

Effect of Ketogenic Diet on Athletic Performance of Men's Basketball Players in Petaling Jaya, Malaysia

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Abstract

This study examines how male collegiate basketball players in Petaling Jaya, Malaysia, experienced and interpreted the adoption of a ketogenic diet (KD) within the demands of team-based, high-intensity sport. Moving beyond performance metrics, the research adopts a phenomenological design informed by social constructivism and the biopsychosocial model to understand how dietary practices are embedded within social, cultural, and athletic contexts. KD is therefore approached not merely as a metabolic intervention, but as a lived practice negotiated within training routines, team norms, and everyday life. Data were collected between February and April 2025 through semi-structured interviews supplemented by contextual questionnaires. Thematic analysis revealed that dietary adaptation unfolded as a phased and relational process. Participants commonly described an initial period marked by perceived reductions in explosiveness, fluctuating energy, and mood instability. For some, these experiences gave way to greater perceived energy steadiness, heightened bodily awareness, and improved self-regulation during moderate training loads. However, high-intensity efforts and late-session demands remained challenging for several athletes. Social dynamics—particularly shared meals and a carbohydrate-dominant food culture—significantly shaped adherence and meaning-making around the diet. The findings suggest that the perceived value of KD cannot be understood independently of role expectations, team structures, and cultural eating practices. Rather than producing uniform performance outcomes, KD functioned as a context-sensitive strategy whose implications varied across individuals and situations. By foregrounding athletes' lived experiences, this study contributes to sport nutrition scholarship by situating dietary interventions within their broader socio-cultural and performance ecologies.

Keywords: Ketogenic Diet, Team Sport, Qualitative Research, Lived Experience, Malaysia

Introduction

The ketogenic diet (KD), characterized by high fat, moderate protein, and very low carbohydrate intake, has shifted from a clinical intervention for epilepsy to a debated strategy in sport performance contexts. In recent years, interest in KD has expanded beyond endurance disciplines into intermittent, high-intensity team sports. However, evidence remains inconsistent, particularly in sports such as basketball that demand rapid shifts

between anaerobic bursts, aerobic recovery, cognitive decision-making, and repeated explosive efforts.

Most existing research has focused on quantifiable physiological outcomes—substrate utilization, glycogen availability, sprint performance, body composition, and biochemical markers. While such metrics are indispensable, they capture only a fraction of the lived reality experienced by athletes navigating dietary change within dynamic training and competition schedules. For collegiate athletes balancing academic responsibilities, training cycles, travel, and social life, nutrition is not implemented in laboratory isolation but embedded within institutional and cultural rhythms.

This contextual complexity is particularly salient in Malaysia, where carbohydrate-dense staples such as rice and noodles form both dietary and social foundations. In Petaling Jaya (PJ), shared meals at campus cafeterias and hawker centers function as social rituals that reinforce team cohesion and cultural belonging. Adopting a ketogenic diet in such an environment is not merely a nutritional adjustment but a social negotiation. Dietary deviation may influence perceptions of professionalism, belonging, and commitment within a team-based sporting culture.

In team sports, dietary practices intersect with collective routines—post-training meals, travel logistics, pre-game rituals, and shared recovery practices. When one athlete diverges from normative eating patterns, subtle relational dynamics emerge: questions from teammates, logistical adjustments by staff, and internal reflections regarding identity and discipline. These relational dimensions remain underexplored in the KD literature, which has largely emphasized metabolic adaptation over sociocultural adaptation.

Furthermore, basketball presents a unique energetic profile. Guards and forwards experience distinct physical demands; starters and rotation players face different load densities; tournament schedules compress recovery windows. Under such fluctuating demands, the sustainability of KD may depend less on macro ratios alone and more on how athletes perceive, interpret, and adapt to bodily and psychological signals across weeks.

Thus, the present study addresses a critical gap: the absence of qualitative, context-sensitive exploration of how male collegiate basketball players in Malaysia experience, negotiate, and reflect upon ketogenic dieting within a team environment.

Guided by a phenomenological orientation, this study seeks to foreground athlete voice and lived experience. Rather than asking whether KD “works” in a universal sense, we examine how it is perceived, adapted, and integrated—or discontinued—within the socio-cultural and climatic context of Petaling Jaya.

The study is structured around three research questions:

1. What physical and psychological changes do athletes perceive during their ketogenic diet experience?
2. How do athletes adapt to and cope with the challenges of following a ketogenic diet in a team-based sports environment?
3. How do athletes reflect on their identity, performance, and well-being after undergoing a ketogenic diet period?

By centering experience rather than isolated metrics, this research contributes a contextualized understanding of nutritional practice in Malaysian collegiate sport and provides athlete-centered implications for educational and developmental environments.

Literature Review and Conceptual Framing

Ketogenic Diet and Athletic Performance: Physiological Debates

The physiological effects of KD have been extensively examined, particularly in endurance populations. Adaptation to nutritional ketosis involves increased reliance on fatty acids and ketone bodies as primary fuel substrates, accompanied by reductions in glycogen storage and alterations in water and electrolyte balance. Early adaptation phases frequently include fatigue, perceived heaviness, and fluctuations in hydration status.

However, findings in high-intensity and intermittent sports remain equivocal. Some research suggests that while fat oxidation increases, peak power output and repeated sprint performance may be compromised during glycolytically demanding efforts. Other studies indicate that, following adaptation, perceived energy steadiness may improve during submaximal workloads. The variability of findings highlights the importance of sport specificity.

Basketball represents a complex metabolic demand profile. Players alternate between explosive sprints, rapid decelerations, vertical jumps, physical contact, and short aerobic recovery intervals. Cognitive load—tactical decision-making, anticipation, and emotional regulation—adds another layer to performance. In such environments, energy systems operate dynamically rather than in steady-state conditions, complicating the translation of laboratory findings into real-world performance contexts.

Importantly, physiological adaptation does not occur in isolation. Environmental heat, hydration strategies, training density, and sleep patterns influence how metabolic shifts are perceived. Thus, beyond measurable biochemical changes, athletes' interpretations of energy, explosiveness, and recovery become crucial components of practical decision-making.

Psychological and Behavioral Adaptation in Nutritional Transitions

Dietary adherence in sport extends beyond physiological mechanisms to encompass psychological and behavioral dimensions. Early phases of restrictive dietary change may evoke mood fluctuations, irritability, heightened cognitive load, and identity renegotiation. Over time, routines may stabilize, potentially enhancing perceived control and self-regulation. Self-Determination Theory suggests that sustained behavioral adherence depends on the satisfaction of autonomy, competence, and relatedness needs. In team environments, relatedness plays a particularly salient role. Eating practices often function as bonding rituals; deviation from shared norms may generate subtle social friction.

Athletes adopting specialized diets must therefore balance autonomy (personal nutritional strategy) with belonging (team cohesion). Research in sport psychology emphasizes that identity is co-constructed through social interaction. Thus, dietary change can become part of an athlete's professional self-concept—or, conversely, a source of perceived social isolation.

Behaviorally, adherence is facilitated by routinization, environmental structuring, and cognitive simplification. Simplified food choices, predictable vendor options, and pre-planned strategies reduce decision fatigue. Such micro-adjustments may determine whether dietary interventions are sustainable during congested academic and competition periods.

Sociocultural Context and Team-Based Practice

Nutrition research often abstracts dietary behavior from its cultural context. Yet food practices are embedded within social norms, economic access, and institutional rhythms. In Malaysia, carbohydrate-rich staples carry cultural familiarity and affordability. Hawker-center culture emphasizes shared, communal eating experiences. For university athletes with limited budgets and restricted kitchen access, implementing KD may entail financial, logistical, and social costs.

Team sport further intensifies these dynamics. Shared post-practice meals, travel catering, and standardized recovery snacks reflect collective planning. When athletes deviate from normative dietary patterns, coordination and communication become necessary. These negotiations may affect perceived inclusion and support.

The biopsychosocial model provides a useful integrative lens. Athletic experience emerges from interactions among physiological processes, psychological interpretation, and social environment. Rather than isolating metabolic adaptation from social negotiation, this framework situates dietary practice within the broader ecology of team sport.

A phenomenological approach complements this framework by emphasizing lived experience—how athletes describe bodily sensations, emotional fluctuations, and relational dynamics over time. Through this lens, KD is understood not merely as a macronutrient prescription but as a socially embedded practice that intersects with identity, climate, schedule density, and team culture.

Section Summary

Existing literature offers substantial insight into metabolic adaptation but limited understanding of how ketogenic dieting is lived within high-intensity team sports in carbohydrate-dominant cultural environments. By integrating physiological debates with psychological theory and sociocultural context, the present study positions KD as a context-dependent practice rather than a universal performance solution.

Methodology

Research Design

This study employed a qualitative phenomenological design to explore the lived experiences of male collegiate basketball players undergoing a ketogenic diet (KD) intervention. A phenomenological approach was selected because the aim was not to quantify physiological outcomes but to understand how athletes perceived bodily, psychological, and social changes during dietary adaptation.

Rather than testing causal hypotheses, the study sought to capture meaning-making processes—how athletes interpreted fatigue, energy stability, performance shifts, and team

dynamics over time. This interpretive orientation allowed dietary practice to be examined within its natural sporting and cultural context.

Research Context

Fieldwork was conducted in Petaling Jaya, Malaysia, within a university-based men's basketball program. Training schedules included structured on-court sessions, conditioning work, and competitive fixtures during the data collection period. The local dietary environment is characterized by carbohydrate-dominant food culture, with rice and noodle-based meals forming the foundation of most affordable campus and hawker-center options. The climatic conditions of Malaysia (high humidity and heat) were also considered relevant, as hydration, electrolyte balance, and recovery demands interact with dietary shifts.

Participants and Sampling

A purposive sampling strategy was adopted to recruit participants who:

- Were active male university-level basketball players
- Voluntarily undertook a ketogenic diet intervention period
- Maintained regular training participation during the study

Participants varied in playing position, rotation status, and training load exposure to ensure experiential diversity. Inclusion criteria required a minimum continuous period of ketogenic adherence to allow meaningful reflection on adaptation phases.

Recruitment emphasized voluntary participation and informed consent. Pseudonyms were assigned to ensure confidentiality.

Ketogenic Diet Implementation

Participants followed a structured ketogenic dietary framework characterized by:

- High fat intake
- Moderate protein intake
- Very low carbohydrate intake

Dietary guidance was provided at the outset to ensure clarity regarding macronutrient targets and food selection strategies. However, implementation occurred within real-world campus and training environments rather than laboratory-controlled conditions. Athletes were responsible for sourcing food within their daily routines.

This ecological implementation was intentional, allowing examination of practical feasibility rather than idealized compliance under controlled feeding conditions.

Data Collection

Data were collected over a multi-week fieldwork period through:

(1) Semi-Structured In-Depth Interviews

Each participant engaged in interviews lasting approximately 45–60 minutes. Interviews explored:

- Early adaptation experiences
- Perceived physical and cognitive changes
- Training and performance reflections
- Social and team-related dynamics
- Coping strategies and sustainability perceptions

Interviews were conducted either in person or online, depending on participant availability.

(2) Contextual Questionnaire

A short background questionnaire captured contextual variables such as:

- Playing role
- Training load
- Living and meal preparation arrangements

This contextual information supported interpretive triangulation.

Interviews were audio-recorded and transcribed verbatim to preserve linguistic nuance.

Data Analysis

Data were analyzed using thematic analysis informed by phenomenological principles.

Analysis followed iterative stages:

1. Familiarization with transcripts
2. Initial coding focused on experiential descriptions
3. Development of thematic clusters
4. Refinement of themes to ensure internal coherence and external distinction

Coding prioritized participants' language to minimize over-interpretation. Themes were not imposed deductively but emerged inductively through repeated engagement with the data.

The analytic process emphasized three domains:

- Bodily adaptation
- Psychological regulation
- Social negotiation

This structure allowed integration of physiological perception with psychosocial context.

Trustworthiness

To enhance credibility and rigor:

- Reflexive notes were maintained during data collection
- Limited member feedback was sought to confirm interpretive accuracy
- An audit trail documented analytic decisions

Transferability is context-bound. Findings are situated within Malaysian collegiate basketball and may differ in alternative institutional or cultural environments. However, detailed contextual description allows readers to assess applicability to comparable settings.

Ethical Considerations

Ethical approval was obtained from the relevant university review authority prior to data collection. Participants were informed of:

- Voluntary participation
- The right to withdraw at any stage
- Confidential handling of all data

No personal identifiers are disclosed in this publication.

Findings

The analysis revealed that athletes' experiences with the ketogenic diet (KD) were not linear. Instead, the process was characterized by phased adaptation and contextual dependency.

Four interrelated themes emerged from the data:

1. Physiological Disruption and Recalibration

2. Reinterpreting Energy and Performance
3. Social Negotiation Within a Team Culture
4. Self-Regulation and Identity Reconstruction

Together, these themes describe how KD was experienced, negotiated, and integrated within a collegiate basketball environment.

Theme 1: Physiological Disruption and Recalibration

Early Adaptation Instability

During the initial implementation phase, most participants described a noticeable period of bodily instability. Common experiences included:

- A sensation of heaviness in the legs
- Mild shakiness prior to training sessions
- A perceived reduction in explosiveness
- Earlier onset of fatigue during high-intensity drills

Several athletes indicated that the first one to two weeks were the most challenging, particularly during competitive scrimmages and full-court defensive drills. The issue was rarely described as an inability to train; rather, participants expressed that their bodies “did not feel normal.” This shift in bodily perception triggered temporary doubt regarding the dietary choice.

However, this instability did not persist. After approximately two to four weeks, most participants reported progressive adaptation, including:

- A sense of physical lightness associated with body mass reduction
- Greater steadiness during moderate-intensity workloads
- Perceived improvements in post-training recovery time

The transition from disruption to recalibration formed the structural foundation of the overall dietary experience.

Electrolyte Awareness and Hydration Sensitivity

Given Malaysia’s hot and humid climate, electrolyte management became a critical variable. Several participants emphasized that insufficient salt intake significantly affected training quality. Salt supplementation was described as “almost like equipment—if forgotten, the session felt compromised.”

This heightened awareness of hydration and electrolyte balance was a recurring experiential detail and appeared particularly salient under tropical environmental conditions.

Theme 2: Reinterpreting Energy and Performance

From Explosiveness to Stability

Participants did not uniformly report overall performance enhancement. Instead, many described a qualitative shift in how energy was experienced.

During early stages, some athletes perceived reduced explosiveness, especially in:

- Fast-break transitions
- Repeated sprint sequences
- High-intensity defensive coverage

With continued adaptation, however, participants increasingly emphasized:

- More stable energy levels throughout training
- Fewer episodes resembling “energy crashes”

- Sustained concentration during longer practice sessions

This transformation did not necessarily represent an absolute performance improvement. Rather, it reflected a shift in performance characteristics—from rapid glycolytic bursts toward steadier energy output.

Cognitive Clarity and Emotional Regulation

Multiple participants reported experiencing greater mental clarity once dietary routines stabilized. Descriptions included:

- Improved focus during tactical discussions
- Enhanced decision-making awareness
- Reduced mood fluctuation

Although these subjective perceptions were not quantitatively verified in this study, they emerged consistently across interviews and formed a central component of positive evaluations of the diet.

Theme 3: Social Negotiation Within a Team Culture

Eating as a Social Practice

Within the Petaling Jaya university context, team meals functioned as routine social rituals. Rice and noodle-based dishes represented the normative default. When certain athletes declined staple carbohydrates, subtle social tensions occasionally emerged.

Common situations included:

- Teammates questioning dietary choices
- The need to order food separately
- Reduced participation in shared meal practices

While no overt conflict was reported, several participants described mild initial discomfort when deviating from collective eating norms.

Identity Signaling and Professional Perception

Over time, however, this deviation evolved into a form of identity signaling. Some teammates began interpreting dietary discipline as an indicator of:

- Commitment
- Professional seriousness
- Enhanced self-management

What initially appeared as difference gradually became associated with professionalism. Dietary behavior thus shifted from social divergence to symbolic representation of athletic discipline.

Theme 4: Self-Regulation and Identity Reconstruction

Routine Simplification and Behavioral Structure

The ketogenic diet required participants to reduce spontaneous food choices. Eating routines became structured and deliberate:

- Reliance on limited food options
- Pre-planned meal strategies
- Avoidance of unplanned purchases

This simplification reduced decision fatigue and strengthened perceived self-control. Several athletes noted that the discipline cultivated through dietary structure extended into other domains, including:

- Sleep management
- Training punctuality
- Time organization

Dietary regulation therefore functioned as part of a broader self-regulatory framework.

Sustainability and Contextual Strategy

Not all participants intended to maintain KD long term. Most described it as:

- A temporary experiment
- A body composition management strategy
- A preseason or transitional phase tool

Sustainability was perceived as dependent upon:

- Competition density
- Financial cost
- Team-level support

Thus, KD was framed not as a permanent identity but as a context-dependent strategic intervention.

Summary of Findings

The findings do not support a single, universal conclusion regarding ketogenic dieting in collegiate basketball. Instead, athlete experiences were characterized by:

- Initial physiological disruption
- Gradual recalibration
- Shifts in perceived performance characteristics
- Social negotiation within team culture
- Reconstruction of discipline and athletic identity

The ketogenic diet emerged not merely as a metabolic intervention but as a biopsychosocial practice shaped by environmental, relational, and individual factors.

Discussion

Ketogenic Adaptation as a Phased and Context-Dependent Process

The present findings suggest that ketogenic adaptation among collegiate basketball players is neither immediate nor uniform. Instead, it unfolds as a staged recalibration process shaped by physiological, environmental, and psychological variables.

Early instability—characterized by heaviness, perceived explosiveness reduction, and fatigue fluctuation—aligns with established accounts of short-term carbohydrate restriction during metabolic transition. However, unlike laboratory-controlled endurance settings, these athletes were embedded within high-intensity, intermittent team sport demands. The instability phase therefore carried greater perceived performance risk.

Importantly, adaptation was not simply metabolic. Athletes described a gradual reinterpretation of bodily signals. What was initially framed as “weakness” was later reframed as “different energy distribution.” This supports the argument that performance perception is mediated by interpretive processes rather than biochemical shifts alone.

Thus, ketogenic dieting in team sport should not be conceptualized as a binary success–failure intervention, but as a dynamic adjustment period requiring contextual sensitivity.

Reframing Performance: Stability Over Glycolytic Burst

One of the most salient findings was the shift from explosiveness-centered evaluation to stability-centered evaluation. Participants did not uniformly report enhanced peak power. Instead, they emphasized:

- Reduced perceived energy crashes
- Greater concentration endurance
- More predictable energy throughout sessions

In glycolytically demanding sports such as basketball, this trade-off raises a critical applied question: is performance optimization defined by peak output or sustainable output?

While laboratory research often prioritizes maximal power metrics, athletes' lived experiences suggest that perceived stability may carry equal importance in training environments. This distinction highlights the divergence between physiological performance indices and athlete-centered performance meaning.

The findings therefore invite a more nuanced framework in which nutritional interventions are evaluated not solely by peak output measures, but by experiential sustainability within real training cycles.

Social Belonging and Dietary Autonomy in Team Contexts

The data also illuminate the social dimension of dietary implementation. In the Malaysian collegiate setting, shared carbohydrate-based meals function as a routine bonding mechanism. Divergence from such norms initially created subtle relational tension.

This aligns with principles from self-determination theory, particularly the tension between autonomy and relatedness. While athletes exercised dietary autonomy, they simultaneously navigated the need for social belonging within a tightly knit team structure.

Interestingly, over time, dietary deviation evolved into symbolic professionalism. Teammates began to interpret nutritional discipline as commitment rather than nonconformity. This transformation suggests that dietary practices can shift from socially disruptive to socially valorized depending on duration, communication, and visible self-regulation.

Thus, successful implementation of specialized diets in team sports may depend not only on physiological adaptation, but on social normalization processes.

The Biopsychosocial Nature of Dietary Practice

The findings strongly support a biopsychosocial interpretation of ketogenic dieting in sport. Athletes' experiences emerged from the interaction of:

- Physiological adaptation (fat oxidation, hydration sensitivity)
- Psychological interpretation (energy reframing, confidence shifts)
- Social negotiation (team meals, identity signaling)

None of these dimensions operated independently. For example, electrolyte sensitivity was amplified by tropical climate conditions, which in turn influenced subjective fatigue. Similarly, dietary structure reinforced self-discipline, which extended into sleep and training routines. This integrative pattern challenges reductionist performance nutrition models that isolate macronutrient ratios from social environment. Instead, nutritional practice should be

conceptualized as embedded within ecological systems of training culture, climate, economic access, and identity construction.

Sustainability and Strategic Use Rather Than Permanent Identity

Participants did not frame the ketogenic diet as a lifelong commitment. Rather, it was positioned as a strategic phase—useful for body composition management, preseason preparation, or experimental self-assessment.

This finding has practical implications. In high-intensity intermittent sports, strict long-term carbohydrate restriction may not be universally desirable or necessary. Instead, cyclical or context-specific application may align more realistically with athlete goals and competition density.

Importantly, sustainability was perceived as contingent upon:

- Competition schedule intensity
- Financial accessibility
- Team-level understanding

Therefore, implementation feasibility must be evaluated not only nutritionally, but structurally.

Practical Implications

For coaches and sport educators:

1. Expect an adaptation period of perceived instability lasting approximately two to four weeks.
2. Monitor electrolyte management carefully in hot climates.
3. Communicate clearly with teams to reduce social misunderstanding.
4. Evaluate performance beyond peak power metrics, including energy stability and cognitive clarity.

For athletes:

- Gradual transition and environmental preparation appear critical.
- Social communication reduces perceived isolation.
- Viewing dietary change as strategic rather than permanent may enhance adherence.

Study Limitations

Several limitations warrant acknowledgment:

- The qualitative design prioritizes depth over generalizability.
- Self-reported performance perception may diverge from objective metrics.
- The sample was limited to male collegiate players in Petaling Jaya.
- Environmental heat may uniquely shape hydration-related findings.

Future research may combine physiological monitoring with phenomenological inquiry to integrate measurable and experiential outcomes.

Conclusion

This study explored the lived experiences of male collegiate basketball players in Petaling Jaya, Malaysia, who implemented a ketogenic diet within an active team-sport environment. Rather than evaluating the diet solely through physiological metrics, the research foregrounded athlete perception, contextual adaptation, and social negotiation.

The findings indicate that ketogenic implementation in high-intensity intermittent sport is not a uniform performance-enhancing strategy, but a phased and context-dependent process. Participants initially experienced physiological instability, including perceived reductions in explosiveness and fluctuations in energy. Over time, however, many reported recalibration characterized by steadier energy distribution, enhanced perceived focus, and structured self-regulation.

Importantly, the ketogenic diet did not operate purely at a metabolic level. It functioned simultaneously as:

- A bodily adaptation process
- A psychological reframing of performance meaning
- A socially negotiated practice within team culture

Within the Malaysian collegiate context, where carbohydrate-dominant dietary norms shape communal eating practices, dietary deviation required social adjustment. Over time, however, disciplined adherence was often reinterpreted as professionalism rather than nonconformity. This shift underscores the relational dimension of performance nutrition in team settings.

The study further suggests that ketogenic dieting in basketball may be better conceptualized as a strategic, situational intervention rather than a permanent nutritional identity. Sustainability appeared contingent upon competition schedule density, environmental heat, financial feasibility, and team-level understanding.

From a broader perspective, these findings contribute to sport nutrition literature by emphasizing the biopsychosocial nature of dietary practice. Nutritional strategies cannot be fully understood without accounting for environmental climate, team culture, identity construction, and athlete interpretation of bodily signals.

Future research may integrate qualitative insights with physiological monitoring to examine how subjective energy perception aligns with measurable performance indices. Additionally, comparative studies across different climates, competition levels, and gender groups would further clarify contextual boundaries of ketogenic implementation in team sports.

In conclusion, the ketogenic diet in Malaysian collegiate basketball emerged not as a universal performance solution, but as a context-sensitive, identity-shaping practice whose effectiveness depends on timing, environment, and athlete meaning-making. Understanding these dimensions is essential for coaches, educators, and sport practitioners seeking to apply nutrition strategies responsibly within real-world training systems.

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