

Differences in Impact and Load During Collegiate Rugby 7s

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ABSTRACT

Rugby 7s is a sport played with seven players, and two, 7-minute halves, played on a standard rugby field of 100 meters long by 70 meters wide. Impacts with forces greater than 10.0 Gs are an often occurrence in rugby 7s, and the occurrence can be quite frequent in such a short period of time (14 minutes of match play). Multiple matches are played in a day or throughout a weekend in tournament format thus adding to the load on players and current research on the amount of impact and load players experience is lacking in a U.S. collegiate population. **PURPOSE:** The purpose of this investigation was to assess differences in impact and load during collegiate rugby 7s matches. **METHODS:** Data was collected at Indiana University from male collegiate rugby 7s players (n = 15) by their head coach using GameTraka (Sports Performance Tracking, Victoria, Australia) during their 2019 season. Participants wore GPS units that collected data on impact and load by position groups forwards (FW), backs (BK), and scrum halves (SH). A one-way ANOVA was used to determine between group differences by each half of play with Tukey post-hoc analyses to reveal differences between positions. A two-way repeated measures ANOVA was used to determine if differences existed across matches by player position. A p-value of <0.05 was set to determine the level of statistical significance. **RESULTS:** Data analyses revealed a significant difference in number of impacts during the first half of match 1 ($p = 0.014$). Post-hoc analyses indicated FW incurred a significantly higher number of impacts than BK ($p = 0.046$), as well as more impacts than SH ($p = 0.012$). During the second half of play, the only match with a significant difference was match 5. Both summation of horizontal forces (loading 2D) as well as summation of horizontal and vertical forces (loading 3D) to the athlete revealed significant main effects. For the loading 2D and loading 3D during match 5, post-hoc analyses revealed significant differences between BK and SH at $p = 0.048$ and $p = 0.045$, respectively. In comparison of position across matches, no significant differences were found for impacts, 2D, or 3D loading. No significant differences were found across the five matches. **CONCLUSION:** This data suggests that the number of impacts is higher in the first half, with FW having significantly more impacts when compared to BK and SH. This is likely explained by task differences between FW, BK, and SH as FW are required to compete in scrums and more rucks than either BK or SH and tend to encounter contact more frequently. Differences in the second half occurred only in match 5 with SH being subjected to more forces than BK. This effect is likely a result of the positional differences as SH follow the course of play much more so than BK. This data supports that FW incur the greatest amount of collisions in rugby 7s compared to other positions also being a byproduct of the role that FW play in rugby 7s. There was no significant difference in loading and impact across matches.