Rugby Sevens

Study of the performance model

Index

INTRODUCTION

The disciplines related to the oval ball are numerous and each one has its own peculiarities distinguishing it from the others.
Rugby Union (rugby with 15 players) is perhaps the most important expression of rugby worldwide.
However, other forms of rugby have taken place.
Sevens is surely one of them.
It was invented in 1983 in the town of Melrose (Scotland) and after a short period during which this discipline was confined to Scotland, it later left the national borders to become more and more famous in the rugby context.
In 1999 the international "World Series" tournament was inaugurated: here the best world teams participate in competitions reaching all continents.
The great spectacle of the matches and the very dynamic organization of the 2 days tournament has been creating with the passing of time a rapid development of the discipline on a global level.
In fact, if Rugby Union remains a sport in which the high level is difficult to be reached by new realities, in the Sevens we can find emerging nations in which the culture of Rugby is less rooted.
Participation in the Rio Olympics in 2016 was the strongest sign of this rise and the interest aroused by the Sevens circuit.

Among the characteristics distinguishing this sport, certainly one of the main ones is the ability and the competence to express physical performances of the highest level for the entire duration of the two days tournament.
The physical aspect is in fact very central in Rugby Sevens where the density of the number of players on the pitch is very low.
But which are the parameters that can define the performance model?

The identification of a performance model defining the parameters within which the performance takes place is essential to better understand what happens on the pitch during the match and above all to understand which are the best methods and means for coaching.

The data shown below come from European international activity. They cover 6 years of activity (2014-2020) with more than 100 monitored matches.

GAME SEQUENCES

Duration, frequency and distribution of the game sequences are fundamental for understanding the energy demands during the match.

We must always remember that in Rugby Sevens, the moments of "real" recovery within the game sequence are just a few.

Compared to rugby Union, the need to get back into the game immediately is made even more substantial by the small number of players on the field and the urgency to recreate an optimal situation, both in attack and defence, anticipating the opposing team.
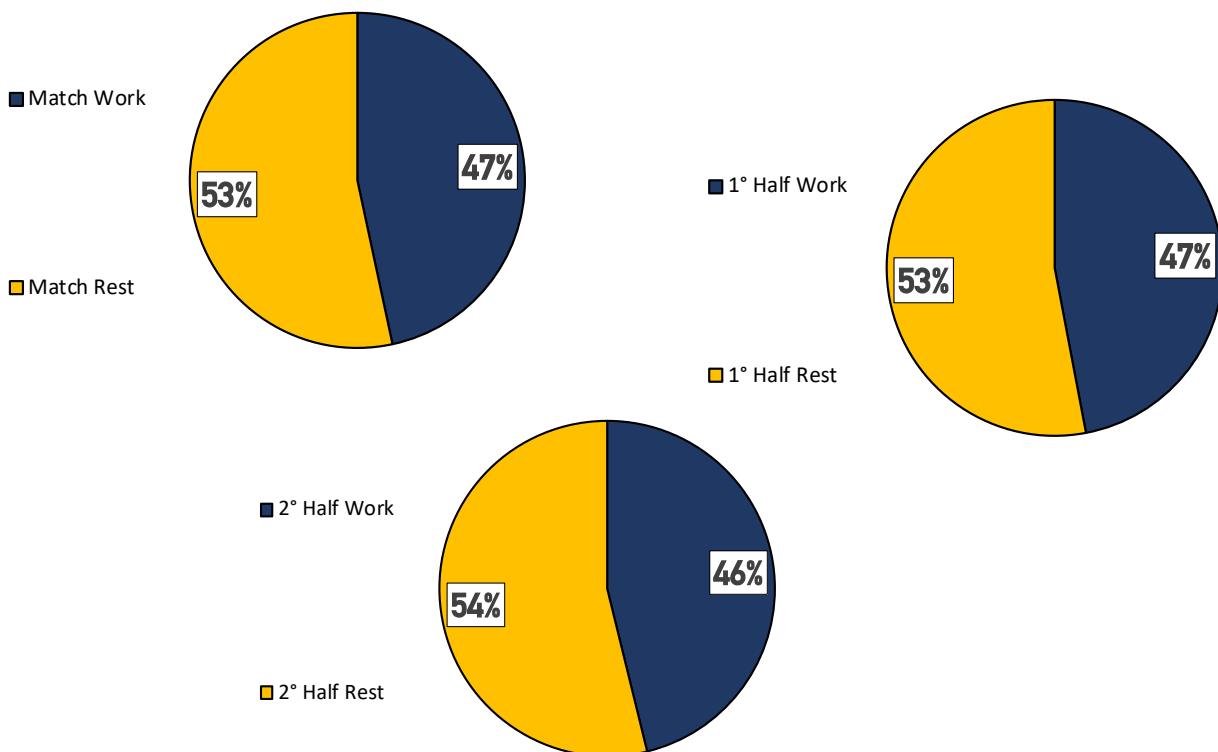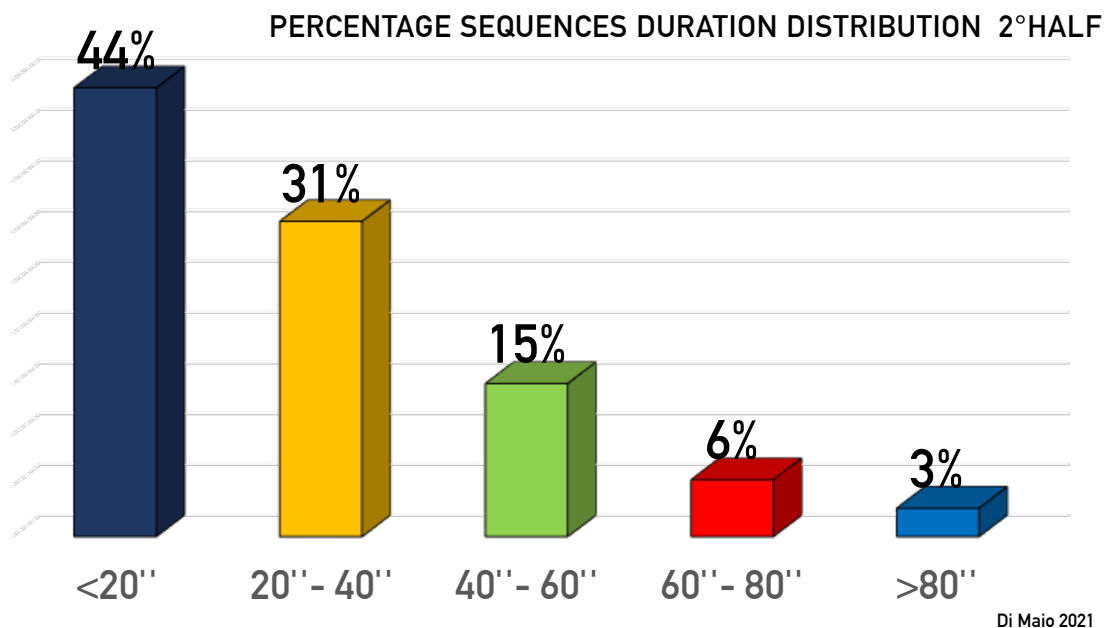
Total Time (seconds)
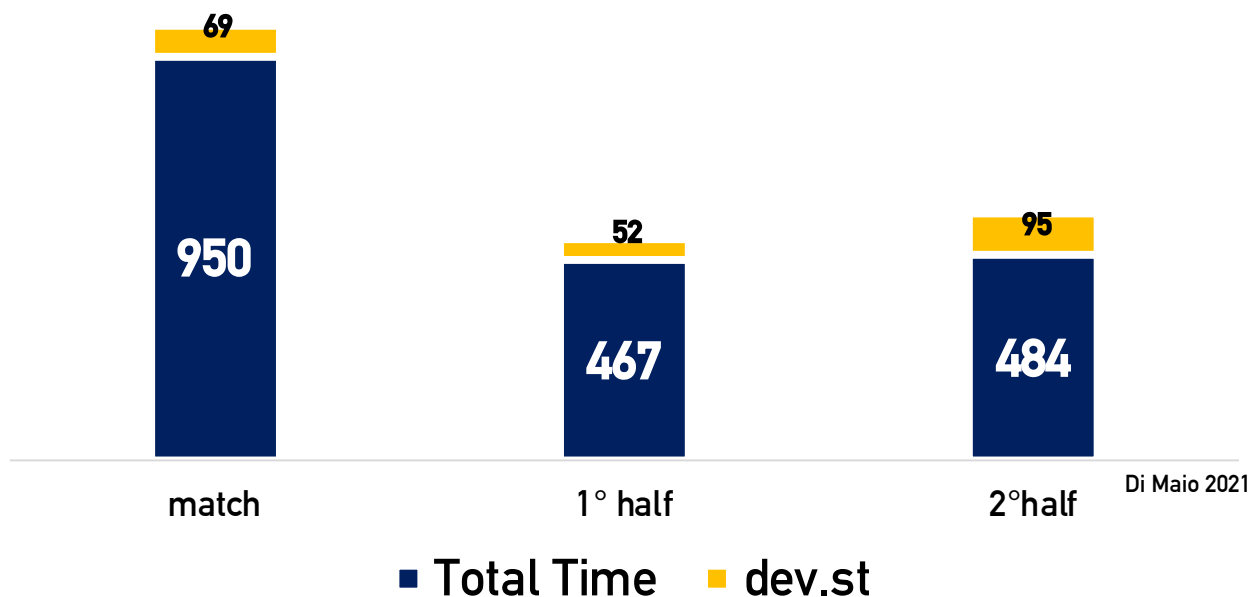
The total average game time is 950 seconds (15 minutes and 50 seconds). The difference between the first and second half is minimal even if the average of the second half has a higher standard deviation. This indicates that the data may have greater fluctuations.

Effective Time (Seconds)

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■ **Effective Time**   ■ **dev.st**
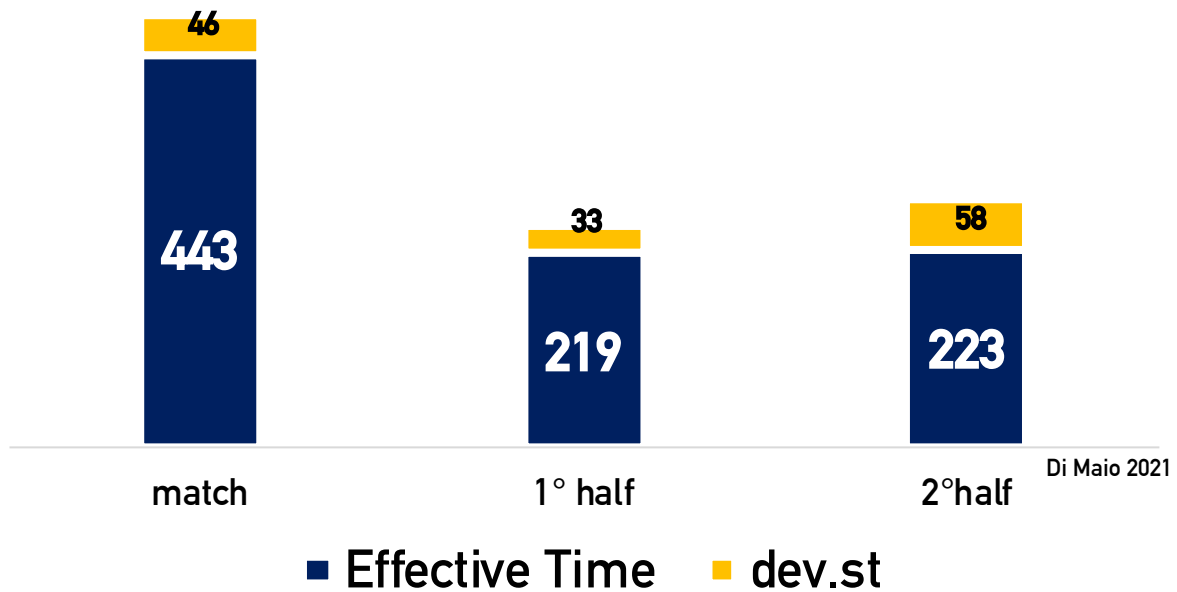
Taking into consideration the effective playing time, we see that the ratios do not change. Greater variability is always present in the second half.
The relationship between work and recovery, shown in the following graphs, demonstrates the absolute overlap of the two playing times in the distribution of this parameter.

PERCENTAGE SEQUENCES DURATION DISTRIBUTION MATCH

42%	34%	16%	6%	3%
<20''	20''– 40''	40''– 60''	60''– 80''	>80''

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PERCENTAGE SEQUENCES DURATION DISTRIBUTION 1°HALF

39%	36%	16%	6%	2%
<20''	20''– 40''	40''– 60''	60''– 80''	>80''

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PERCENTAGE SEQUENCES DURATION DISTRIBUTION 2°HALF

44%	31%	15%	6%	3%
<20''	20''– 40''	40''– 60''	60''– 80''	>80''

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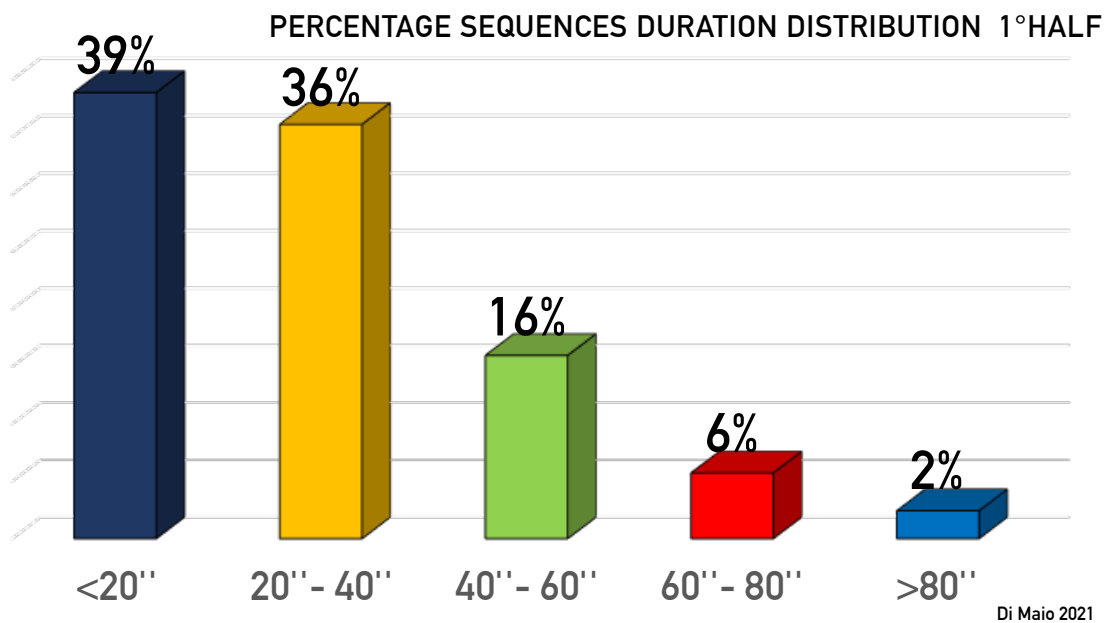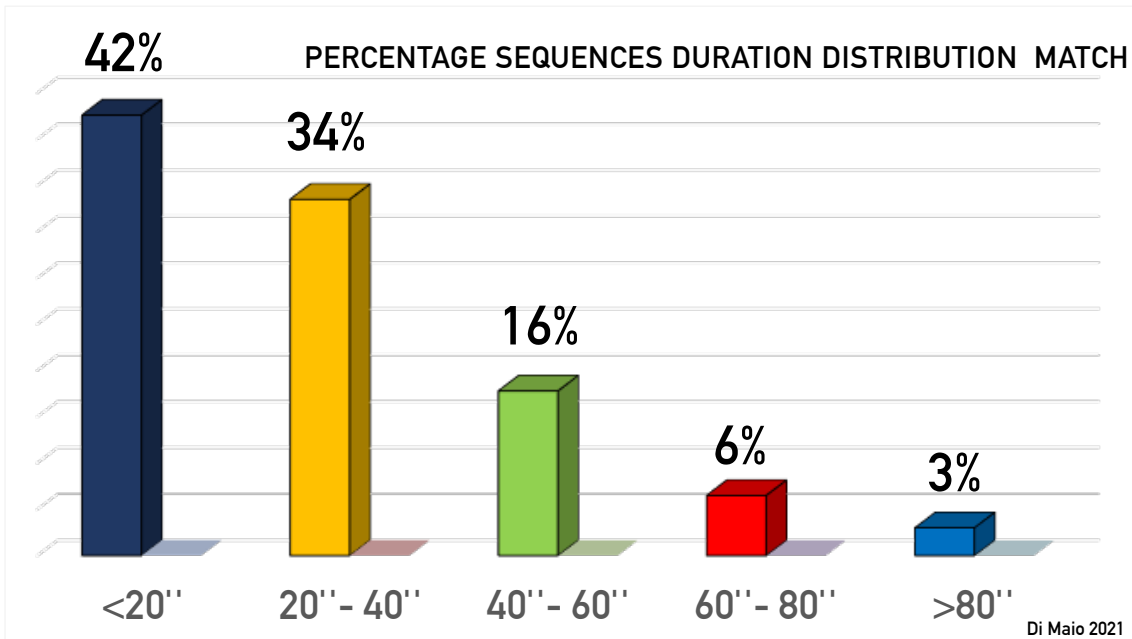
Sequences and average duration
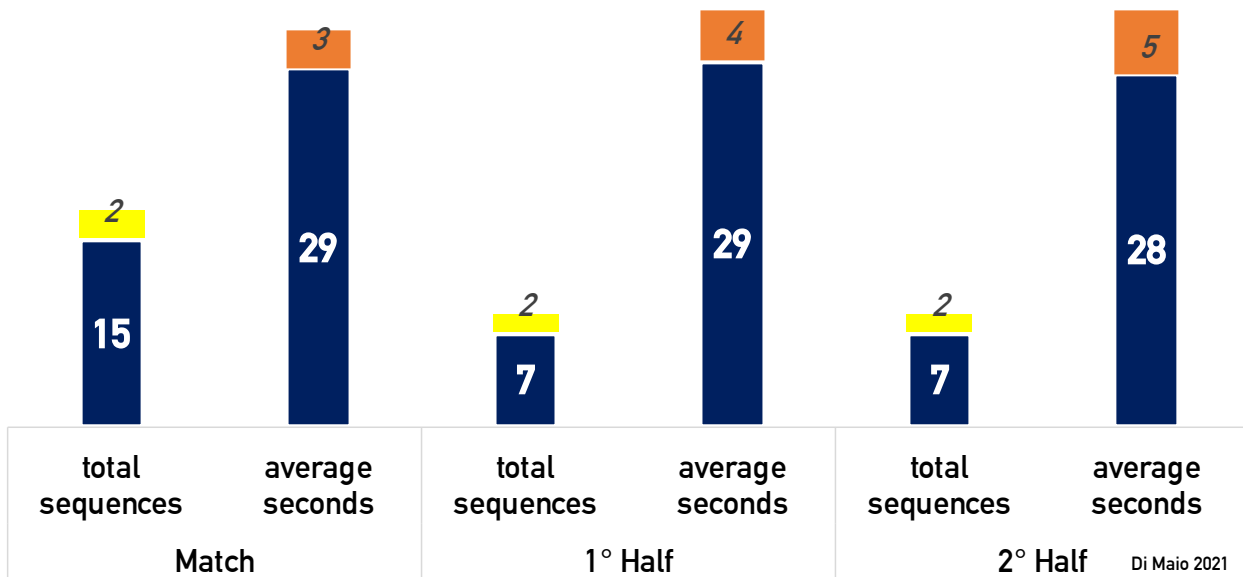
The average number of total sequences per match is 15, equally divided between the first and second half (the sum of the two times is 15 due to the decimals not shown on the average).
Each sequence lasts 29 seconds approximately and also in this case the values do not differ between the two parts of the game.

Talking about the distribution of the game sequences, these have been divided according to their duration. In this way, five groups of sequences with variable and incremental duration of 20 seconds each were created.

The graphs on the previous page indicate the distribution of these sequences both in terms of the entire Match and by dividing the data into the two game segments.
The evidence of the data shows us that even in this case there are no differences between the first and second half. Despite the very high number of registrations (about 1200 sequences), the numbers analyzed give us a constant situation.
Probably the reduced duration of the match and the possibility of replacing 70% of the players on the field, makes it possible to stabilize the data that can vary more for the average technical-physical level of the teams on the field than for variables endogenous to the game.

Another fundamental parameter to identify the characteristics of the energy demanded during the match is the distribution of recoveries.

We have already seen in the general average what the direct relationship between work and recovery is. In this case we are going to observe the distribution of the pauses between the sequences. The break of about 2 minutes between the first and the second half is not included.
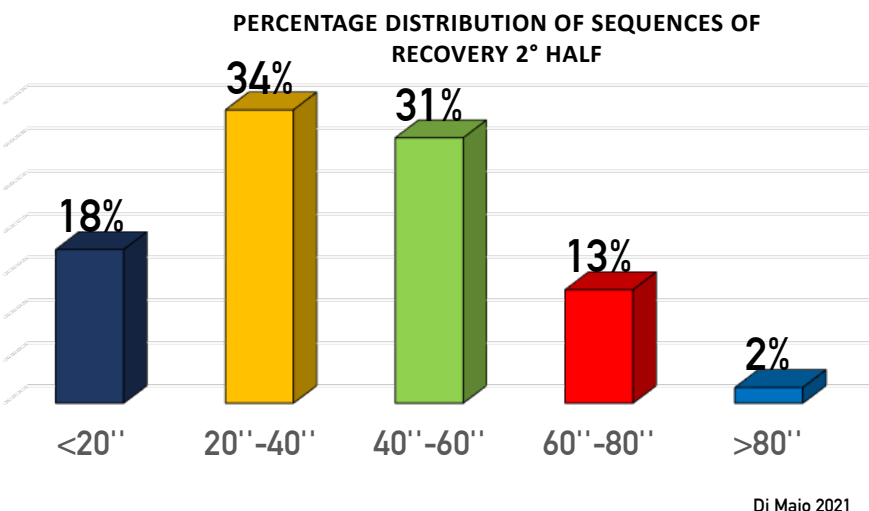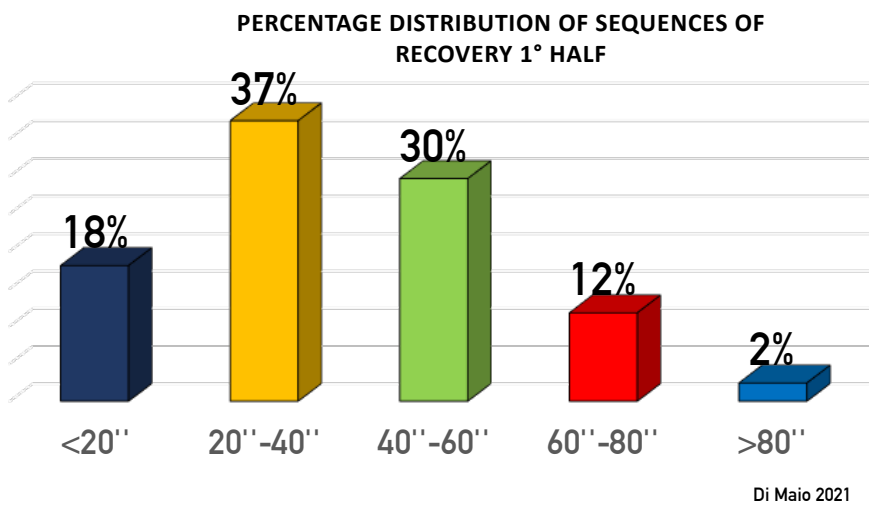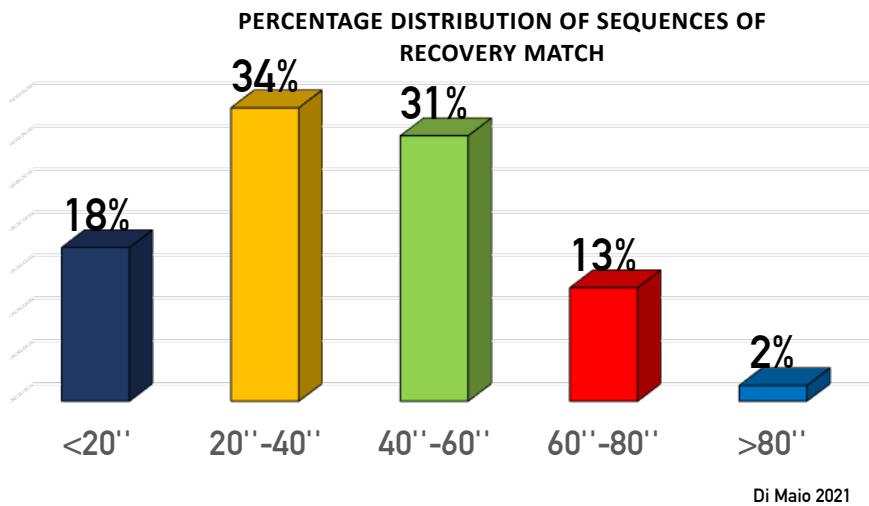
Clearly these values also follow the previous ones showing us extremely stable values. By adding two or more groups of values, it is observed that:

- Sequences from 0 to 40" represent 76% of the total

- Recoveries of more than 40" are 50% approx of the total

- Only 9% of the sequences exceed 1 minute of play

- After a score, there are usually 60 seconds of recovery. Therefore the percentages represented must take into account that the recoveries above 60 seconds are due for the most part to signatures

PERCENTAGE DISTRIBUTION OF SEQUENCES OF RECOVERY MATCH

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PERCENTAGE DISTRIBUTION OF SEQUENCES OF RECOVERY 1° HALF

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PERCENTAGE DISTRIBUTION OF SEQUENCES OF RECOVERY 2° HALF

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These parameters define a model which however has clear margins of variability.
The next study compares these same data in relation to the opponent team.
There is a relationship between the game mode of a team and the data relating to
the game sequences usually found with the same formation.
We selected 8 teams against which we played a considerable number of games
during the last three years.
These are the results of the research:

Percentage distribution of sequences per team

	<20''	20''-40''	40''-60''	60''-80''	>80''

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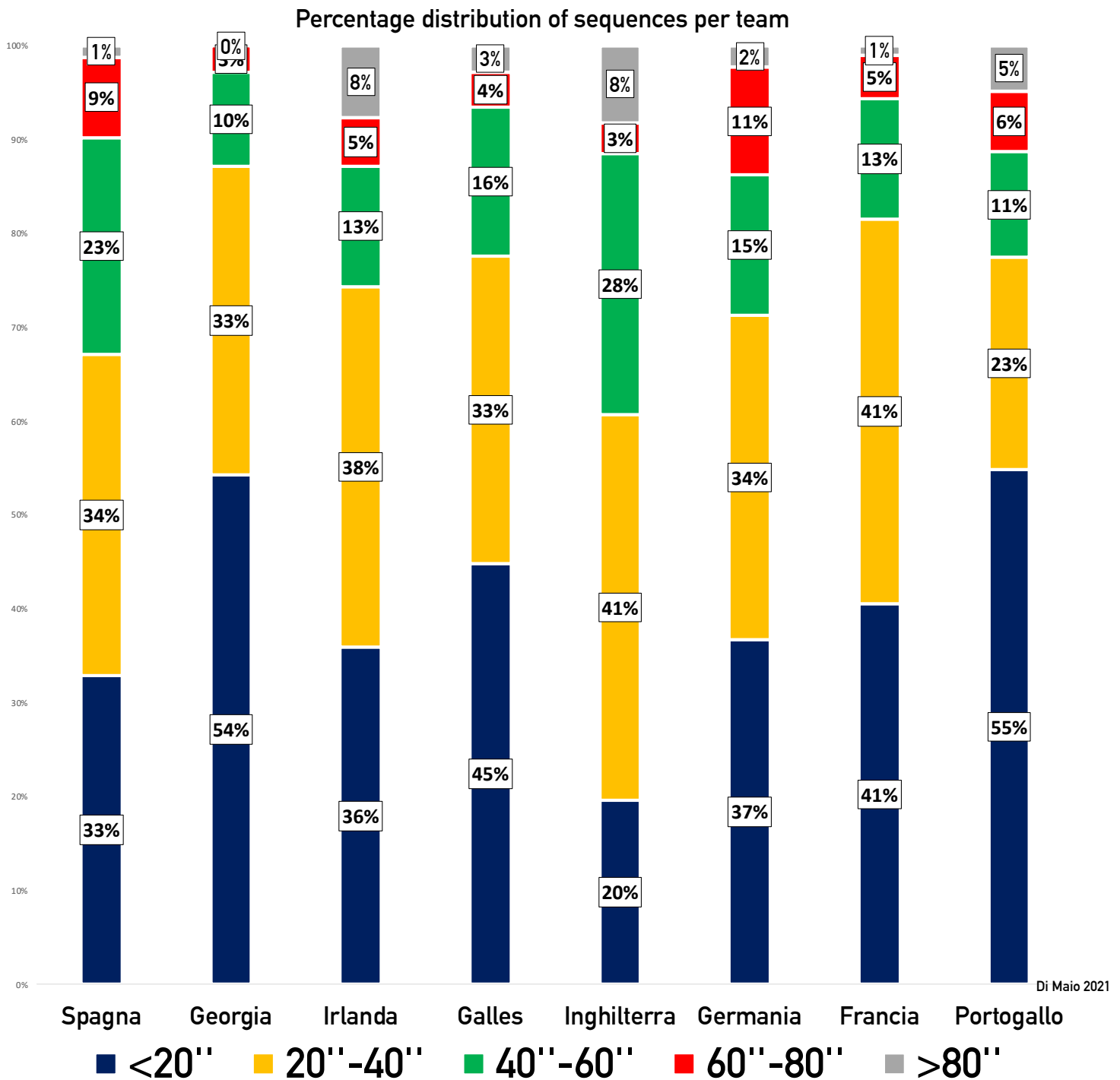
On a minimum basis of 10 games for each team, the data show us how the
distribution, in this case, changes significantly.

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Going forward and grouping two groups of sequence lengths, the overview is even easier.

Percentage distribution of sequences per team

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■ 0 - 40''   ■ 40'' - 80''   ■ >80''
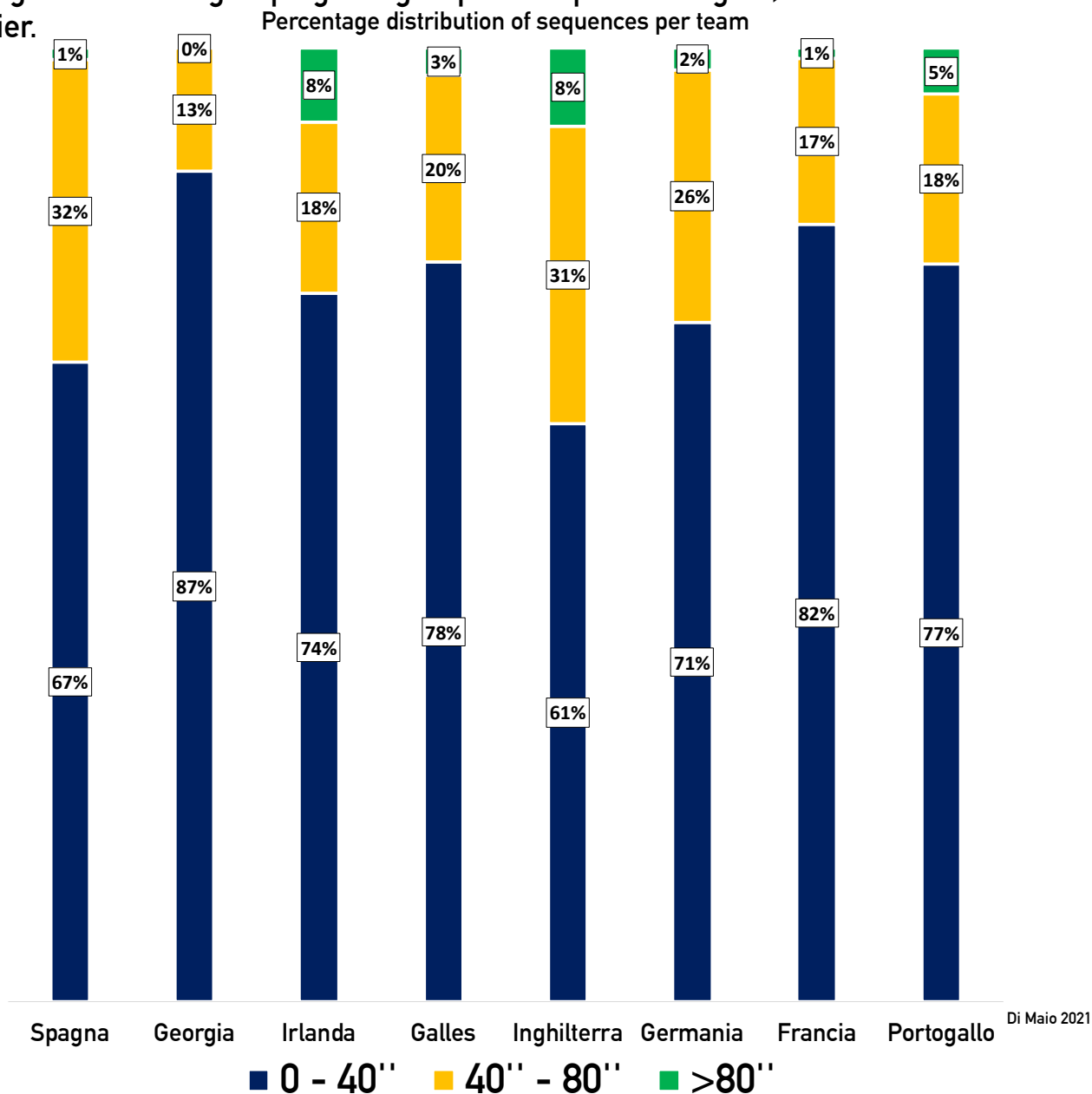
The general average we have previously seen (sequences 0-40 ''= 76%) is not actually distributed in a very homogeneous way and is correlated instead to the opponent team of the match.

The latest graphs on this topic make it even easier to understand this aspect, obviously linked to the type, strategy and technical-physical skills of the team

It should always be remembered that these data always refer to matches against the Italian Sevens national team. This implies that presumably the numbers do not absolutely define the type of team but more specifically give us a specific representation of the performances emerging from the matches with the Italian Sevens National Team.

% SEQUENCES <20''

spagna	georgia	irlanda	galles	inghilterra	germania	francia	portogallo
33%	54%	36%	45%	20%	37%	41%	55%

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% SEQUENCES 20''-60''

spagna	georgia	irlanda	galles	inghilterra	germania	francia	portogallo
57%	43%	51%	49%	69%	49%	54%	34%

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% SEQUENCES >60''

spagna	georgia	irlanda	galles	inghilterra	germania	francia	portogallo
10%	3%	13%	7%	11%	14%	6%	11%

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