibly due to youthful stamina. Overall, the total result (p = .009) confirmed that longer years of physical activity lead to higher anaerobic power perception, highlighting the positive impact of sustained conditioning, skill refinement, and cumulative training experience on athletic performance.

- *Significant Differences in the Self -Assessment of the Basketball Athletes of their Repeated Sprint Performance*

✓ *Age*

The results revealed that there are no significant differences in the self -assessment of the basketball athletes of their repeated sprint performance when grouped according to age. This implies that athletes across the different age brackets—15–16 years old, 17–18 years old, and 19 years old and above—perceive their sprinting ability, recovery, and focus in a similar way. The close mean values across all indicators suggest that age is not a determining factor in repeated sprint performance. Regardless of age, athletes share comparable physical conditioning and exposure to sprint training, leading to uniformity in performance and self-perception.

✓ *Sex*

Findings indicated that there are no significant differences in the self-assessment of repeated sprint performance when grouped according to sex. Both male and female athletes reported nearly equal self-assessments across all indicators, including sprint speed, recovery, and technique. Although females recorded slightly higher means in some areas, these variations were not statistically significant. This means that sex does not substantially influence how basketball athletes perceive their sprint-related abilities, suggesting that both male and female players perform and evaluate themselves similarly under repeated sprint conditions.

✓ *Years of Physical Activity*

Results showed that there are significant differences in the self-assessment of basketball athletes of their repeated sprint performance when grouped according to years of physical activity, specifically in recovery between sprints and technique and form maintenance. Athletes with 6 –7 years of physical activity recorded the highest means in these areas, reflecting better recovery capability and technical control, likely due to accumulated training experience. Conversely, those with 2–3 years of activity had the lowest means, suggesting less-developed recovery and technique consistency. For the other indicators, no significant differences were found, indicating generally similar perceptions across groups. Overall, longer engagement in physical activity enhances

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self - perceived recovery efficiency and technical maintenance during repeated sprints, underscoring the value of sustained conditioning and training experience in basketball performance.

- *Relationship Between the Self-Assessment of the Basketball Athletes of their Anaerobic Power and the Self- Assessment of the Basketball Athletes of their Repeated Sprint Performance*

The results reveal a moderate positive relationship (r = .376, p = .000) between the basketball athletes' self - assessment of anaerobic power and repeated sprint performance, indicating that higher anaerobic capacity corresponds to better sprint outcomes. Explosiveness in Movements showed strong positive correlations with Fatigue Onset (r = .728, p = .000) and Technique and Form Maintenance (r = .333, p = .000), suggesting that greater explosiveness enhances endurance and control. In contrast, Fatigue Resistance in Bursts correlated negatively with Technique and Form Maintenance (r = –.452, p = .000), implying trade -offs between endurance and technical precision. Overall, improved anaerobic power contributes to better recovery, consistency, and sprint efficiency among basketball athletes.

B. *Conclusion*

- The demographic profile of the athlete respondents revealed that the majority of the Basketball Athlete respondents are 15 – 16 years old, male, and have been engaged in physical activity for 4– 5 years.
- Basketball athletes generally perceived themselves as **consistently performing** in anaerobic power , showing strong explosiveness, acceleration, and endurance during drills and plays, though they recognized the need to further improve peak sprinting speed, short- term recovery, and sustained power during prolonged high -intensity efforts.
- Basketball athletes perceived themselves as **consistently performing** in repeated sprint performance, demonstrating reliable speed, recovery, and focus, though they recognized the need to enhance acceleration smoothness, endurance under fatigue, and measurable improvement in sprint outcomes.
- There is no significant difference in the assessment of the basketball athletes of their anaerobic power when grouped according to age and sex, indicating similar perceptions of strength, speed, and recovery; however, a significant difference was found when grouped according to years of physical activity, showing that athletes with longer training experience perceive higher anaerobic power due to sustained conditioning and cumulative training adaptations.
- There is no significant difference in the assessment of the basketball athletes of their repeated sprint performance when grouped according to age and sex, indicating similar perceptions of sprinting ability, recovery, and focus; however, a significant difference was found when grouped according to years of physical activity, showing that athletes with longer training experience perceive better recovery and technique maintenance during repeated sprints.
- There is a moderate positive relationship between the assessment of the basketball athletes of their anaerobic power and their repeated sprint performance, indicating that higher anaerobic capacity is associated with better recovery, consistency, and sprint efficiency during high- intensity play.

C. *Recommendations*

- Coaches should design targeted plyometric and sprint -based drills to further develop athletes' explosiveness in movements and acceleration mechanics, which directly improve both anaerobic power and repeated sprint performance.
- Training programs should include proper recovery strategies, such as active rest, hydration, and interval management, to optimize athletes' recovery between high -intensity bouts and repeated sprints.
- Conditioning sessions should integrate fatigue -based drills where athletes practice maintaining sprint form and technique under tired conditions to strengthen movement efficiency and prevent performance decline.
- Continuous engagement in structured strength and conditioning programs should be encouraged to build cumulative training adaptations and enhance overall performance.
- Regular performance assessments and feedback on anaerobic and sprint metrics should be conducted to help athletes track their progress, identify weaknesses, and set specific improvement goals.
- Training programs should remain inclusive and performance - focused, ensuring all athletes receive equal opportunities for development regardless of demographic factors.

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PROPOSED HIGH- INTENSITY ANAEROBIC CONDITIONING PROGRAM

➢ *Rationale of the Program*

The Proposed High-Intensity Anaerobic Conditioning Program is designed to enhance the basketball athletes' anaerobic power and repeated sprint performance, recognizing the strong link between these two physical components. The findings revealed a moderate positive relationship between the athletes' self -assessment of anaerobic capacity and sprint performance, emphasizing that improvements in explosiveness, power output, and fatigue resistance directly contribute to better sprint recovery, consistency, and overall game performance. Given the demands of basketball, where quick bursts, repeated sprints, and short recovery periods are constant, developing anaerobic efficiency is essential for maintaining peak performance throughout competition.

This program aims to strengthen the athletes' explosiveness, acceleration, and endurance through progressive and sport - specific training methods. It focuses on enhancing sprint speed, jump ability, and power output while managing fatigue and improvingreco very between high- intensity efforts. The activities are structured to balance physical conditioning with technical form maintenance ensuring that athletes not only perform with greater speed and power but also sustain proper movement mechanics under fatigue.

➢ *Objectives*

This proposed high-intensity anaerobic conditioning program intends to make the task of managing the mentees and to equip teachers with the appropriate skills which they can utilize and optimize in the exercise of their inherent role.

Specifically, the proposed high- intensity anaerobic conditioning program below needs to be implemented, monitored and evaluated for all the concerned stakeholder.

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