Section: Original Investigation

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Abstract

Purpose: To evaluate the effects of contextual game factors on activity and physiological profiles of International-level women's Rugby Sevens players. **Methods:** Twenty international-level female Rugby Sevens players from the same national team participated in this study. Global positioning system and heart rate data were collected at five World Rugby Women's Sevens Series events (2013-2014 season). **Results:** Total running distance, moderate-speed (0.2-3.5 $m \cdot s^{-1}$) and high-speed running (3.5-5.0 $m \cdot s^{-1}$) distances were significantly greater in the first half (20.1±4.1%, 17.6±6.9%, 24.5±7.8%), during losses (11.4±6.1%, 6.1±6.4%, 26.9±9.8%), losses of large magnitudes (≥2 tries) (12.9±8.8%, 6.8±10.0%, 31.2±14.9%), and against Top 4 opponents (12.6±8.7%, 11.3±8.5%, 15.5±13.9%). In addition, total distance increased (5.0±5.5%) significantly from day one to day two of tournaments and very high-speed (5.0-6.5 $m \cdot s^{-1}$) running distance increased significantly (26.0±14.2%) during losses. Time spent between 90-100% of maximum heart rate (16.4±14.5%) and Player Load^{TM} (19.0±5.1%) were significantly greater in the second half. No significant differences in physiological or activity profiles were observed between forwards and backs. **Conclusions:** Game half, game outcome, tournament day, opponent rank and margin of outcome all affected activity profiles while game half affected physiological profiles. No differences in activity or physiological profiles were found between playing positions. Practitioners are advised to develop high-speed running ability in women's Rugby Sevens players in order to prepare players to tolerate the varying factors that impact activity profiles.

Key words: microtechnology, GPS, game outcome, high-speed running, heart rate, female athletes

Introduction

With its recent inclusion in the 2016 Olympic Games, Rugby Sevens is rapidly growing in popularity. It is a high-intensity, intermittent collision sport[1,2] and is a variation of 15-players Rugby Union. Both the laws and field size of the two games are similar but there are fewer players per side in the game of Rugby Sevens and games are shorter (14 minutes vs. 80 minutes) in duration. Rugby Sevens is played in a tournament structure with 2-3 games played per day over 2-3 days.

Recent research[3-6] has examined both the activity and physiological profiles of Rugby Sevens for both male and female players with the majority of this research examining the men's game.[4,5,7-13] Rugby Sevens has higher physical demands relative to minutes of play than in other forms of Rugby (Union and League) with relative distances of 85-120 $m \cdot min^{-1}$ covered, and work-to-rest ratios of 1.0:0.5 .[3,10] In the women's game, players cover total distances between 1150-1800m, with relative demands between 75-115 $m \cdot min^{-1}$ in just 14 min of play. Approximately 10-20% of the game is spent at high running speeds ($\sim\geq 5 m \cdot s^{-1}$) with 30-50% of that distance spent at top speed ($\sim\geq 5.6 m \cdot s^{-1}$).[5,6,12,13]Average sprint distance between 15-22 m with maximum sprints of ~55 m in length and top speeds ranging from 6.8-7.9 $m \cdot s^{-1}$ have also been observed.[5,6,13] Approximately 75-85% of the game is played at heart rates greater than 80% of maximum with around a quarter of the game spent between 80-90% of maximum heart rate, and over half the game spent above 90% of maximum heart rate.[5,6]

The majority of research performed on women's Sevens has examined domestic or national competitions such as continental championships or invitation tournaments. [5,6,13] To date, only one study has examined game activity profiles of the top tier competition in the women's game.[12] Higher level of women's competition has been shown to be associated with both greater absolute and relative game demands. Female players competing in international level competitions travel 17% greater total and relative distances in games. Average speed (+15%), peak speed (+12%), number of sprints (+75%), distance at top speed (+50%) and the distance covered in the highest speed bands (+40%) are all greater in higher level competitions[6]. Players of higher standard also perform a greater number of high-intensity accelerations and decelerations.[6,13] Physiological demands are also greater in international competition, characterized by 34% greater total time above 90% maximum heart rate.[6]

Activity and physiological profiles vary with respect to a number of contextual game factors such as; physical characteristics of the athletes, positional group, opponent rank, score line, tournament day, game half, athlete rank, athlete playing time and game outcome.[1,8,10,12-15] In men's Rugby Sevens, contextual factors have been found to affect running activity variables such as peak distance, relative distance, high-speed running distance, and the number of accelerations per minute of play.[14] To date, no research has been conducted on the effect of contextual factors on International Women's Rugby Sevens. It is important to have an understanding of top International-level competition and how the in-game profile changes with respect to game contextual factors. This information will not only inform training management of elite athletes but will support athletes in the developmental pathway of Rugby Sevens.

The aim of this study was to evaluate the activity and physiological profiles of International-level women's Rugby Sevens. Specifically, we aimed to describe the general profile of the game while also examining if differences existed in profiles between positional groups, game outcome, halves, tournament day, opponent rank and margin of victory.

Methods

Experimental Design

This study used an observational design across the five tournaments of the 2013-2014 World Rugby Women’s Sevens World Series.

Participants

Twenty international-level female Rugby Sevens players (11 backs and 9 forwards; mean ±SD, age 24.0 ± 3.6 years, height 168.4 ± 6.0 cm, mass 69.0 ± 5.0 kg) from the same national team participated in this study. The national team was a top three team in the 2013-2014 World Rugby Women’s Series standings. All players received a clear explanation of the study and written consent was obtained from all participants. Ethical approval was obtained from the Australian Catholic University Human Ethics Research Committee.

Activity and Physiological Profiles

Global positioning system (GPS) data was collected at five World Rugby Women’s Sevens Series events across the 2013-2014 season (Dubai, UAE; Sao Paulo, Brazil; Atlanta, USA; Guangzhou, China; Amsterdam, Netherlands). Players wore GPS units sampling at 10 Hz (Minimax S4, Catapult Innovations, Australia) in fitted garments worn under their playing jerseys. The validity and reliability of 10 Hz GPS microtechnology has been confirmed previously.[16] GPS units were activated and satellite lock established for a minimum of 15 minutes before each game commenced (average satellites locked during match = 12.1 ± 1.1 satellites/game). Data from the GPS units was classified into five velocity zones: low-speed: 0-0.2 $m \cdot s^{-1}$, moderate-speed: 0.2-3.5 $m \cdot s^{-1}$, high-speed: 3.5-5.0 $m \cdot s^{-1}$, very high-speed: 5.0-6.5 $m \cdot s^{-1}$ and top speed: ≥6.5 $m \cdot s^{-1}$. All activity data was reported as both absolute and relative (per minute) values. Player Load^{TM} (Catapult Innovations) was used as a measure of activity independent of distance in order to account for player accelerations in three different planes (anteroposterior, mediolateral, vertical).[17]

All players wore heart rate (HR) straps (T31, Polar Electro Oy, Finland) under their sport bras during matches that sampled at 1 Hz and were logged to the GPS device. Heart rate data was categorized into five zones (zone 1: 50-59% of heart rate max [HRmax], zone 2: 60-69% HRmax, zone 3: 70-79% HRmax, zone 4: 80-89% HRmax and zone 5: 90-100% HRmax). Maximum heart rate was determined prior to match analysis from 2 km time-trial and incremental exercise tests to exhaustion. Maximum heart rate vales were updated if tested values were exceeded during match-play. Playing data was downloaded and then analyzed using a custom spreadsheet. For both activity and physiological data, non-playing minutes (half and bench time) were omitted from the analysis along with any data for players who did not play greater than 50% of total game time and at least 4 minutes of a half. Cup finals (10 min halves) were also excluded from the analysis.

Statistical Analysis

All activity and physiological profile data is reported as mean ± SD. Percent differences in means are presented as percent difference; ±CL. A linear mixed model in statistical analysis system (SAS) (Version 9.4: SAS Institute, Cary, NC) with the performance indicators as a fixed effect, a random effect for athletes, and an interaction effect for performance indicators and athletes was employed to characterize the relationship between the performance indicators and athletes. Significant variables ($p<0.05$) were analyzed post hoc using a tukey procedure to correct for type I error in making multiple comparisons between parameters. Separate analyses were conducted for each of the following fixed effects; game half (first vs. second), playing position (forward vs. back), game outcome (wins vs. losses), tournament day (day 1 vs. day 2), opponent rank (top 4 world rank vs. bottom 4 world rank) and margin of victory or defeat (wins by ≥2 tries vs. losses by ≥2 tries). The standardized difference in the mean for contextual factors was also analyzed using Cohen's effect size statistic. Effect sizes (ES) of <0.2, 0.2-0.6, 0.6-1.2, 1.2-2.0 and >2.0 were considered trivial, small, moderate, large and very large, respectively.[18] Magnitude-based inferences were also used to assess possible differences between contextual factors using the following qualitative probabilities: <1% almost certainly not; 1% to 5%, very unlikely: 5% to 25% probably not; 25% to 75% possibly; 75% to 97.5%, likely; 97.5% to 99%, very likely; and >99%, most likely.[17] A custom Excel work sheet (Version 14, Microsoft, USA) was used to calculate effect sizes, confidence intervals and magnitude based inferences.[19]

Results

Game data

Activity and physiological profiles for full games and positional groups (n = 191 game files) are presented in Table 1, while activity profiles for game outcome and halves are shown in Table 2. Compared to the second half (n = 216 game files), the first half (n = 193 game files) was most likely moderately longer in duration (p<0.001, 11.4; ±3.4%, ES = 0.7; 90% confidence limit ±0.3, 100%/0%/0%), with most likely moderate to larger total running distances (p<0.001, 20.1; ±4.0%, ES = 1.2; ±0.8, 100%/0%/0%), distances at moderate (p<0.001, 17.6; ±6.9%, ES = 1.0; ±0.4, 100%/0%/0%) and high running speeds (p<0.001, 24.5;±7.8%, ES = 0.6; ±0.3, 100%/0%/0%) and very likely larger total Player Load^{TM} (p = 0.03, 19.0; ±5.1%, ES = 1.0; ±0.4, 96%/4%/0%). Time spent in heart rate zone 5 (90-100% HRmax) (p = 0.01, 16.4; ±14.5%, ES = 0.2; ±0.1, 87%/3%/10%) was likely higher in the second half versus the first half of play.

The effect of contextual factors on activity profiles are shown in Figure 1.

Game outcome

Total running distance ($p<0.001$, 11.4; ±6.1%, ES = 0.6; ±0.2, 100%/0%/0%) and running distances at moderate- ($p<0.001$, 6.1; ±6.4%, ES = 0.3; ±0.1, 97.5%/0%/2.5%), high- ($p<0.001$, 26.9; ±9.7%,ES = 0.7; ±0.4, 98%/0%/2%) and very high-speed ($p = 0.02$, 26.0; ±14.2%, ES = 0.7; ±0.4, 75%/2%/23%) were likely moderate to very likely larger during losses than wins (n = 191 game files).

Tournament day

A likely trivial increase in activity profiles occurred from day one to day two of the tournament for total running distance ($p<0.001$, 5.0; ±5.3%, ES = 0.1; ±0.1, 1%/99%/0%) (n = 184 game files).

Opponent rank

Total running distance ($p<0.001$, 12.6; ±8.6%, ES = 0.6; ±0.1, 100%/0%/0%) and distances covered at moderate- ($p<0.001$, 11.3; ±8.5%, ES = 0.2; ±0.1, 100%/0%/0%) and high-speeds ($p = 0.02$, 15.5; ±13.9%, ES = 0.1; ±0.1, 97%/0%/3%) were very to most likely trivial to moderately higher in games played against a top 4 opponent than a bottom 4 opponent (n = 136 game files).

Margin of victory or defeat

Total running distance ($p<0.001$, 12.9; ±8.8%, ES = 0.1; ±0.1, 61%/0%/39%) and distances covered at moderate- ($p = 0.001$, 6.8; ±10.0%, ES = 0.1; ±0.1, 51%/0%/49%) and high-speeds ($p = 0.01$, 31.2; ±14.9%, ES = 0.1; ±0.1, 72%/0%/28%) were possibly greater (trivial) when a loss was ≥2 tries compared to a win by the same margin (n = 111 game files).

Positional group

No differences in activity or physiological profiles were identified based on playing position (backs vs. forwards) (n = 191 game files).

Discussion

This study is the first to investigate the activity and physiological profiles of International-level women's Rugby Sevens and determine the effect of various contextual factors (e.g. positional group, game half, tournament day, opponent rank, game outcome and final winning or losing margin) on these profiles over an entire playing season. Activity profiles were influenced by game half, tournament day, opponent rank, game outcome and final margin. Physiological profiles were influenced by game half. These findings suggest that contextual game factors influence activity profiles to a greater extent than physiological profiles. High-speed running ability is of importance to International Women's Rugby Sevens players, suggesting that coaches and sport scientists should emphasise the development of this physical quality in their players.

A number of variables were affected by game half. The first half of women's Sevens games were characterized by greater activity demands compared to the second half with largely greater total distance and Player Loads™ and moderately greater distances at moderate and high-speed. In the second half, small increases in physiological demand was observed with time spent above 90% of maximum heart rate greater than in the first half and reflective of increasing fatigue and cardiac drift late in the game. These results are in accordance with studies on both International women's and men's Rugby Sevens players.[2,3,6,9,10] It is likely that the accumulation of fatigue in the first half, combined with a short half time interval (2 min), prevents complete recovery and results in players being unable to maintain activity levels from half to half. The accumulated fatigue and incomplete rest results in a subsequent greater physiological strain in the second half even with corresponding lower activity levels. Previous work in the same subject group has shown that measures of aerobic fitness differentiate playing minutes in elite women's Rugby Sevens[20] with repeated-sprint ability differentiating playing rank in elite men's Rugby Sevens.[21] Therefore, both a well-developed aerobic and anaerobic system appears to help International players resist fatigue during play, and improve recovery during play stoppage and half-time. This results in a better ability to maintain activity profiles from half to half, allowing players to play greater total minutes before requiring substitution.

Activity profiles were found to differ depending on tournament day. Total distance was increased on the second day of the tournament compared to day one. These results were found to be statistically significant yet the magnitude of differences were trivial, indicating that these findings are possibly of limited practical significance. Rugby Sevens is played in a tournament format where often six games are played across two days of competition. Pool play on day one re-seeds teams for day two finals competition. Tournament seeding in Rugby Sevens is such that a higher ranked team will be placed in a favorable pool position decreasing the likelihood of drawing more than one other top ranked team on day one. For the team studied, the average world rank of opponents on day one was 8th compared to a day two rank of 4th. A team can often suffer at least one defeat on day one and still compete for a top tournament placing, whereas a loss on day two will result in a lower finish and sometimes an early exit from the tournament. Countermovement jump height (as a measure of neuromuscular fatigue) and plasma creatine kinase concentrations (as an indirect measure of muscle damage) have been tracked across the course of both mens[22] (international tournament) and womens[11] (national tournament) Rugby Sevens tournaments. Peak power output and jump height during a countermovement jump were found to be suppressed from day 1 to day 2 in men but not in women. For both men and women, creatine kinase concentration was found to increase throughout the tournament. In male players, no decrement in activity profiles were found between tournament days[3] indicating that the observed neuromuscular and muscular fatigue may not be reflected in reduced game activity. In female players, an increase in creatine kinase concentration was observed with a concurrent decrease in relative and high-speed distances covered with increasing distance covered at moderate-speeds[11] even with no observable change in countermovement jump variables. This may indicate that in females, peripheral muscular fatigue may contribute to decreases in activity levels. Clearly, further research investigating the influence of tournament match-play on the activity profiles of both male and female players is warranted.

Irrespective of game outcome, games against opponents of higher rank (i.e. top four in world rankings), resulted in moderately greater activity profiles than games against teams of lower rank (i.e. bottom four in world rankings). Playing against higher ranked teams resulted in both trivially greater total distances covered, and greater moderate and high-speed running distance. These results are similar to those found in international level men's Rugby Sevens[14] where greater distance covered and number of accelerations were found when playing teams of a higher rank. While others have found differences in activity profiles between different standard competitions,[1,13] these findings demonstrate that meaningful differences in activity profiles also exist within the different tiers of the same competition. The greater total distances covered and distances at high running speeds may be a result of tactical game demands required to compete with top tier teams. It is also possible that in women's Rugby Sevens, there is a greater disparity between both the tactical and the physical abilities of top teams. These disparities may require greater activity profiles when playing against top teams in order to achieve a successful outcome.

The team in this study had a 50% win rate against top ranked teams (ranked top 4 in the world), compared to a 100% win rate against bottom ranked teams (ranked in the bottom 4 in the world). It is possible that a strategic advantage could exist for teams drawing lower ranked teams in pool play on day one and final days of day two as the physical work required to play lower ranked teams is less, in theory saving the team for more physically demanding games against higher ranked opponents.

Losing game outcomes resulted in moderately greater total distance covered, and greater distances at moderate-, high- and very high-speeds. Furthermore, total distance and moderate- and high-speed running distance were trivially greater when a game was lost by a margin of two converted tries (14 points) compared to a game won by a similar margin. In International men's Rugby Sevens high-speed running did not relate to winning margins in tournament play.[14] It was concluded that activity profiles might be affected more by the temporal relationship to game margin with higher profiles seen in games where score lines were close for extended periods of time. In Rugby League the effect of score line and winning and losing on activity profiles has been found to have equivocal results with some investigations finding greater running profiles in successful teams [23,24] with others finding lower running profiles and greater collision demands in winning teams.[25,26] In International men's Rugby Sevens, successful teams maintain ball possession, score tries efficiently and complete a high percentage of tackles whereas less successful teams commit more game errors, take longer to score and miss more tackles[27]. It is therefore possible that in international women's Rugby Sevens, efficient technical and tactical execution of the teams winning by a large margin (≥14 points) contributes to lower running activity profiles as they are able to control the game to a greater extent than teams who lose by a large margin (≥14 points). As with the men's game, it is also possible that losing women's teams miss a greater number of tackles, increasing the need for players to cover-defend and pursue opposition players, thereby increasing the amount of high-speed running.[25]

Trivial differences were found between playing positions for activity and physiological profiles, suggesting that game demands are homogenous for both backs and forwards in International women's Rugby Sevens. Physical characteristics have also been found to be similar between International women's Rugby Sevens playing positions,[28] with only mass and sprint momentum differentiating playing position, lending further support to the generalist nature of women's Rugby Sevens. The lack of differences between positional groups is unique to the women's game as in the men's game significant differences exist between positional groups for both activity profiles[10,15,29] and physical characteristics.[8] The fact that the men's game has been established as an international sport for a greater time than the women's game, may explain the higher degree of specialization in male players. The lack of positional differences in the women's Rugby Sevens players of this study may be a reflection of the evolving nature of the game in these players.

Conclusions

In women's Rugby Sevens, game half and game outcome, likely to most likely have moderate to large effects on activity profiles. Tournament day, opponent rank and margin of winning or losing all possibly to most likely affect activity profiles but in a trivial fashion. Only game half was found to have a likely small effect on physiological profiles. No differences in activity or physiological profiles were found between playing positions.

The greatest number of activity and physiological variables were affected by game half demonstrating that fatigue and lack of recovery in Rugby Sevens can lead to decreased movement ability and increased physiological strain in the second half of game play. This fatigue appears to be transient as activity levels increase as tournament play progresses, indicating that pacing might occur in earlier tournament games as players attempt to preserve energy for games of a higher standard that occur as the tournament progresses. This is supported by the findings of increased activity when playing against higher (top 4 world ranking) versus lower ranked (bottom 4 world rankings) opponents.

Game outcomes as well as the margin of outcome resulted in greater running distances at higher speeds; in women's Rugby Sevens losing teams have to run more at high-speed, most likely as a result of the quality of opponent and their own technical and tactical execution of play.

Practical applications

High-speed running is the most common variable found to be linked to a number of contextual game factors in women's Rugby Sevens. It would be well advised for coaches and sport science practitioners to focus on enhancing this ability in women Rugby Sevens players. Also, as physiological and activity profiles change through the course of a game, training designed to replicate these changes would help prepare Sevens players for the in-game changes in activity and physiological strain. Talent identification and transfer programs should consider measuring high-speed running ability when assessing athletes for the sport of women's Rugby Sevens.

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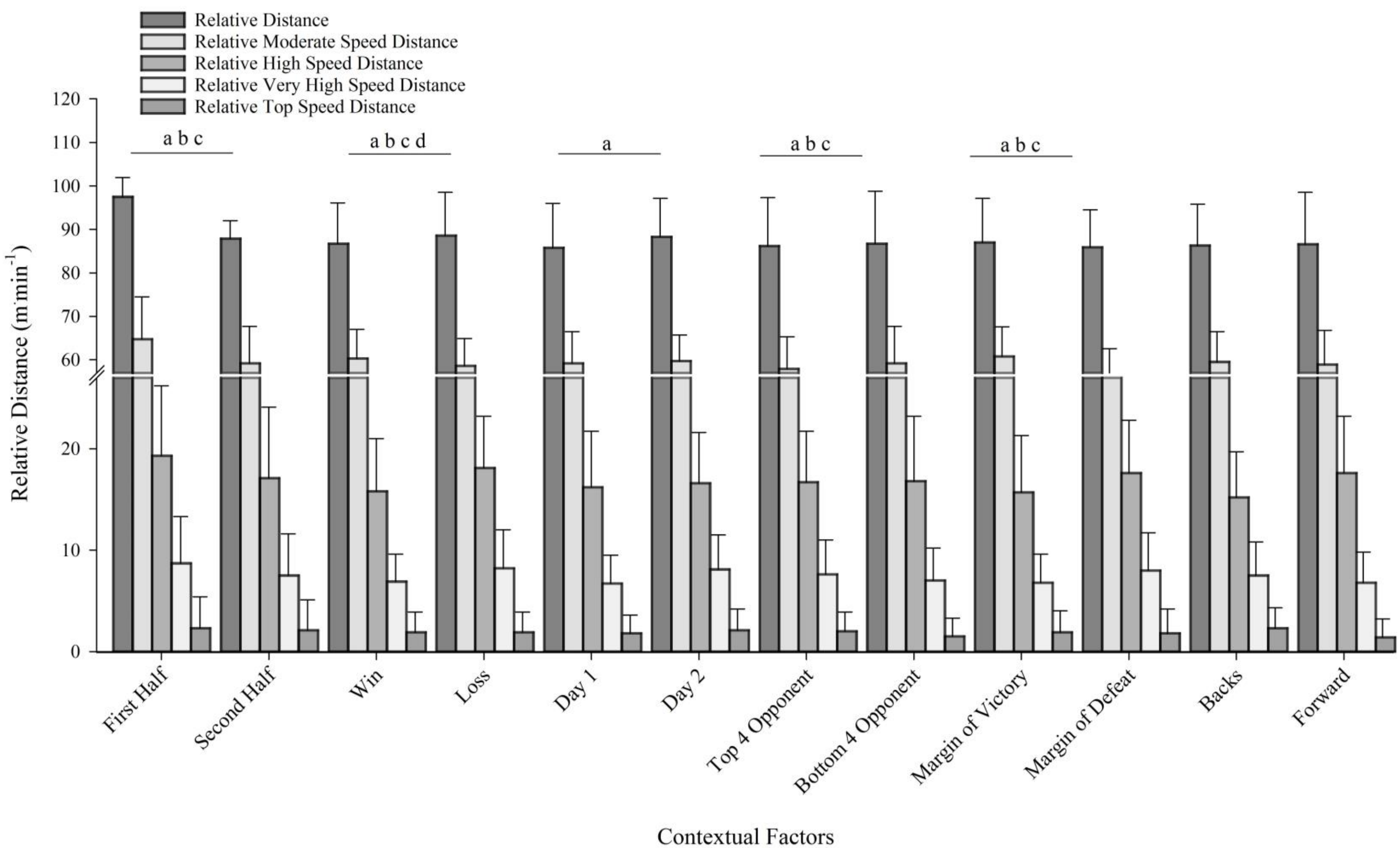

Figure 1. Differences in total, moderate, high, very high and top speed relative distances across multiple contextual factors for International Women's Rugby Sevens.

a: significant difference ($p<0.05$) in total distance, b: significant difference ($p<0.05$) in moderate speed distance, c: significant difference($p<0.05$) in high speed distance, d: significant distance ($p<0.05$) in very high speed distance

Low-Speed 0-0.2 $m\cdot s^{-1}$, Moderate-Speed 0.2-3.5 $m\cdot s^{-1}$, High-Speed 3.5-5.0 $m\cdot s^{-1}$, Very High-Speed 5.0-6.5 $m\cdot s^{-1}$, Top Speed $\geq$6.5 $m\cdot s^{-1}$

Table 1. Activity and physiological profiles for international-level female Rugby Sevens players competing in the 2013-2014 World Rugby Women's Sevens World Series.

Variable	**Full Game N = 191**	**Backs N = 103**	**Forwards N = 88**
Mean Heart Rate (% of max)	88 ± *4*	87 ± *3*	87 ± *5*
Mean Heart Rate (beats·m^{-1})	170 ± *8*	170 ± *7*	169 ± *8*
Heart Rate Zone 1·min^{-1}(%)*	1 ± *1*	1 ± *1*	1 ± *1*
Heart Rate Zone 2·min^{-1}(%) *	2 ± *3*	2 ± *3*	2 ± *4*
Heart Rate Zone 3·min^{-1}(%)*	10 ± *7*	11 ± *70*	9 ± *8*
Heart Rate Zone 4·min^{-1}(%)*	40 ± *16*	38 ± *14*	39 ± *18*
Heart Rate Zone 5·min^{-1}(%)*	49 ± *21*	49 ± *18*	50 ± *24*
Total Distance (m)	1352 ± *306*	1377 ± *280*	1325 ± *332*
Relative Distance (m·min^{-1})	87 ± *11*	86 ± *9*	87 ± *12*
Max Velocity (m·s^{-1})	6.9 ± *0.8*	7.1 ± *0.7*	6.7 ± *0.7*
Low-Speed Distance (m)	29 ± *14*	28 ± *13*	30 ± *14*
Relative Low-Speed Distance (m·min^{-1})	2 ± *1*	2 ± *1*	2 ± *1*
Moderate-Speed Distance (m)	926 ± *214*	949 ± *201*	900 ± *225*
Relative Moderate-Speed Distance (m·min^{-1})	59 ± *7*	59 ± *7*	59 ± *8*
High-Speed Distance (m)	255 ± *94*	241 ± *80*	269 ± *105*
Relative High-Speed Distance (m·min^{-1})	16 ± *5*	15 ± *5*	18 ± *6*
Very High-Speed Distance (m)	112 ± *51*	119 ± *50*	104 ± *50*
Relative Very-High Speed Distance (m·min^{-1})	7 ± *3*	8 ± *3*	7 ± *3*
Top Speed Distance (m)	38 ± *31*	38 ± *34*	31 ± *26*
Relative Top Speed Distance (m·min^{-1})	2 ± *2*	2 ± *2*	2 ± *2*
Player Load ™(AU)	144 ± *34*	147 ± *36*	141 ± *34*
Player Load ™ min^{-1}(AU·min^{-1})	9 ± *1*	9 ± 2	9 ± *1*

Data are Mean ± SD. Heart Rate Zone 1 50-59% HRmax, Heart Rate Zone 2 60-69% HRmax, Heart Rate Zone 3 70-79% HRmax, Heart Rate Zone 4 80-89% HRmax, Heart Rate Zone 5 90-100% HRmax, Low-Speed 0-0.2 m·s^{-1}, Moderate-Speed 0.2-3.5 m·s^{-1}, High-Speed 3.5-5.0 m·s^{-1}, Very High-Speed 5.0-6.5 m·s^{-1}, Top Speed ≥6.5 m·s^{-1}

* due to rounding % HR may not add to 100%

Table 2. Activity profiles for game halves and outcome for international-level female Rugby Sevens players competing in the 2013-2014 World Rugby Women's Sevens World Series.

Variable	**First Half N = 193**	**Second Half N = 216**	**Effect Size (±CL)**	**Qualitative Outcome**	**Wins N = 125**	**Losses N = 66**	**Effect Size (±CL)**	**Qualitative Outcome**
Total Distance (m)	776 ± *118*	640 ± *180**	1.2 ± 0.8	Moderate	1312 ± *290*	1455 ± *294***	0.6 ± 0.2	Moderate
Max Velocity ($m \cdot s^{-1}$)	6.6 ± *0.9*	6.5 ± *0.8*	0.1 ± 0.3	Trivial	6.9 ± *0.8*	7.0 ± *0.7*	0.1 ± 0.6	Trivial
Low-Speed Distance (m)	15 ± *10*	14 ± *9*	0.1± 0.3	Trivial	28 ± *14*	30 ± *12*	0.1± 0.3	Trivial
Moderate-Speed Distance (m)	518.3 ± *92*	429.2 ± *125**	1.0± 0.4	Moderate	913 ± *208*	964 ± *204***	0.3± 0.1	Small
High-Speed Distance (m)	154 ± *57*	124 ± *59**	0.6± 0.3	Moderate	237 ± *87*	295 ± *97*	0.7± 0.4	Moderate
Very High-Speed Distance (m)	69 ± *36*	54 ± *31*	0.1± 0.3	Trivial	104 ± *42*	133 ± *59***	0.7± 0.4	Moderate
Top Speed Distance (m)	18 ± *23*	15 ± *22*	0.1± 0.2	Trivial	30 ± *31*	31 ± *34*	0.1± 0.2	Trivial
Player Load ™(AU)	84 ± *18*	69 ± *20**	1.0 ± 0.4	Moderate	140 ± *34*	144 ± *34*	0.1 ± 0.4	Trivial

Data are Mean±*SD*, Low-Speed 0-0.2 $m \cdot s^{-1}$, Moderate-Speed 0.2-3.5 $m \cdot s^{-1}$, High-Speed 3.5-5.0 $m \cdot s^{-1}$, Very High-Speed 5.0-6.5 $m \cdot s^{-1}$, Top Speed ≥6.5 $m \cdot s^{-1}$

* denotes a significant difference between halves

** denotes a significant difference between outcome