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Research article

Physical, Physiological and Perceptual Match Demands of Amateur Mixed Gender Touch Players

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Abstract
The purpose of this study was to provide a position specific (middle, link [male], link [female], wing) analysis of mixed gender touch on the physical physiological and perceptual demands of amateur players during match-play across a season. Distance and speed measures were obtained through the use of 10-Hz global positioning system devices, whilst telemetric heart rate devices were used determine a range of physiological measures. Players also provided a rating of perceived exertion following each match. The greatest physical demand was associated with the middle playing position by comparison to all others (Distance travelled ≥5.00 $m{\cdot}s^{-1}$ effect size [ES]: 0.01-0.13; average distance ≥5.00 $m{\cdot}s^{-1}$ ES: 0.11-0.38). Those playing as a middle also displayed a greater physiological (Mean heart rate ES: 0.05-0.13) and perceptual demand (rating of perceived exertion ES: 0.01-0.04). However, most measures reported only a trivial effect between each playing position. The findings provide an insight into the differing demands associated with the different playing positions within mixed gender touch which practitioners can use to provide more position-specific conditioning programs.

Key words: Team sport, high-intensity, heart rate, GPS

Introduction

There are notable differences to touch in comparison to other rugby codes which may impact on the physical demands of players and as such the associated training practices. The most noticeable is the lack of high-impact collisions, with a touch deemed to be any contact between a defender and player in possession of the ball with a minimal amount of applied force (Federation of International Touch, 2013). Matches are also performed on a smaller field (70 x 50 m), with only a maximum of 6 players per team on the field (Federation of International Touch, 2013). Another distinctive difference to most other rugby codes is the unlimited substitutions rule which allows for numerous periods of off-field recovery for each player (Beaven et al., 2014).

Previously it has reported that the number of substitutions (or in other words the number of bouts performed during a match) per player during a match ranges from 9-12 (Beaven et al., 2014; Ogden, 2010). This same research reported that in comparison to the overall match duration, the time spent actually performing whilst on the pitch was relatively short with Beaven et al. (2014) also highlighting that each bout (time when players are performing on the field of play) only lasted between 148 ± 221 s for international male touch players. When combined, these factors reported by Beaven et al. (2014) and Odgen (2010) suggest player's complete multiple, repeated efforts in a short period of time. This was the case amongst international and regional male touch players as a mean speed of 137.1 ± 13.6 $m{\cdot}min^{-1}$ and 126.2 ± 17.2 $m{\cdot}min^{-1}$, respectively was reported, which is faster than that of professional rugby league players during match-play (Gabbett et al., 2012). Beaven et al. (2014) reported that during match-play these same touch players reached a peak of 80.6-83.5% of their maximum heart rate (HR_{max}). This physical and physiological demand imposed on touch players which occurs within the confines of a touch match and the applied rules therefore requires specialised training programs to allow coaching staff to improve the performance of their players.

As noted by Beaven et al. (2014) though, the limited information available regarding the demands associated with touch disadvantages the coaching staff when developing match-specific programs. Ogden (2010) reported on the differences in movement and playing time during mixed gender touch matches. However this was not divided into specific playing positions as has been completed in other rugby codes to highlight the different requirements of each playing position (Bloomfield et al., 2007; Waldron et al., 2011; Wisbey et al., 2010). Despite each team having a unique playing style, tradition dictates that mixed gender touch teams are typically comprised of two male middles and one male link, with females playing at the other link and both wings. By understanding the demands of each playing position within a mixed gender touch team, more specific conditioning programs can be developed. Therefore, the current study aimed to quantify and compare the physical, physiological and perceptual demands of specific playing positions during mixed gender touch.

Methods

Participants

Eight male (age: 31.6 ± 7.2 years, body mass: 78.0 ± 5.2 kg, height: 1.80 ± 0.04 m) and six female players (age: 22.7 ± 4.0 years, body mass: 67.0 ± 6.6 kg, height: 1.65 ± 0.04 m) with a minimum of 3 years playing experience volunteered to take part in the study. All were part of a regional, amateur mixed gender touch squad based in the North East region of the UK, which regularly competes in UK national touch tournaments and performed a minimum of 6 hours of skills and conditioning based training

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each week during the season. All players provided verbal and written informed consent prior to the commencement of the study. Each player was free from injury at the time of data collection. The Ethics Committee of the University of Northumbria: Newcastle upon Tyne granted ethical approval for the study.

Study design

During four national touch tournaments taking place at various times and locations throughout the summer months in the UK, the physical, physiological and perceptual demands of mixed gender touch players where measured. Overall this comprised of 20 matches with the number of players involved per match ranging from 8-12 which equated to 175 individual data points for analysis. As per the Federation of International Touch (FIT) rules (2013), 3 males and 3 females competed on the field at any one time. Participants were instructed to perform as they would during any competitive match whilst competing outdoors on dry, grass fields measuring 70 x 50 m, with an average temperature and humidity of 20.7 ± 6.7°C and 40.0 ± 9.7%, respectively. All games were played using the FIT rules (Federation of International Touch, 2013) however the duration of each match was 20 min in total (instead of 2 x 20 min halves) as per tournament regulations. Additionally, the touchdown-turnaround rule was enforced which required teams to change the direction of play following a touchdown (score). In other words, Team A is running left to right and they score a touchdown, Team B will recommence play with a tap on the half-way line but they will change direction and run left to right. Team A will now run right to left. During each tournament matches were played on a round robin basis, playing each team in a separate pool once before finishing with a final match dependant on the position each team finished based on their win/loss record.

The movement demands and characteristics of each player during all matches were recorded simultaneously via MinimaxX global positioning system (GPS) devices (MinimaxX S4, Firmware 6.70; Catapult Innovations) at a sampling frequency of 10-Hz. Previous research suggests that these devices are accurate when performing high-speed running during team-based field sports (Jennings et al., 2010; Varley et al., 2012). Each unit was turned on 20-30 min before the start of the first game and was situated between the shoulder blades of each player using a specially designed harness. Due to the long duration of the tournament, the GPS device worn by each participant was swapped following the third match with another to ensure that no loss of information took place as a result of loss of battery power. To limit inter-unit variability each participant wore the same GPS device where possible during each stage of the day across all tournaments. To ensure spurious information was not included, data was removed when a horizontal dilution of position value of greater than 5 was indicated or when the number of connected satellites was less than 5 (Elsworthy and Dascombe, 2011).

Following each tournament, data was downloaded to determine the movement demands of each participant using Catapult Sprint 5.1.5 software (Catapult Innovations, Scoresby, Australia). The same movement thresholds were used for male and female players (Clarke et al., 2017). Absolute and relative distances covered, frequency and duration of efforts completed were separated into 6 velocity thresholds: <3.33 $m{\cdot}s^{-1}$, 3.33-3.89 $m{\cdot}s^{-1}$, 3.89-5.00 $m{\cdot}s^{-1}$, 5.00-5.56 $m{\cdot}s^{-1}$, 5.56-6.67 $m{\cdot}s^{-1}$ and >6.67 $m{\cdot}s^{-1}$. Work:Rest ratio was defined as the distance covered at ≥5.00 $m{\cdot}s^{-1}$ compared to <5.00 $m{\cdot}s^{-1}$. Further to this, the number of interchanges (when players on the field off play substituted with another currently in the substitution box) and the substitution time (time spent not performing on the field of play) were also reported relative to playing time (bout time).

Notational analysis from video recordings (HDV 1080i/mini DV Handycam, Sony, Japan) from each match were used to determine the playing time of each participant which included the time on and off the field. A participant was determined to be on the field until they entered the substitution box, allowing another player to enter the playing field (Ogden, 2010). When calculating absolute and relative playing time measures only those times during a match when participants were on the field were considered. The number of substitutions made by each participant was also recorded.

Heart rate (HR) was collected simultaneously from each player using HR monitors (Polar Team^2 System, Polar Electro Oy, Kemple, Finland) that sampled at 5 s intervals throughout each match. HR data was stored within the GPS device worn by the player and download using Catapult Sprint 5.1.5 software (Catapult Innovations, Scoresby, Australia) following each tournament for analysis. Prior to the season, HR_{max} of all participants was determined following the completion to exhaustion of a Yo-Yo Intermittent Recovery Test Level 1. This allowed for HR zones to be categorised as: Zone A: 0-50% HR_{max}; Zone B: 50-60% HR_{max}; Zone C: 60-70% HR_{max}; Zone D: 70-80% HR_{max}; Zone E: 80-90% HR_{max}; Zone F: 90-95% HR_{max}; Zone G: >95% HR_{max}. Summated HR (Edwards, 1993) was also calculated based on the predetermined HR_{max} of each participant. The perceived intensity of participants for each match was quantified using Borg's CR-10 RPE scale (Borg et al., 1987).

Statistical analysis

Players were categorised into playing positions (middle, male link [$link_M$], female link [$link_F$], wing) for analysis. Players in the middle position were all male and on the wing were all female, whereas the link position was categorised between male and female. Prior to analysis a Shapiro-Wilk test was used to assess data for normality. Raw data was then log-transformed prior to analysis. Differences between the physical and physiological demands between playing positions was analysed using a one-way analysis of variance (ANOVA) for normally distributed data with the addition of Bonferroni post-hoc analysis. Statistical significance was set at $p < 0.05$. Data not normally distributed was analysed using a Kruskal-Wallis Test with post-hoc analysis completed using Mann-Whitney test and a Bonferroni correction ($p < 0.013$). To determine the magnitude between playing positions, effect size (ES) was calculated and categorised as: <0.2 trivial; 0.2-0.6 small; 0.6-1.2 moderate; 1.2-2.0 large; 2.0-4.0 very large; and >4.0 extremely large (Hopkins et al., 2009). Confidence intervals were set at 90% precision of estimation. Any ES which simultaneously crossed the ±0.2 threshold was considered unclear. All movement data during match play was reported as mean ± 90% confidence intervals (CI) for each playing position.

Results

Match characteristics

The characteristics of a touch match are presented in Table 1. For most measures no clear results were reported between playing position for playing time or the number of interchanges made during a match. Wingers *very likely* spent less time in the substitution box then those playing as a link$_M$ (ES: 0.16; 90% CI: ±0.01) whereas this was *most likely* more time than link$_F$ players (ES: 0.05; 90% CI: ±0.01). The average bout time of the middle position was *very likely* more than those playing as a link$_M$ (ES: 0.13; 90% CI: ±0.02) yet *very likely* more than link$_F$ (ES: 0.14; 90% CI: ±0.01).

Distances covered

Table 2 shows the distances covered during a touch match for each playing position. When relative to the time spent on the playing field those playing on the wing *very likely* completed significantly more distance than all other position (ES: 0.06-0.15). No clear results existed for movement <5.00 m·s^{-1} with the exception of the distance covered by middles between 3.89-5.00 m·s^{-1} when compared to link$_M$ (ES: 0.17; 90% CI: ±0.01). A significantly greater distance was covered by middle players than link$_M$ for almost all movement demands >5.00 m·s^{-1} (ES: 0.06-0.13) however, these same measures were unclear when compared to the link$_F$ and wing positions with the exception of the distance covered >6.67 m·s^{-1} when compared to the wingers (ES: 0.04; 90% CI: ±0.01).

Movement characteristics

Table 3 displays the characteristics of movement for each playing position during match-play. Those in the middle playing position *most likely* completed a significantly greater relative number of efforts ≥5.00 m·s^{-1}, specifically when compared to those playing as a link$_M$ (ES: 0.11; 90% CI: ±0.01).This was also the case for the average and maximum distance for efforts ≥5.00 m·s^{1} (ES: 0.05-0.11). The middle playing position was also characterised with the smallest work:rest ratio when compared to the link$_M$ position (ES: 0.05; 90% CI: ±0.01) however this is unclear when compared to both link$_F$ and wingers.

Table 1. Match characteristics by position (mean ± 90% CI).

	Middle	Link$_M$	Link$_F$	Wing
Match duration (min)		20 ± 2		
Playing time (min:sec)	9:57 (9:39-10:14)	8:07 (7:38-8:37)*	10:06 (9:37-10.35)*†	13:24 (12:12-14:37)*†‡
Substitution time (min:sec)	10:57 (10:32-11:21)	11:36 (10:51-12:18)*	6:26 (4:52-8:00)*†	8:18 (7:06-9:31)[bc]*
Average bout time (min:sec)	2:03 (1:58-2:10)	1:35 (1:23-1:47)[a]	2:22 (2:12-2:33)[a]†	6:07 (3:47-4:35)*†‡
# Interchanges (·h)	16 (16-17)	16 (14-17)*	13 (12-14)*†	10 (8-11)*†‡

Kruskal-Wallis test was used for average bout time and # interchanges per bout. [a] trivial ES to middle; [b] trivial ES to link [male]; [c] trivial ES to link [female]; *unclear ES to middle; †unclear ES to link$_M$; ‡unclear ES to link$_F$.

Table 2. Distances covered during match-play by position (mean ± 90% CI) relative to playing time.

	Middle	Link$_M$	Link$_F$	Wing
Absolute total distance (m)	1395 (1340-1451)	1328 (1241-1416)*	1203 (1145-1262)[a]†	1185 (1059-1311)[a]†‡
Distance during playing time (m)	739 (711-767)	548 (485-611)*	595 (566-625)*†	884 (753-1015)[abc]
<3.33 m·s^{-1} (m)	460 (441-479)	378 (329-426)*	487 (459-514)*†	758 (641-875)*†‡
3.33-3.89 m·s^{-1} (m)	107 (101-113)	63 (53-72)*	56 (49-64)*†	60 (48-72)*†‡
3.89-5.00 m·s^{-1} (m)	118 (110-126)	78 (66-89)[a]	43 (36-49)*†	47 (38-57)*†‡
5.00-5.56 m·s^{-1} (m)	24 (21-27)	17 (13-22)[a]	5 (2-8)[b]*	9 (5-12)[c]*‡
5.56-6.67 m·s^{-1} (m)	19 (17-22)	10 (6-14)[a]	3 (0-7)[b]*	5 (2-8)[c]*‡
>6.67 m·s^{-1} (m)	6 (4-8)	0 (0-0)[a]	0 (0-0)*†	2 (0-4)[abc]

Relative playing time based on playing time in Table 1. Absolute total distance not expressed relative to playing time. Kruskal-Wallis test was used 5.00-5.56 m·s^{-1}, 5.56-6.67 m·s^{-1} and >6.67 m·s^{-1}. [a]trivial ES to middle; [b]trivial ES to link [male]; [c]trivial ES to link [female]; *unclear ES to middle; †unclear ES to link$_M$; ‡unclear ES to link$_F$.

Table 3. Movement characteristics during match-play by position (mean ± 90% CI) relative to playing time.

	Middle	Link$_M$	Link$_F$	Wing
# efforts <5.00 m·s^{-1} (m)	24 (22-25)	15 (13-17)*	12 (10-13)*†	11 (9-13)[b]*‡
Average distance of efforts <5.00 m·s^{-1} (m)	6 (6-6)	6 (5-6)[a]	5 (5-5)[ab]	6 (6-7)[abc]
Maximum distance of efforts <5.00 m·s^{-1} (m)	27 (25-28)	25 (21-29)*	18 (16-20)*†	22 (19-25)[ab]‡
# efforts ≥5.00 m·s^{-1} (m)	5 (4-6)	2 (2-3)[a]	1 (0-1)[b]*	1 (1-1)[c]*†
Average distance of efforts ≥5.00 m·s^{-1} (m)	10 (9-10)	6 (5-7)[a]	2 (1-4)[b]*	4 (3-5)[bc]*
Maximum distance of efforts ≥5.00 m·s^{-1} (m)	36 (32-39)	27 (21-32)[a]	8 (3-14)[b]*	14 (9-18)[c]*†
Work: rest ratio (1:*x*)	17 (15-20)	24 (17-31)[a]	115 (78-152)*†	96 (61-131)[c]*†

Relative playing time based on playing time in Table 1. Kruskal-Wallis test was used for average distance of efforts <5.00 m·s^{-1}, # efforts ≥5.00 m·s^{-1}, average distance of efforts ≥5.00 m·s^{-1}, work:rest ratio. [a]trivial ES to middle; [b]trivial ES to link [male]; [c]trivial ES to link [female]; *unclear ES to middle; †unclear ES to link$_M$; ‡unclear ES to link$_F$.

Table 4. Physiological and perceptual demands during match-play by position (mean ± 90% CI).

	Middle	$Link_M$	$Link_F$	Wing
HR_{mean} (b·min^{-1})	151 (143-159)	145 (143-148)[a]	143 (134-152)[a]†	147 (135-151)[a]†‡
HR_{max} (b·min^{-1})	181 (172-191)	191 (185-197)[a]	190 (182-199)[ab]	181 (171-191)[abc]
Time Zone A (%)	8 (3-14)	1 (0-1)[a]	14 (3-25)[ab]	5 (0-12)[abc]
Time Zone B (%)	1 (1-2)	2 (0-3)[a]	10 (6-14)[b]*	7 (0-12)[abc]
Time Zone C (%)	11 (9-13)	17 (12-21)[a]	20 (16-23)[b]†	21 (17-26)[a]†‡
Time Zone D (%)	21 (19-23)	20 (17-23)[a]	19 (16-23)[ab]	25 (21-28)[abc]
Time Zone E (%)	23 (21-26)	20 (17-23)[a]	23 (18-27)[b]*	33 (28-38)[ac]†
Time Zone F (%)	19 (17-21)	17 (14-19)[a]	8 (4-13)[ab]	5 (3-7)[c]*†
Time Zone G (%)	13 (10-16)	24 (20-28)[a]	4 (1-7)[a]†	2 (1-2)*†
Summated HR (A.U.)	68 (65-72)	74 (71-78)[a]	53 (44-62)[ab]	55 (51-59)[c]*†
RPE (CR10)	4.5 (4.2-4.9)	3.7 (3.1-4.3)[a]	3.9 (3.5-4.4)[ab]	4.3 (3.7-4.9)[abc]

Kruskal-Wallis test was used for Time Zone A, Time Zone B, Time Zone E, Time Zone F and Summated HR. [a]trivial ES to middle; [b]trivial ES to link [male]; [c]trivial ES to link [female]; *unclear ES to middle; †unclear ES to $link_M$; ‡unclear ES to $link_F$.

Physiological and perceptual demands

The physiological and perceptual demands associated with playing position during a touch match are presented in Table 4. A greater HR_{mean} occurred during match-play for middle players in comparison to all other positions (ES: 0.05-0.13). Those playing on the wing spent the greatest time performing between 70-80%HR_{max} than all other positions (ES: 0.03-0.06) whereas those in the middle position spent more time between 90-95% HR_{max} (ES: 0.01-0.13) and the $link_M$ the greatest time >95%HR_{max} (ES: 0.08-0.11). The greatest RPE was reported amongst the middle position (ES: 0.01-0.04).

Discussion

The aim of the current study was to provide a more detailed analysis of the physical, physiological and perceptual demands associated with playing mixed gender touch with the inclusion of position-specific variables than currently exists. Broadly speaking, it appears that those playing as middle are more likely to perform at the highest physical intensity during match-play of all the playing positions when relative to playing time. It should be noted however that only trivial differences were observed between playing positions for each reported measure when not considered unclear.

Regardless of playing position, a similar absolute total distance was covered during a 20 min match. These distances are relatively similar to that previously reported by Ogden (2010) where male and female players in a mixed gender touch team (no positions specified) covered approximately 2810 m and 2780 m, respectively, during a 40 min match. Similar total absolute distances of the male players in the current study (middle and $link_M$) were also reported when compared to male players competing at a regional level within the study of Beaven et al. (2014) (2970.6 ± 558.9 m). Male playing positions in the current study also travelled a slightly greater distance when relative to the total playing time (middle: 140 m·min^{-1}; $link_M$: 164 m·min^{-1}) to that of regional male touch players (126.2 ± 17.2 m·min^{-1}) (Beaven et al., 2014). This may have been due to the shortened playing time of players in the current study. Female players however covered this distance at a slower rate by comparison to their male counterparts ($link_F$: 119 m·min^{-1}; wing: 88 m·min^{-1}). The match characteristics of wingers are somewhat representative of male regional players as reported by Beaven et al. (2014) (average bout time: 4:33 ± 6:28 min; number of bouts (interchanges): 9.2 ± 3.9) whereas all other playing positions within the current study are more typical of those competing internationally (average bout time: 2:28 ± 4:08 min). During match-play middle and link positions are typically more involved in both attacking and defensive patterns of play whereas wingers are less likely to be involved in these patterns and as such may remain on the field for longer periods of time with less involvement which may explain the greater playing time and related match characteristics when compared to previous research.

The shortened playing time of these positions may also be due to the greater activity performed ≥5.00 m·s^{-1}, particularly of those playing as middles and $link_M$. Although only a trivial effect between positions was reported for measures associated with the distance and characteristics at speeds ≥5.00 m·s^{-1} in the current study, the results revealed that the male playing positons performed more activity ≥5.00 m·s^{-1} (middle: 7%; $link_M$: 5%) when compared to the female playing positons ($link_F$: 1%; wing: 2%). Despite an unclear effect, it is interesting to also note that the middle playing position was also characterised by a greater number of efforts <5.00 m·s^{-1} of all the playing positions despite wingers covering more relative distance at these speeds. This might be explained by the greater distance covered either standing, walking or jogging by wingers when compared to the other playing positions.

Differences in the classification of activity levels (velocity thresholds) limit any direct comparison to previous touch specific studies (Beaven et al., 2014; Ogden, 2010) to that of the current study. Although it is worth noting that in each of these studies most time was also spent performing at lower-intensity activities. This disparity between low- to –high-intensity activity completed by male mixed gender touch plyers is also similar to that of other team-based field sports (Austin and Kelly, 2013; Coutts et al., 2010; Gabbett et al., 2012) as well as that of regional level male touch players (Beaven et al., 2014), suggesting these players are required to complete a considerably large number of repeated high-intensity efforts within a short period of time. The work:rest ratio of those playing as a middle or $link_M$ was more similar to that of other intermittent, team-based sports (Cunniffe et al., 2009, Gabbett and Mulvey, 2008, Suarez-Arrones et al., 2012) in comparison to their female counterparts however, when compared to previous research this was still a considerably greater ratio. Regardless of playing position however, no clear effect was reported for this measure when comparing between each position in the current study. Despite limited clear effects in the current study, it may be that those playing as a middle or linkM, require a greater emphasis on activity which exceeds 5.00 $m \cdot s^{-1}$ when developing position-specific conditioning sessions due to the greater activity performed at a higher speed, combined with a shortened time between efforts.

The inclusion of the HR responses during match-play to mixed gender touch provides further insight into the demands associated with this sport and provides information useful for coaching staff for the preparation of their athletes. Beaven et al. (2014) previously noted that the HR_{mean} of international and regional male touch players was similar to that within other rugby codes. Alongside this, the summated HR of all playing positions as well as the time spent within each HR zone in the current study are considerably lower than that reported within other team-based, field sports (Coutts et al., 2003; Suarez-Arrones et al., 2012; Waldron et al., 2011). The results of the current study though suggest that mixed gender touch players regardless of playing position perform at a lower physiological intensity by comparison to the current information available. This may be the result of the shorter match duration completed within the current study. A slightly greater HR_{mean} appears to be characteristic of those playing in the middle position when compared to the other playing positions. It is interesting to note though that those playing as a middle had a similar HR_{max} to wingers which was also slightly lower than both $link_M$ and $link_F$ Albeit a trivial difference between the playing positons, this may be due to the greater proportion of time spent performing activity exceeding $\geq$5.00 $m \cdot s^{-1}$. This may also explain the slightly greater RPE reported by middle players in comparison to the other playing positions.

Although this study provides a more detailed analysis of the physical, physiological and perceptual demands of mixed gender touch players that currently exists it should be noted that this only provides an examination of an amateur mixed gender touch squad and not that of a professional or international team. A further limitation of the current study is the structure of each tournament at which the players in the current study competed, whereby 20 min matches using the touchdown-turnaround rule were played instead of 40 min matches with no modified tap-off rules. Future research should look to quantify the physical, physiological and perceptual demands, alongside the technical/skill demands of male, female and mixed gender touch players during longer matches. The use of more global thresholds to quantify the physical and physiological demands of mixed touch players is also a limitation of the current study due to the possible discrepancies with regards to the physiological capacities of males and females. Individualised thresholds when quantifying physical and physiological demands may be more suitable for future research.

Conclusions

To conclude, this is the first study to provide a detailed comparison of the physical, physiological and perceptual demands of mixed touch players. This study has demonstrated that running demands slightly differ between the various playing positions within mixed gender touch with the middle playing position displaying the greatest physical, physiological and perceptual demand.. This would suggest that in order to best replicate match-play during training and conditioning sessions, coaching staff may need to consider these small differences in the demands and intensities of each playing position.

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Key points

- Each playing position within mixed gender touch is characterised with specific physical, physiological and perceptual demands during match-play.
- Those playing as a middle are more likely to complete activity which exceeds >5.00 m·s^{-1} which may translate into a greater physiological intensity during match-play.

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