

Rugby Sevens

Study of the performance model



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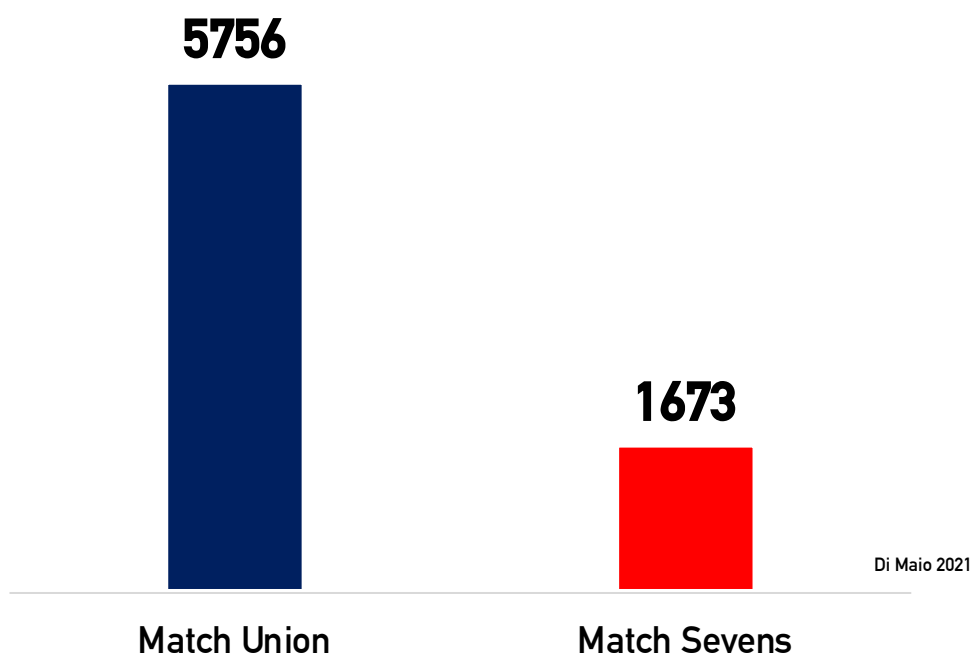
UNION - SEVENS

Almost all the players who are part of the Italian Rugby Sevens National Team play in the top Italian Rugby Union championship.

In order to train the peculiar characteristics of Sevens with greater accuracy, it is therefore very important to understand what the differences exist in Rugby Union. In this way, the peculiar characteristics of the Sevens can be trained more carefully.

The main data derived from the research on the performance model of rugby Union in the Italian championship will then be compared (complete research results: <http://rdmtraining.altervista.org/298-2/>) with those just exposed from Sevens. The first parameter covered is the distance covered in a single game:

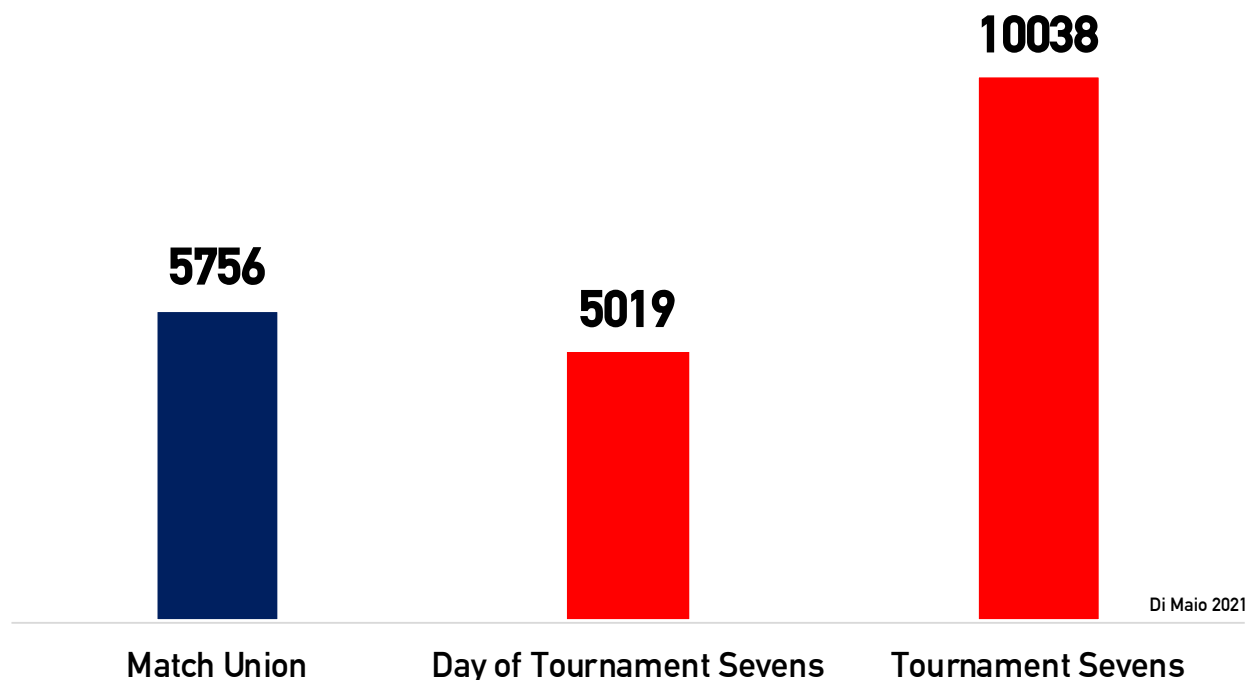
Distance



The average derived from the study of the rugby union match includes all the roles and therefore has a variability that goes from 5462 meters for the props to 6612 meters for the scrum half.

The next graphs instead compare the average daily load with the total volume in a tournament with a rugby Union match.

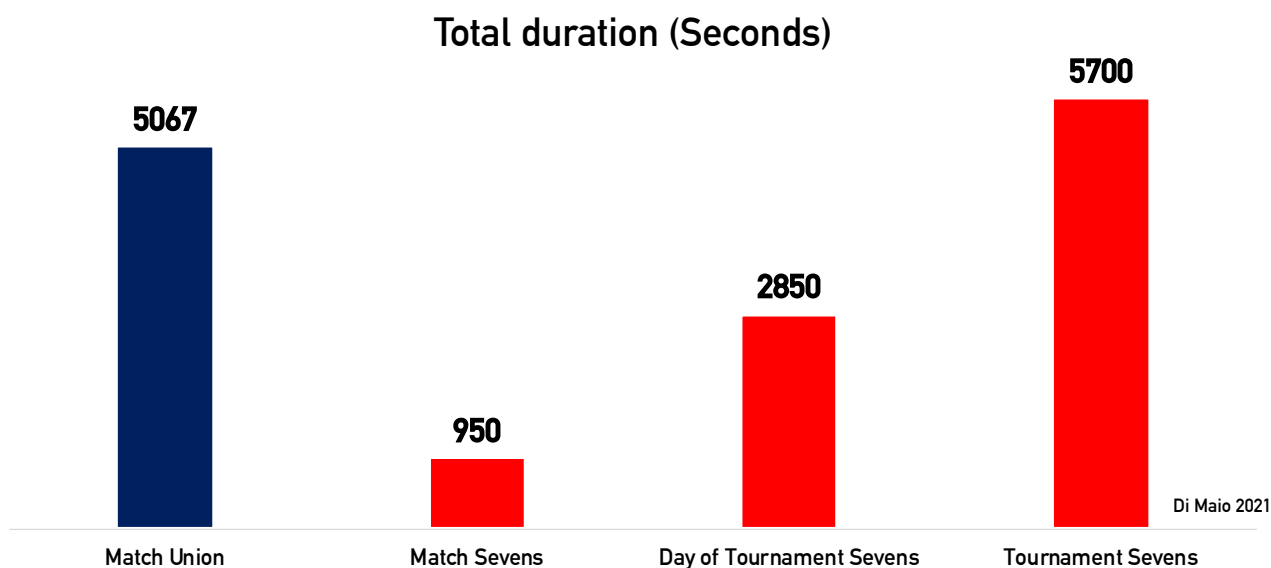
Distance



In summary, in a tournament, players travel a distance equal to 75% more than in a single rugby Union match (assuming that a player plays all the matches and all the minutes of the match).

As explained above, however, it is important to understand how long these volumes of work accumulate.

In the next graph the total time (seconds) of a single rugby union match is compared with the three times of the rugby sevens tournament (match, matchday and tournament).

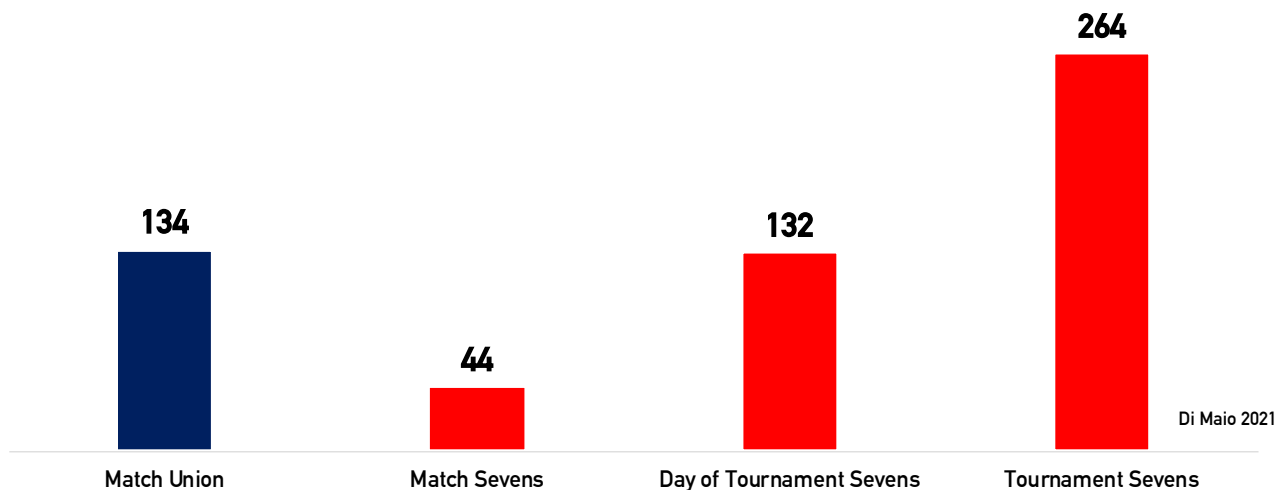


The total load exposure time in a tournament is therefore on average only 12% more than in a single match of the Italian rugby union championship.

This figure justifies the large difference in distance relative to time. In fact, being accumulated in two different times, this parameter is for the rugby union of 67 m \ min while for the sevens of 109m \ min (+ 62%).

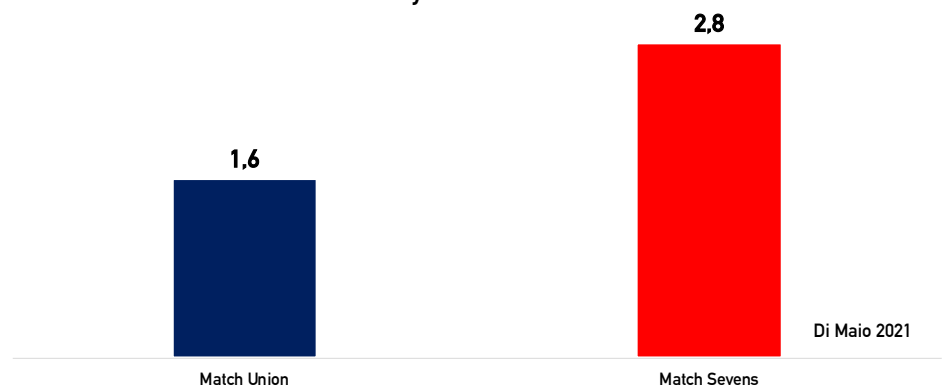
The volume of intensity, defined in this case by intense actions, shows us how the difference between the two situations investigated is even more significant. In fact, considering the totality of the Sevens tournament, the players on average perform 97% more actions above 20Watt.

Intense Actions



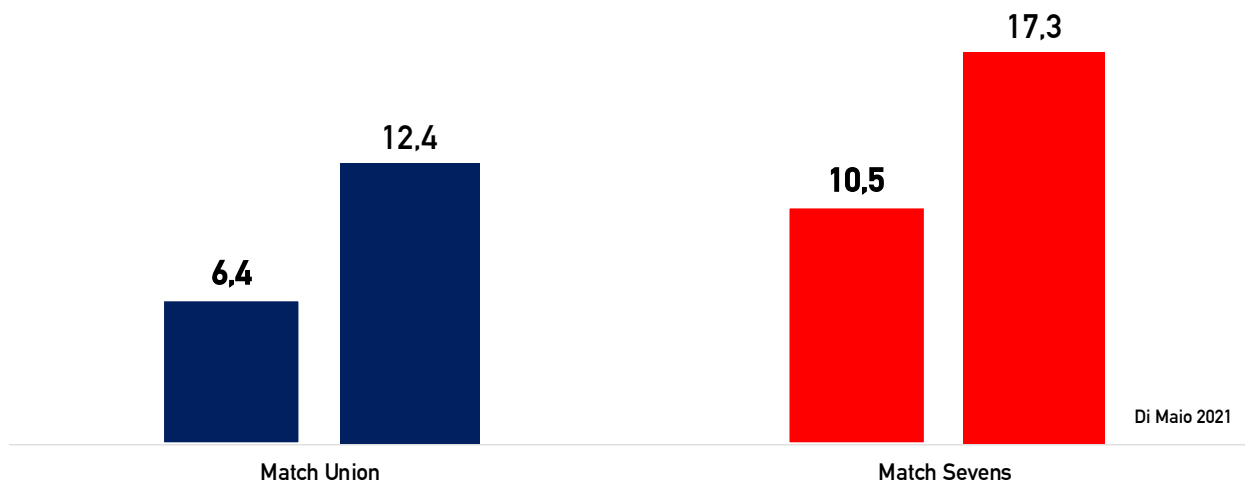
Comparing the values to total time, the difference was found to be about 75% higher than the difference in the distance traveled. To indicate how not only the volume is higher but above all the intensity in that volume of work.

Density Intense Actions



More generally, the difference in the average metabolic power in the total race time and in the effective time alone is as follows:

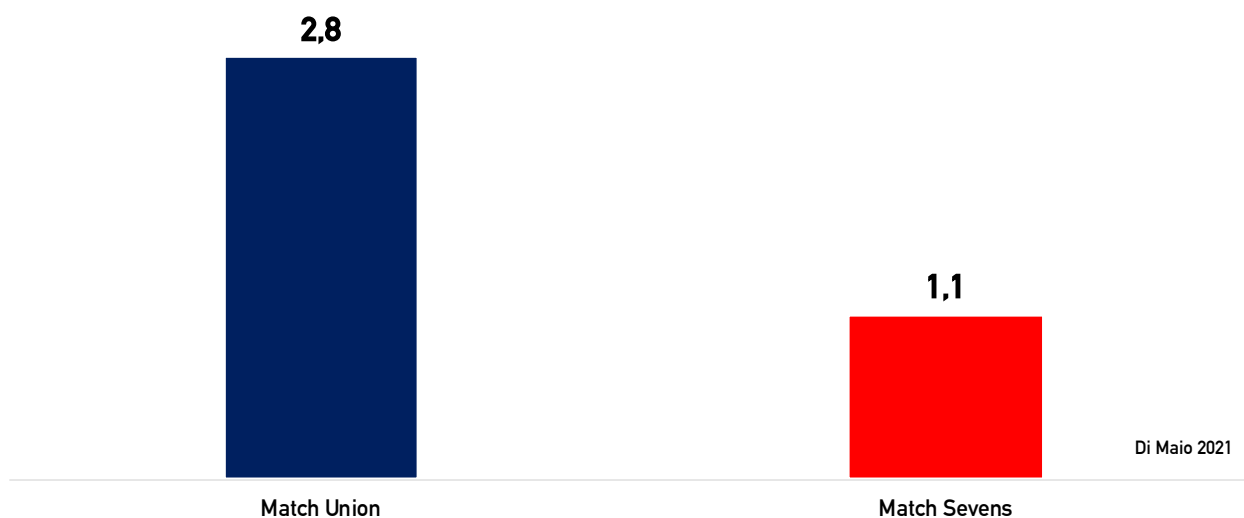
Metabolic Power Total Time and Game Time



If the difference, considering the total time, is 64%, the same is reduced to 39% as regards the game time.

The cause of this discrepancy is given precisely by the amount of internal recovery to the total duration of the match and more precisely to the relationship between work and recovery:

Ratio Work/Rest

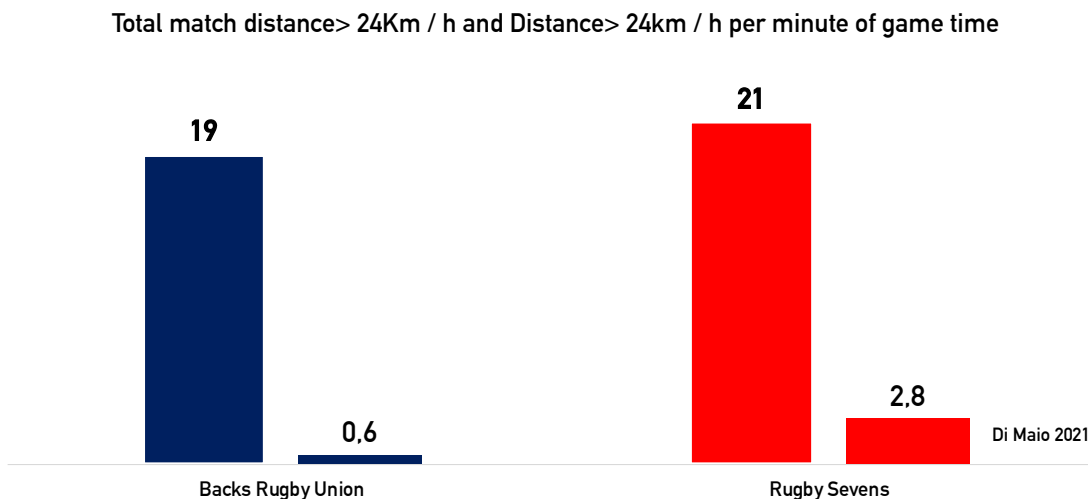
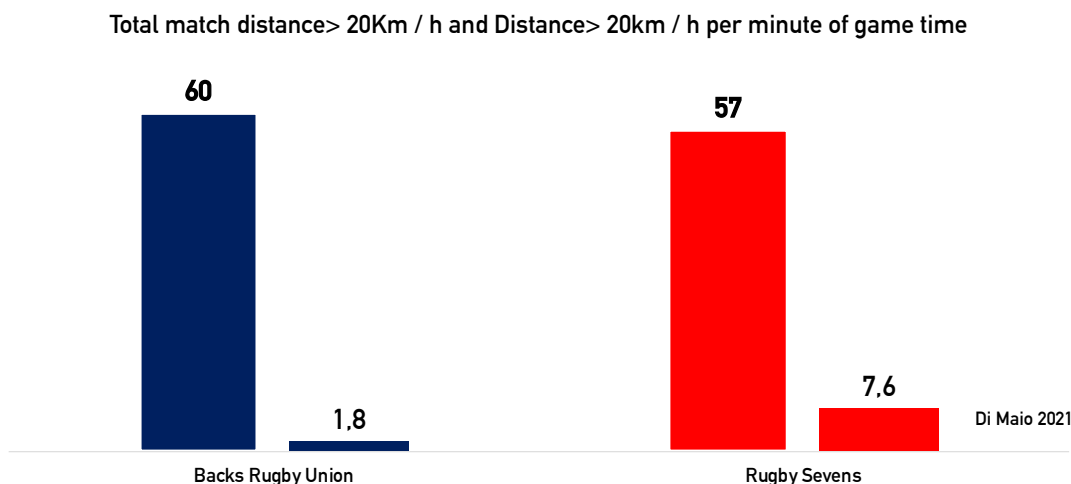
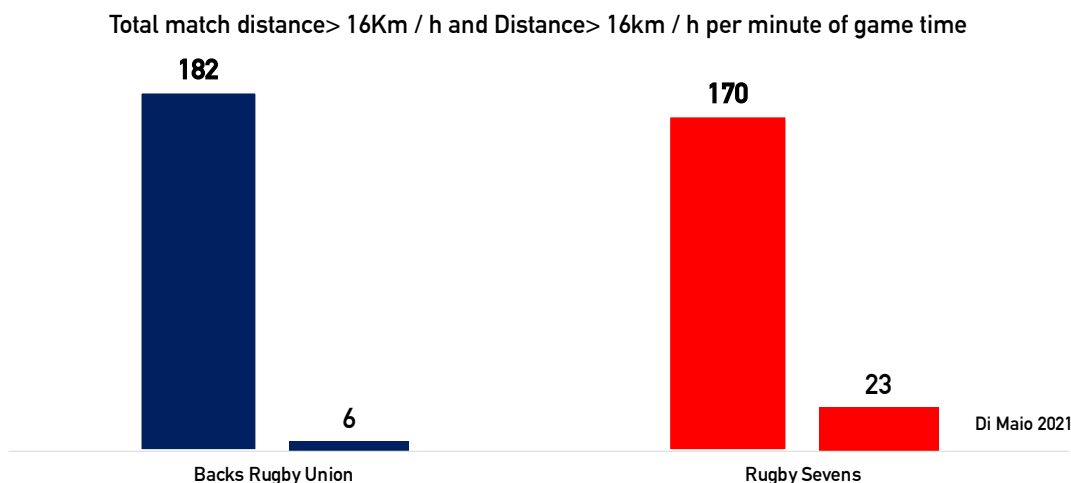


In rugby Union (Italian Championship) 2.8 minutes are recovered for every minute of play. On the contrary, in the Sevens the ratio is very close to being 1: 1. A substantial difference that explains why acute fatigue recovery systems play a fundamental role in Sevens much more than in Rugby Union.

The most important differences are recorded in the calculation of the speeds above the thresholds of 16Km \ h, 20 Km / h and 24 Km \ h.

The following graphs show the data referring to the total distance above the threshold and the respective value relating to the effective playing time.

The Rugby Union data refer exclusively to the Backs department, thus excluding those roles that are statistically less involved when it comes to high speeds.



In this case, the volumetric data of a single match were compared. These data were then normalized to playing time. Considering the threshold at 16Km \ h, Sevens players travel an average of 280% more distance per minute of play than rugby players at 15. This difference tends to increase if the thresholds are moved to 20Km \ h (difference + 322%) and to 24Km \ h (difference + 367%).

The last comparison concerns the impacts.

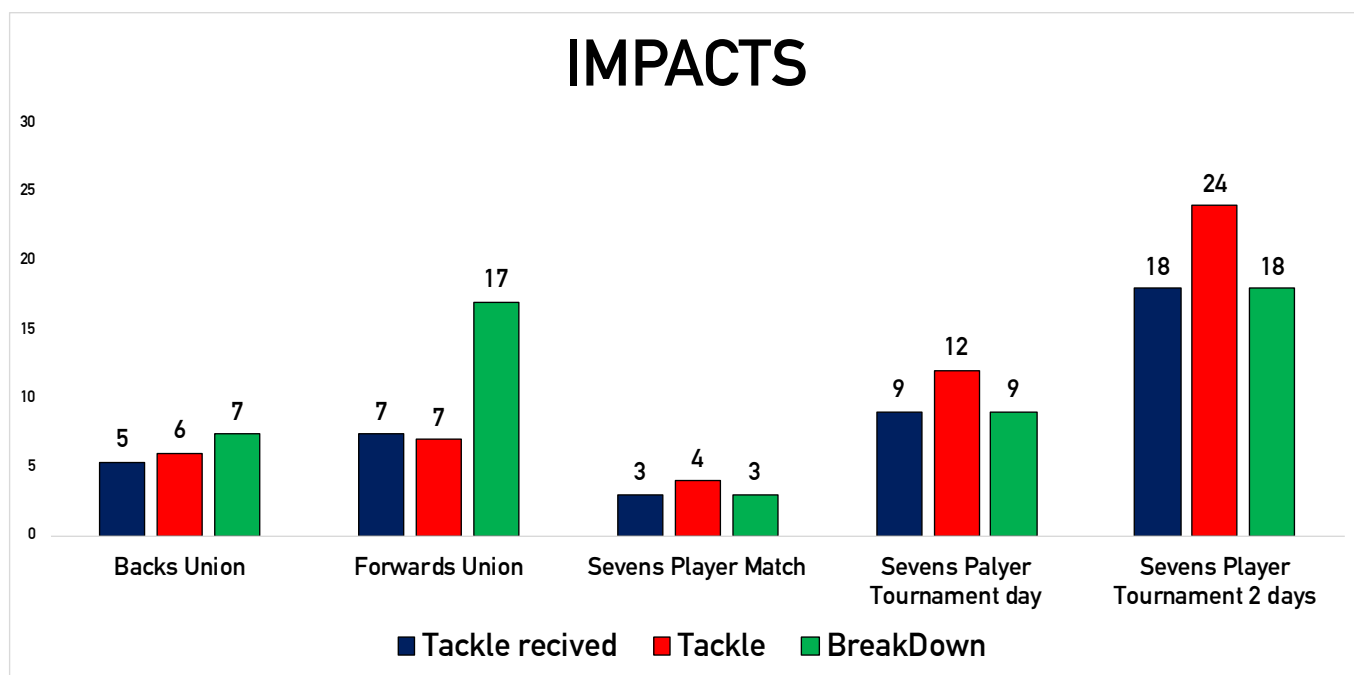
It is necessary to specify that even if compared directly, the fight / contact gestures have significant differences regarding the duration (as regards the Breakdown) and physical commitment

In rugby union these moments can be more significant as an energy expense.

Also with regard to tackles, substantial differences can be found because in Sevens very rarely frontal tackles take place and much more often these tackles are performed sideways but at higher speeds.

Having made the necessary considerations on the differences and specified that the ordered scrums are not part of the count (the differences are too evident), with the next graph we will be able to understand what is the average load of a Rugby Union match (divided by departments) and that of a match, one day and full Rugby Sevens tournament (assuming one player plays all matches).

The impacts were divided into 3 categories (tackles, tackles received and breakdown work).



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At work in the breakdown it is important to remember that in Sevens this is very often a situation that is solved by only one player as opposed to Rugby 15. This partly justifies a seemingly fewer situations at the meeting point.

On the contrary, the number of tackles made is much higher due to the small number of players on the field which requires a greater participation in the unit of time.

The number of impact situations is generally greater in Sevens if we consider the entire tournament (in total 60 moments of fight/impact in the two days of the tournament).

CONCLUSIONS

- In the course of this search for the performance model, the main peculiarities of Rugby Sevens have emerged.
- A sport where players are required to manage a large load in both acute and chronic form for two consecutive days.
- In conclusion, the main characteristics that emerged during the research are summarized:
- The average playing time is about 15 'and 50' minutes of which 7 'and 23' are active play. The work-recovery ratio is therefore 1: 1.1
- In a game there are on average 15 sequences lasting 29 seconds each.
- Sequences lasting between 0 "and 40" represent 76% of the total.
- Recoveries among the most recurrent sequences are those over 40 "which represent more than 50% of the total recoveries.
- The average distance covered in a match is 1673m (109m / min and 183m / min effective time).
- The length of the game sequences does not seem to affect the total distance travelled.
- Actions that are too long in the course of the game do not allow for a high maintenance of Power.
- The fatigue accumulated during the match, depending on the metabolic power, does not seem to be correlated with the progress of the tournament.
- Approximately 25 seconds of intense (speed-dependent) accelerations are performed for each game.
- In each game, an average of 170 seconds are spent above the 16Km \ h threshold.
- There are 44 intense actions (> 20W) during a match. 52% of these are performed at high speeds

- There are repeated intense actions prolonging exposure to high intensities up to 30 “.
- Single shares (with recoveries exceeding 5 “) represent 50% of the total. All the others are followed or preceded by other intense actions with metabolically insignificant recoveries (<5 “).
- Recoveries at powers below 20Watts represent 68% of the effective time of a match.
- 47% of the total time is spent at power below 10 Watts.
- Intense changes of direction are on average 38 and only 4 are at angles greater than 135 °
- Possession does not appear to be related to running parameters.
- The result is not related to any data concerning the race.
- The most important but not perfect correlation is between possession and points scored.
- Technical effectiveness seems to be the most significant factor in determining the result.
- Excluding scrums, a player performs an average of 10 technical wrestling / contact interventions.
- The fight / contact work represents about 7% of the total power.
- The differences in physical commitment with Rugby Union are big and mainly concern the acute load, the work / recovery ratio and exposure to high speeds.
- Considering the entire Sevens tournament, the physical running work done is greater from all points of view, especially in relation to the density of intense interventions.