

Training the Physical Demands of Rugby Union On-Pitch in a Part-Time Environment

Introduction

Rugby Union is a physically intensive sport that requires a combination of speed, strength, endurance, and tactical understanding. Players must excel not only in physical fitness but also in technical skills and tactical thinking to perform effectively (Benjamin T. Pollard et al.). This paper explores the critical physical requirements, effective on-pitch training methods, and strategies emphasising tactical and technical work alongside the physical demands.

Physical Demands of Rugby Union

The sport of Rugby Union requires a range of fitness characteristics, such as strength, power, speed, and aerobic fitness, to perform well and meet its demands. Players have different physical traits, including height, weight, and body composition, which help them full-fill the requirements of their specific positions on the team.

Numerous studies have shown that fitness and physical characteristics vary greatly depending on the player's position within the team. In general, forwards have a greater emphasis on body mass and strength to scrummage with more force, tolerate more collisions, and gain and retain possession of the ball. Meanwhile, backs typically have less body mass, a more efficient lean-to-fat ratio, and a greater emphasis on speed and ability to utilise possession effectively and create scoring opportunities in more open spaces (Logan Posthumus et al.).

The game itself is composed of collisions and intermittent exercise, where short periods of maximal or high intensity activity (e.g., sprinting, tackling, rucking, scrummaging, mauling) last between 5 and 15 s, interspersed with activity of lower intensities (e.g., standing, walking, jogging) of up to 40 s (Duthie, G et al.) During a game, players will generally cover approximately 6500 to 7500 m, with an average heart rate around 172 bpm (Cunniffe, B et al.)

There are multiple ways to train for the physical demands of Rugby Union, depending on the equipment and facilities available. In professional settings, players often use GPS devices that provide insights into in-game demands, helping coaches understand what is required from players and establish physical standards to work towards. Only two studies have attempted to quantify the physical demands of international rugby using Global Positioning Systems (GPS). This method allows the measurement of in-game movement patterns and velocities while also monitoring these metrics during training sessions. This capability enables coaches to match or exceed match-play demands, providing a physical and tactical stimulus likely to positively transfer to competition. Optimising physical and fitness characteristics for the individual may allow players to execute skill and tactical attributes with even greater success (Smart, D).

Tactical and Technical Work

Tactical understanding and technical skills are fundamental in Rugby Union. Incorporating game-specific technical and tactical aspects into training enhances players' performance.

- **Set-Piece:** Repeating the required or planned scrums, line outs, and kick-offs helps teams succeed in upcoming fixtures.
- **Defense:** Incorporating defensive systems from the team's game plan into training, such as line speed, connections, breakdown policies, and backfield setups.
- **Attack:** Developing attacking strategies. Focus on attacking principles established by coaches and players, emphasising first-phase accuracy and then the more technical parts of the game, including passing accuracy, running lines, kicking, and attacking breakdown work regarding ball-carrying and support roles.

Game Situation Training: Game scenario training in Rugby Union focuses on replicating real-match conditions to enhance players' skills and tactical understanding. Drills such as small-sided games encourage quick decision-making under pressure, while defensive drills emphasise organisation and communication. Attack versus defence scenarios allow teams to practice set plays, fostering creativity and strategic execution. Counter-attack drills improve the transition from defence to attack, while set-piece practices refine scrumming and lineout techniques. Conditioned games target specific skills by modifying rules, and fitness integration combines stamina training with rugby skills. Overall, these training methods enhance players' abilities, preparing them for various match situations while promoting teamwork and adaptability.

Effective Training Methods

Periodisation training can be described as organising training into cycles that focus on different physical attributes helps athletes peak at the right time during the season. Adopting a periodised training model enables rugby players to systematically develop their physical, technical, and tactical capabilities while peaking at the appropriate times throughout the competition season. Each phase focuses on building from general conditioning to specific performance needs, ensuring a balance between development and recovery. Coaches and athletes should collaborate to tailor these cycles based on individual needs, injury histories, and overall team strategy. This approach ultimately aims to enhance performance. During the in-season phase of Rugby Union, tactical training volume is crucial for maintaining performance while ensuring that players remain fresh for competition. Training focus must shift to align with match schedules and the overall physical and mental demands of the season.

Training Throughout the Week

In a part-time environment, having access to Global Positioning Systems (GPS) to obtain clear data on physical performance can be expensive and is not common during Tuesday and Thursday evening trainings. Coaches and assistants must plan their sessions to meet the needs of a typical squad wanting to perform well in their next fixture while only having two training sessions a week. This will entail technical, tactical, and physical components that are required.

Planning sessions becomes highly important to enable coaches to create drills and games that incorporate skills while meeting specific or all physical demands of the game. Periodising the week to target specific physical areas is a good starting point. Key physical characteristics to cover include contact, acceleration, deceleration, high-speed running, and volume. By breaking these areas down over two sessions and addressing the demands within a rugby setting, coaches can also assist technical and tactical development.

For example, on Tuesday, focus on a more physical (contact-heavy) session addressing acceleration and deceleration. Pairing these areas is advantageous because it is easier to achieve technical goals alongside them. When training for contact, players operate in small areas with minimal space, so the

physical demands will include accelerations and decelerations to either avoid contact or succeed in it. Drills can be more phase-play oriented, minimising kicking to prevent expanding into other physical areas. As a coach, you will design practices aiming to achieve objectives aligned with physical demands. A contact-heavy session on Tuesday allows players to recover from Saturday's game.

Moving to Thursday's session, the focus should shift to high-speed running. Incorporating kicking and utilising more space allows players to achieve high speeds (past 10 meters). Interestingly, Smart et al, suggested that greater emphasis may need to be applied to speed and acceleration, especially over 10 m, due to the relationships observed with the number of line breaks, tackle breaks and tries scored, which are important game behaviours for successful phase and team outcomes.

This session should involve fewer contacts but more sprinting. Teams typically perform more cohesion work in preparation for the game two days later, so planning this aspect is crucial to meet physical demands. Theming sessions as "Physical Tuesday" and "Fast Thursday" can help players align their mindset with your expectations.

It is essential to recognise that different positions have varying physical demands. A front row player will not run the same physical loads as a fullback—props will experience significantly more physical contact, while fullbacks will accumulate more high-speed meters. Designing drills so that a forward can engage in contact situations while a back can focus on sprinting over distance is crucial. Isolated unit sessions can help achieve these objectives. Scrummaging and maul practices will be more contact-heavy while backs will focus on open-space skills and decision-making to meet high-speed requirements. Worst case scenarios (WCS) training drills or conditioning drills should align to positional differences encompassing that backs cover greater high metabolic load (HML) and high speed running (HSR), and forwards must have the capacity to repeat accelerations and collisions (Benjamin T. Pollard et al.). This can be very accurately monitored with GPS but in a part time environment this can be difficult due to expenses so trying to achieve similar movements and physical exertions is the main priority.

Effectively addressing physical requirements throughout the week can reduce player injuries and enhance team performance. After a comprehensive week of training, players can be better prepared for the demands they will face during an 80-minute rugby match, increasing their chances to excel.

Conclusion

Training for the physical demands of Rugby Union requires a comprehensive approach that balances physical fitness, technical skills, and tactical awareness. Designing the week and individual sessions is critical to achieving the physical demands of part-time players. This strategy not only helps players succeed but also reduces the risk of injury. By addressing these elements and implementing effective injury prevention strategies within training sessions, coaches can significantly enhance player performance and longevity in the sport. Ongoing advancements in sports science will continue to inform and refine training methodologies, ensuring the development of well-rounded and resilient rugby players.

References

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