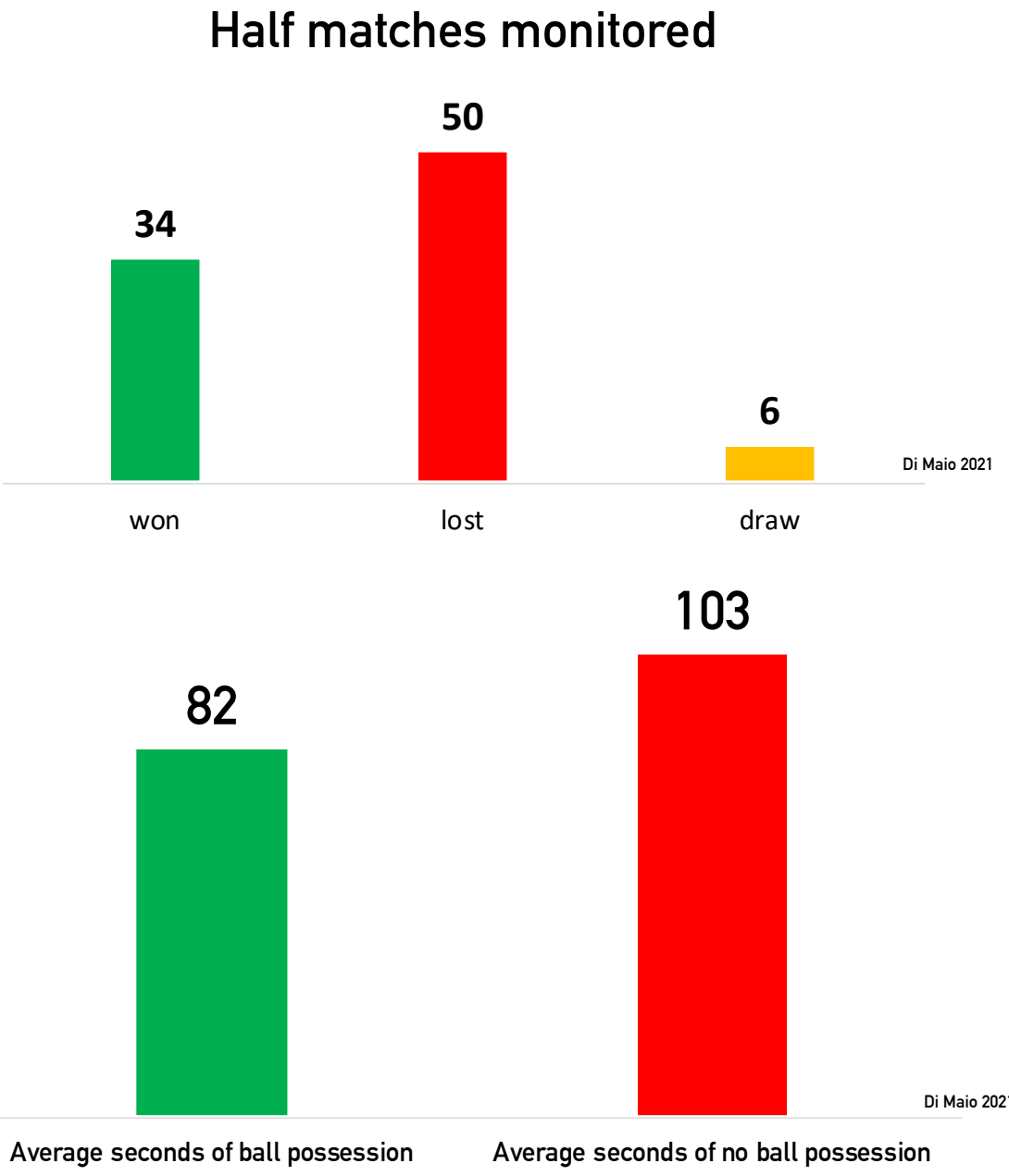
Rugby Sevens

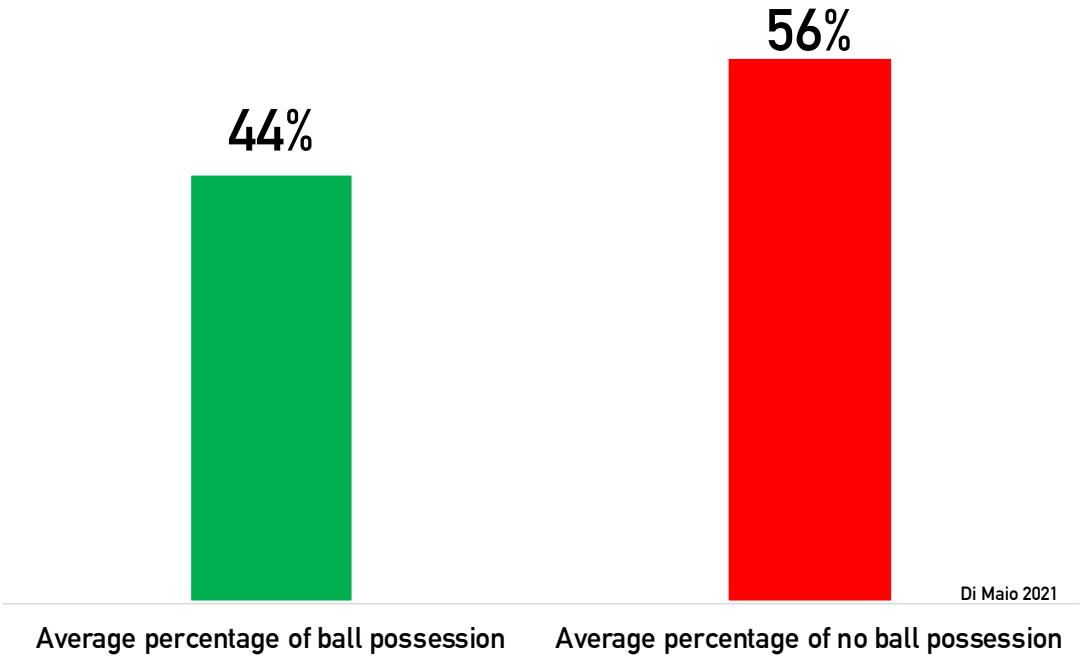
Study of the performance model

Index

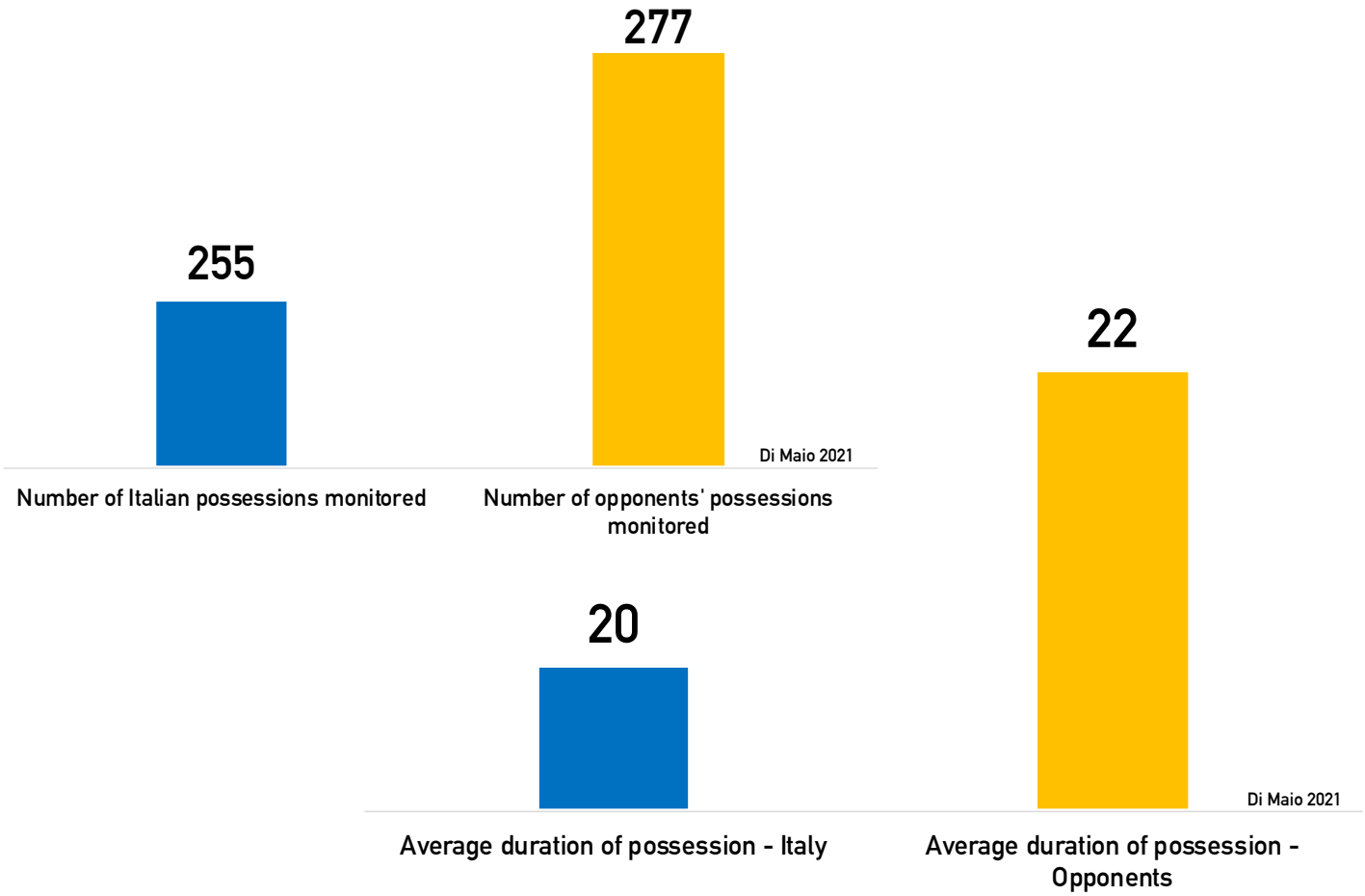
POSSESSION AND SCORE

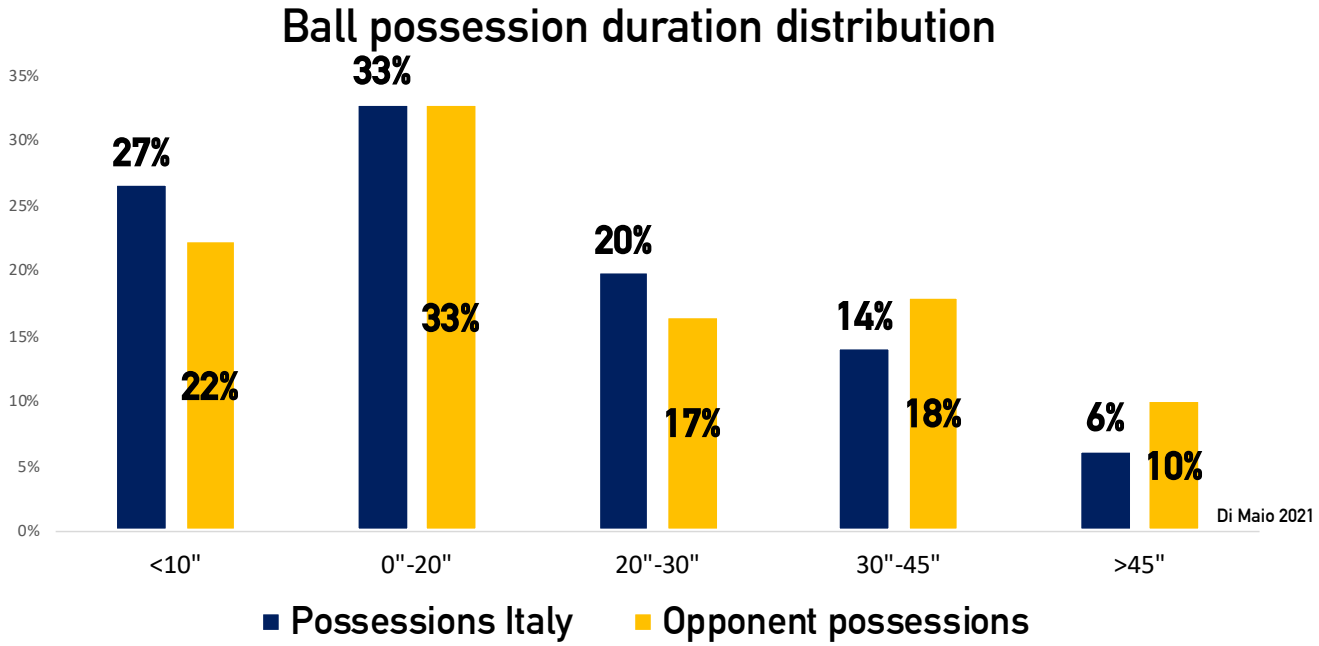
Possession directly guarantees the possibility of scoring points.
In this chapter we will understand how this also affects the physical performance of players.
90 match times were monitored. The individual match times were used to have greater accuracy in relating the possession data with those of the GPS by decreasing the control time.
Of these 90 times this is the distribution of the result obtained, of the seconds of possession and non-possession and of the relative percentage.





In total, 532 possessions were monitored by adding those of the Italian team to those of the opponents.
The average of the registered possessions lasted 20 - 22 seconds.



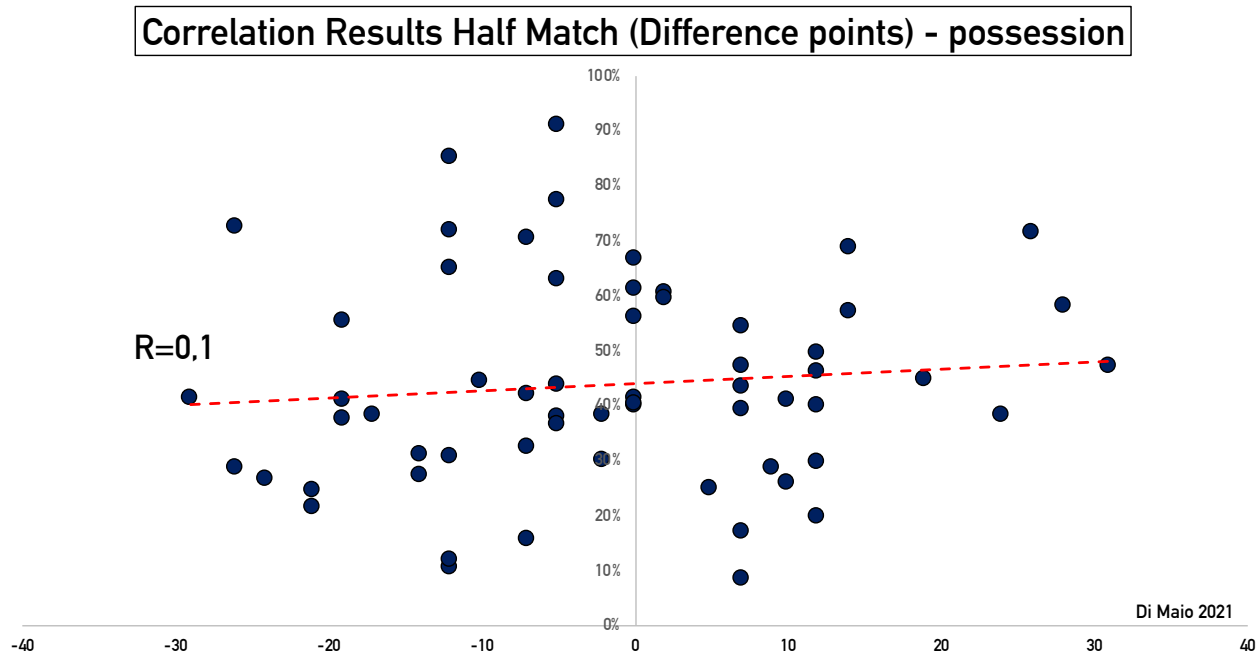


The distribution of the duration of the individual possessions is represented in this graph.
The data concerning the Italy Sevens are homogeneous and they concern only one team. Those of the opponents, on the other hand, describe a heterogeneous situation made up of all the teams against which the Italian national team has played.

Including the sources from which the data were drawn, we can begin to observe the various correlations that will allow us to understand if and how possession affects the various parameters.

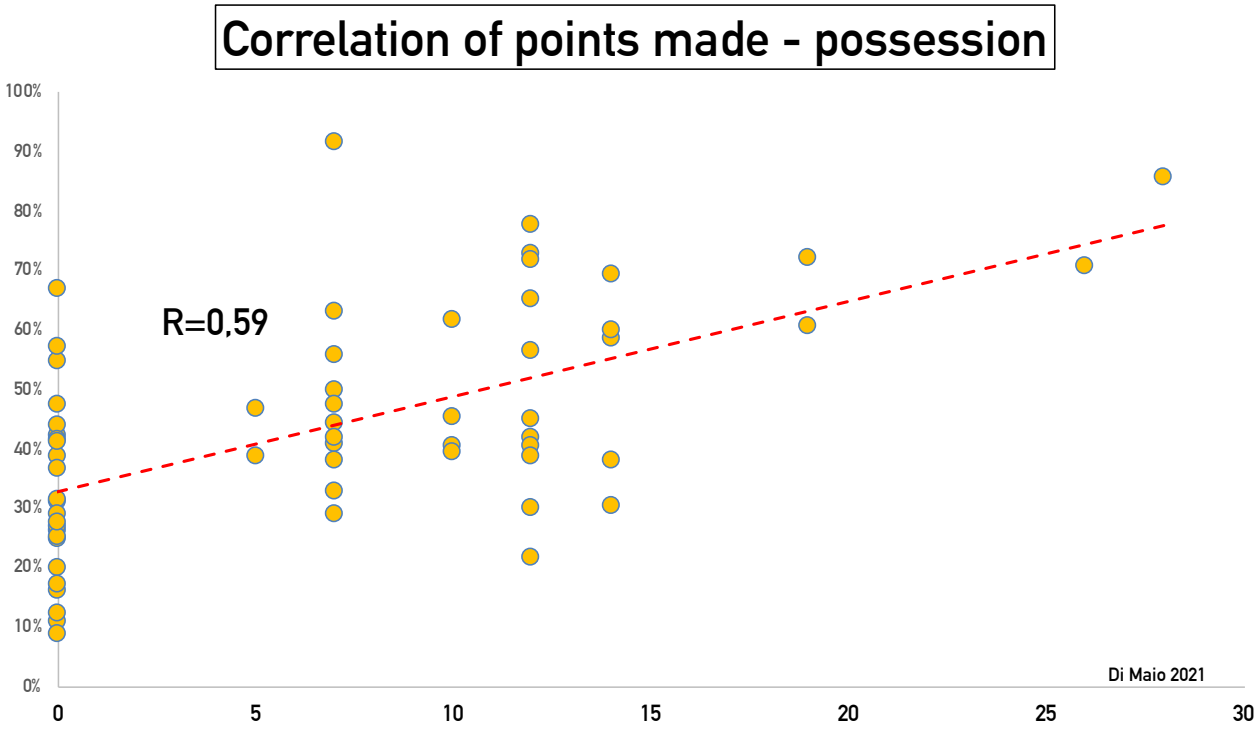
The first that was taken into consideration is the result.
The graphs on the next page show us the relationship that has been created between possession and 4 different parameters:

- The result, considering the points difference between the two teams
- The points made
- The points suffered
- The average length of possessions during the game

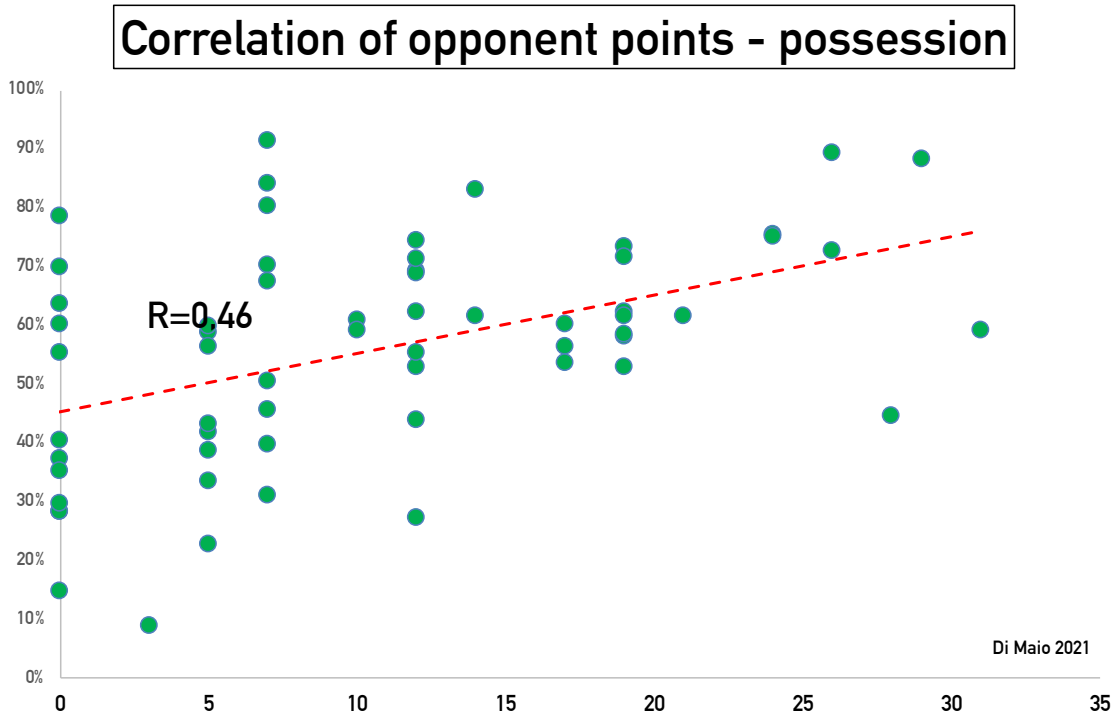


The points difference between the two teams does not seem to have any direct relationship with possession. A very low correlation index justifies a very inhomogeneous arrangement of the points.

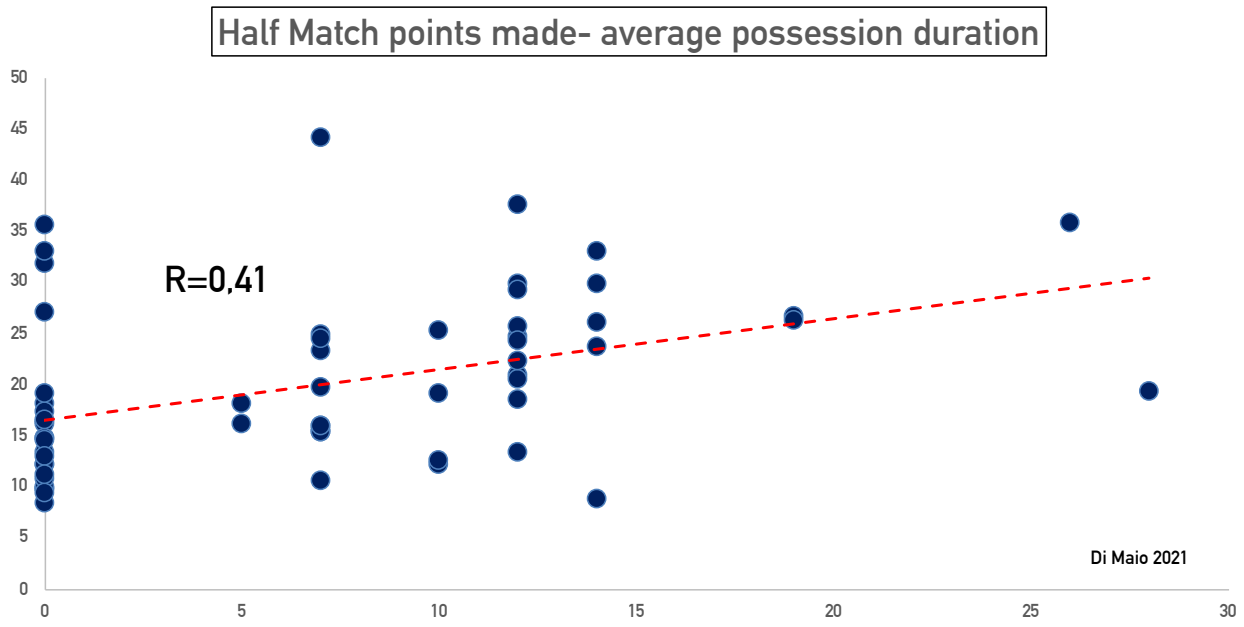
Taking the trend line (red dashed line) as a reference, all the points in the upper left box show that despite a possession of more than 50%, the team has suffered more points than they have. The points in the lower right box demonstrate otherwise. Even with a lower possession the numerical result was positive.



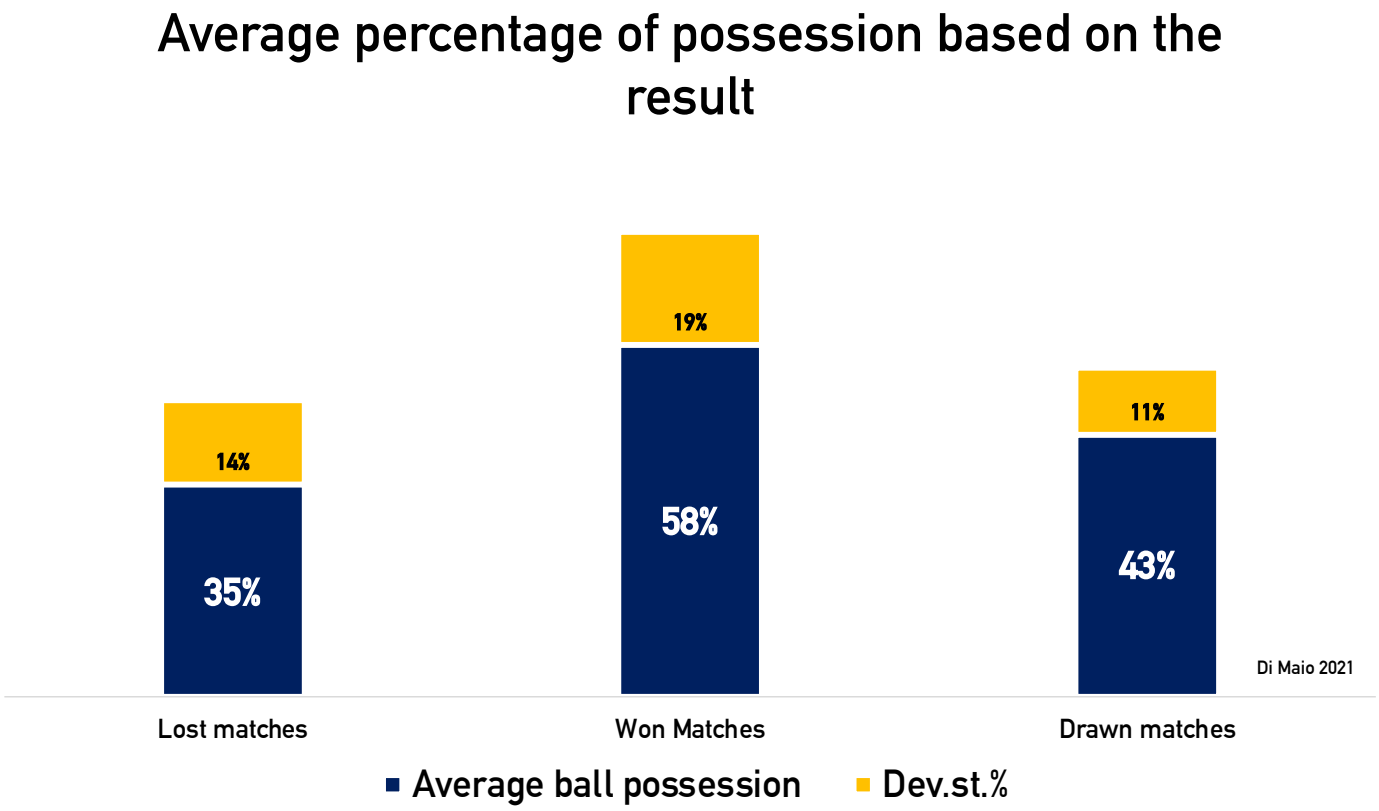
On the other hand, there is a more direct relationship between possession and points made.
Once again, taking the trend line as a reference, there are situations in which with a lot of possession few points are marked and opposite situations where more points are scored with less possession.
If you enter the data of the points suffered and relate it to the opponent's ball possession, you will find a minor R and therefore a greater points dispersion.



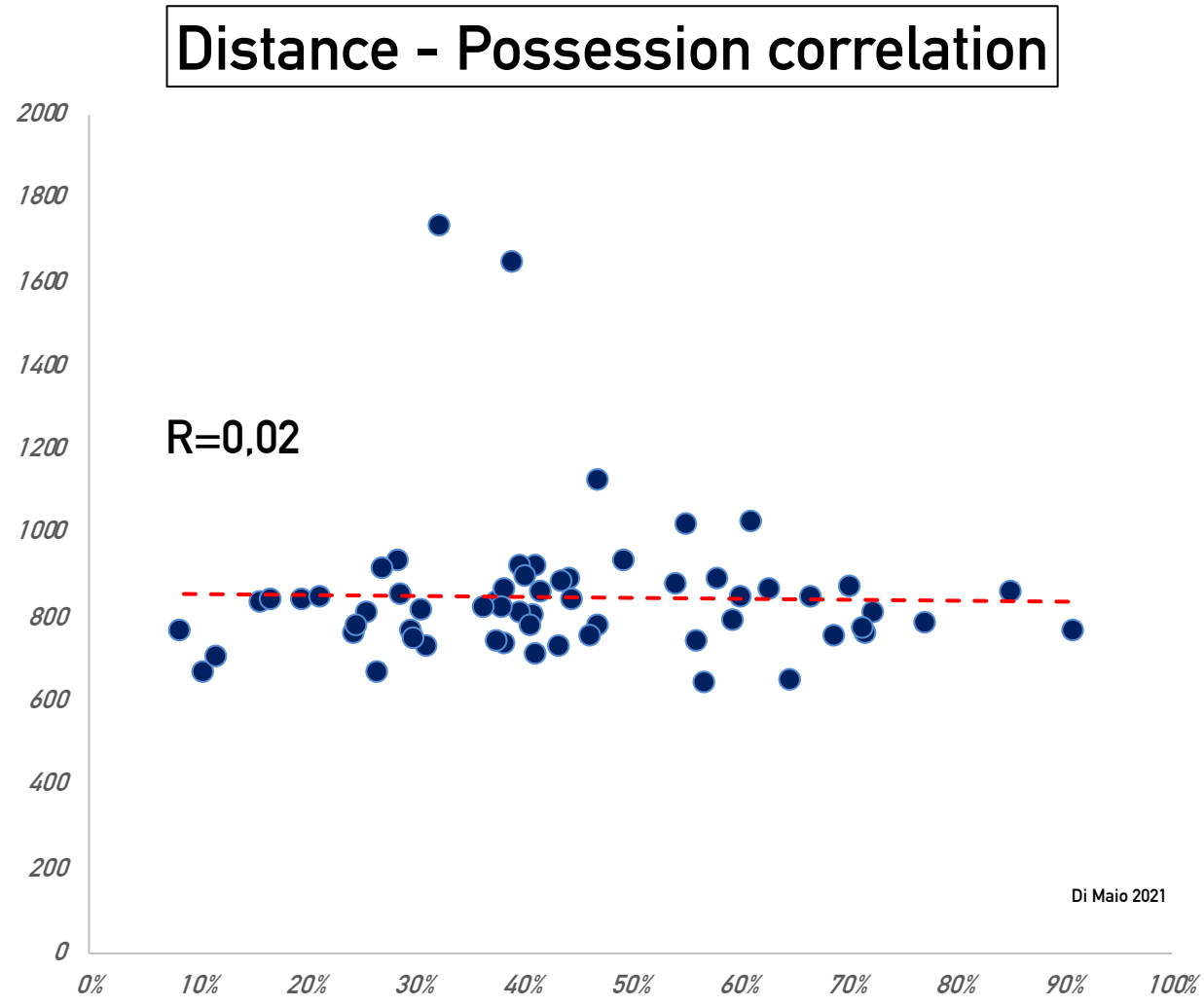
Even considering the average possession time in a game, the correlation remains low as it can be seen in the graph.



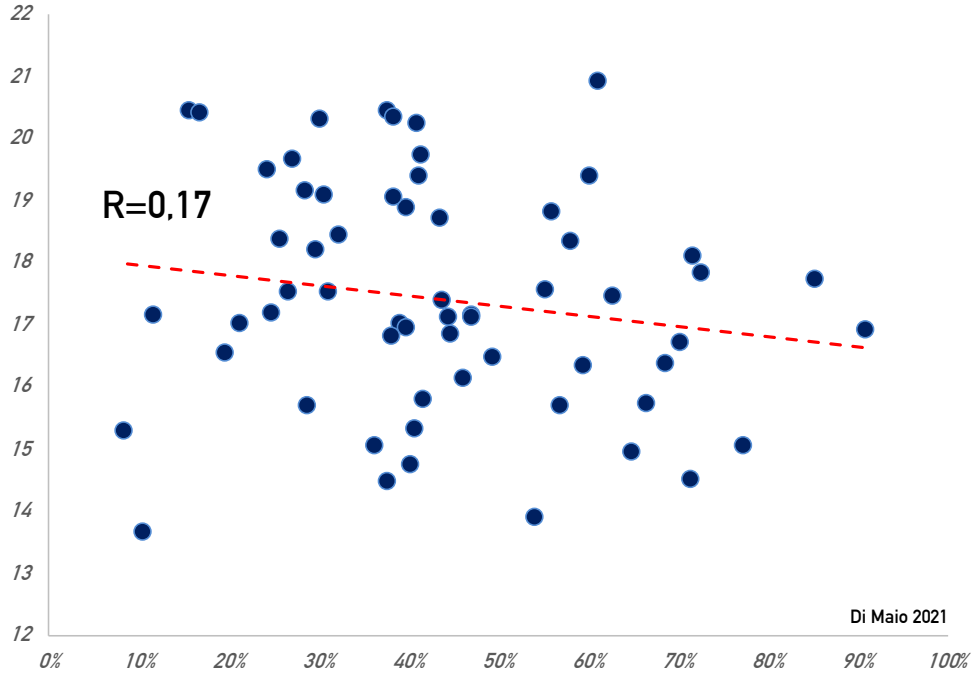
Summarizing, the latest data show us that there is only a correlation between possession and points made even if the relationship is not strong and leaves room for many exceptions.
In general, possession seems to directly or indirectly affect the outcome quite weakly. Once again the technical-tactical and strategic specifications of the match, together with the level of the opponents, prove to be too important not to be considered.
Effectiveness, both in the attack and defense phases, is the main parameter and possession can only partially justify the result in terms of points made and suffered. This is demonstrated by the following graph, where the percentage of possession in the games won definitely exceeds that of the games lost (obviously without possession no points are scored). In the same graph we can also see that there is an important variability (standard deviations equal to 40% in the average of the games lost and 32% in the games won) which reveals the existence of many exceptions.



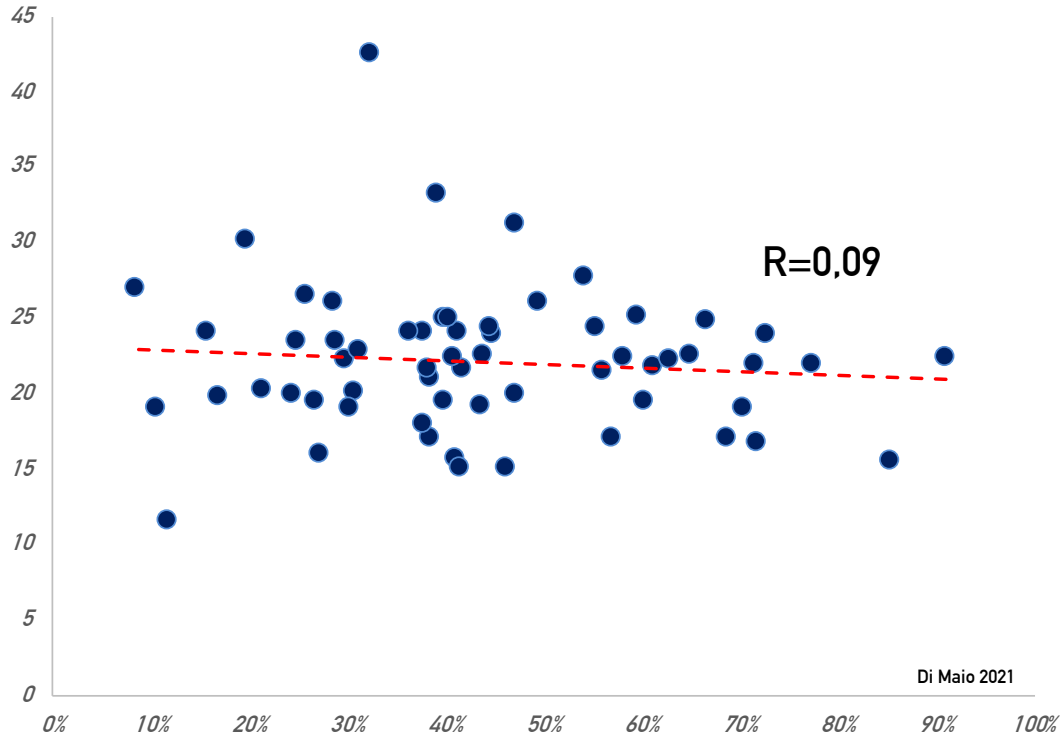
In this second phase of the study on possession and its relationships with other parameters, the main data from the GPS analysis were correlated with the percentage of ball possession.
The goal was to understand whether or not having the ball could somehow influence the running data and therefore whether attacking or defending was more or less "expensive".
The data always concern the individual match times to increase accuracy by reasoning on 3 \ 4 minutes of effective time. At the same time the GPS data concerns the team average and not a single player.
The parameters used for this study were:
- Total distance
- Metabolic power in game time
- Total number of intense actions total of the match
- Seconds above the 16Km \ h threshold in effective time
- Seconds of intense acceleration> 50% of the maximum



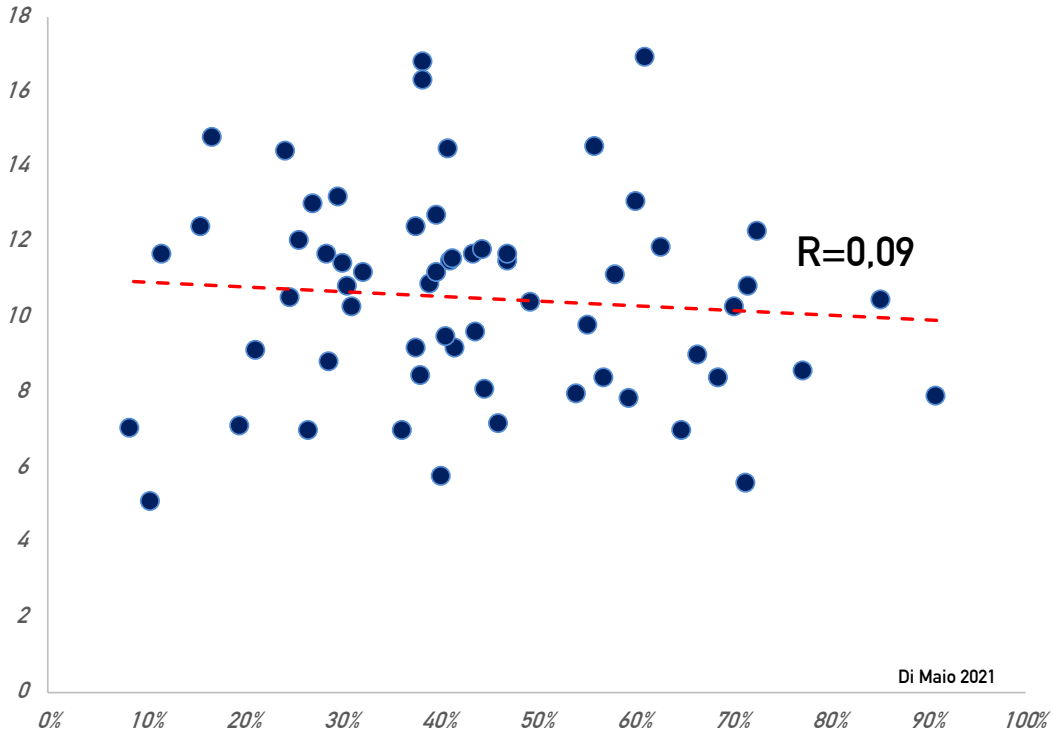
Metabolic Power game time - Possession correlation



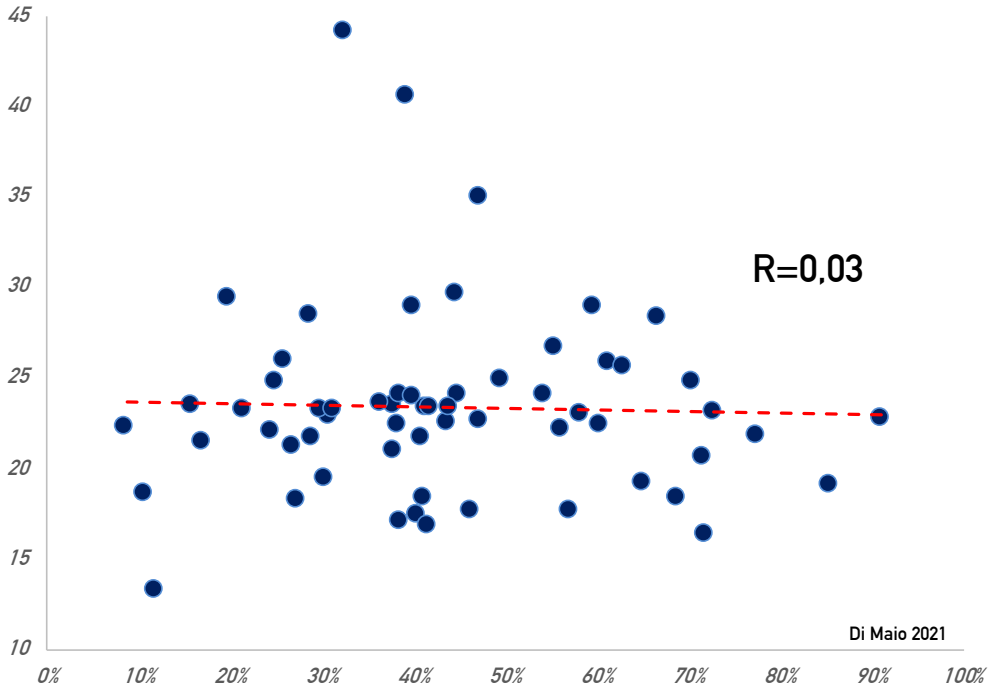
Number intense actions - Possession correlation



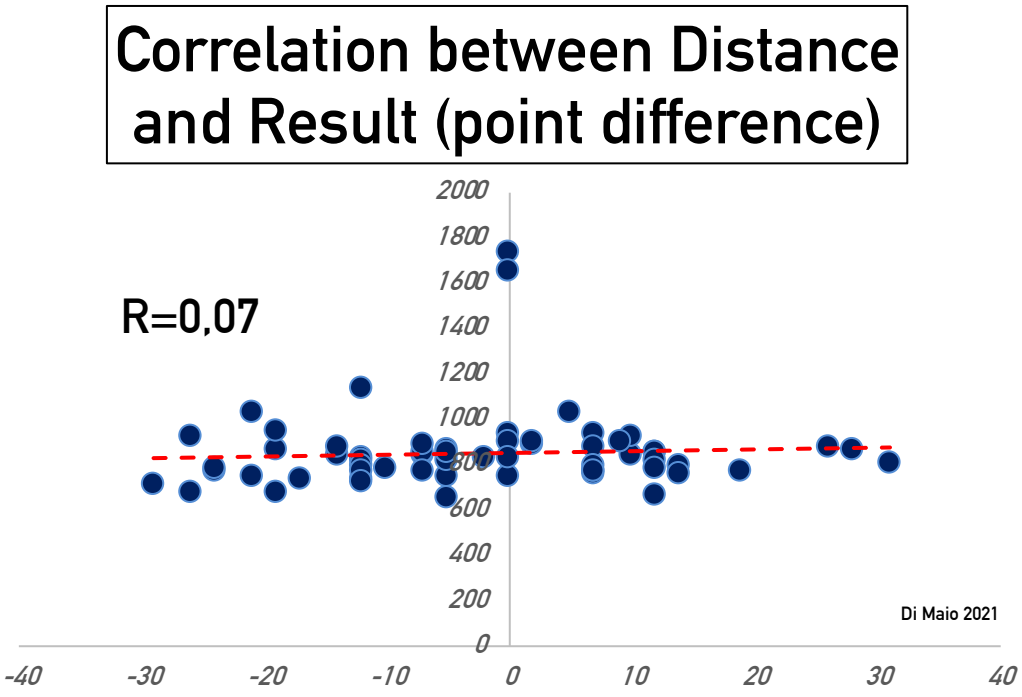
Seconds above 16Km\h in the game time - Possession correlation



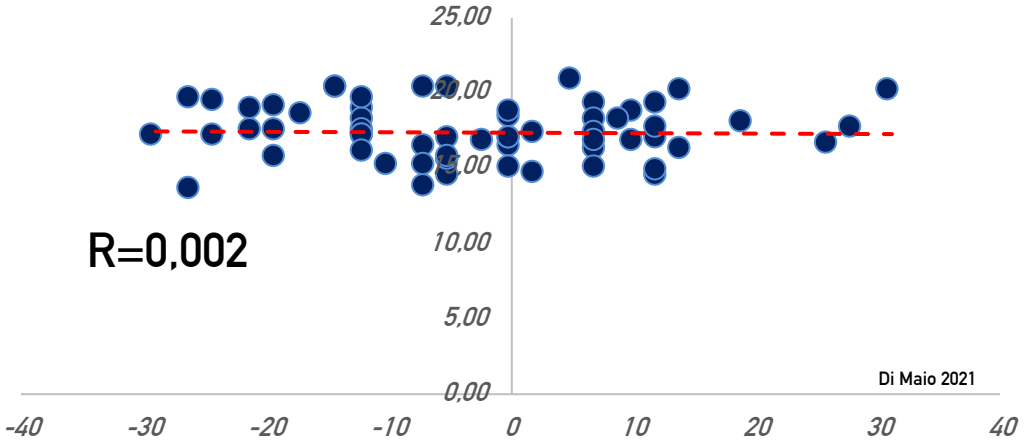
Seconds intense accelerations- Possession correlation



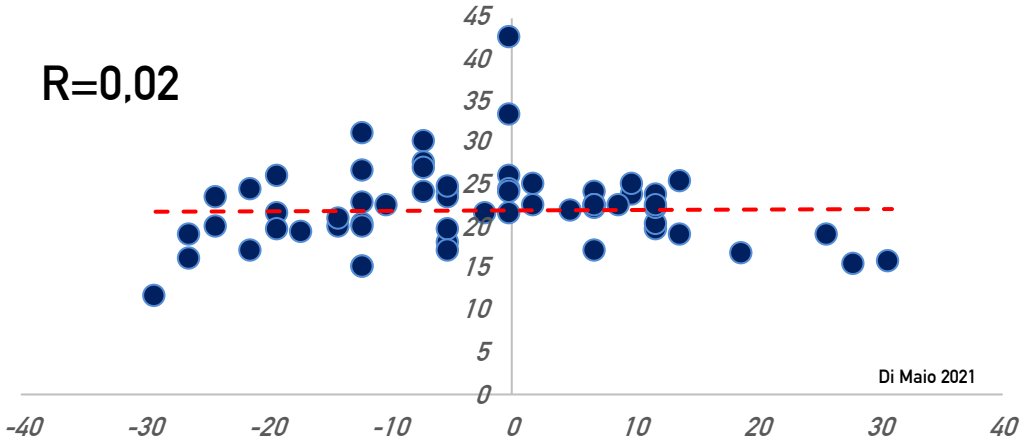
As you can easily guess, in every single correlation made, there is no type of direct or indirect relationship between possession and the development of running volumes or intensity.
Taking a practical example and using the last graph describing the relationship between possession and seconds of intense acceleration, we can see that 24 seconds of acceleration were obtained with possession of 10% and 90%.
The explanation for the non-relation of the data is to be attributed to the game itself. The game, in fact, involves a very intense physical effort, both in the attack and defense phases.
The large spaces available to the players and the urgency to re-enter the game immediately in both situations, allow for the accumulation of volume and intensity data linked to a performance model that is independent of possession.
The last analysis of this chapter is dedicated to the relationship between the result (difference points) and the GPS parameters.
Is there a correlation between absolute running physical performance and result?
The following data describes a very clear situation that answers this question. The GPS parameters used are the same as for the possession-GPS reports.



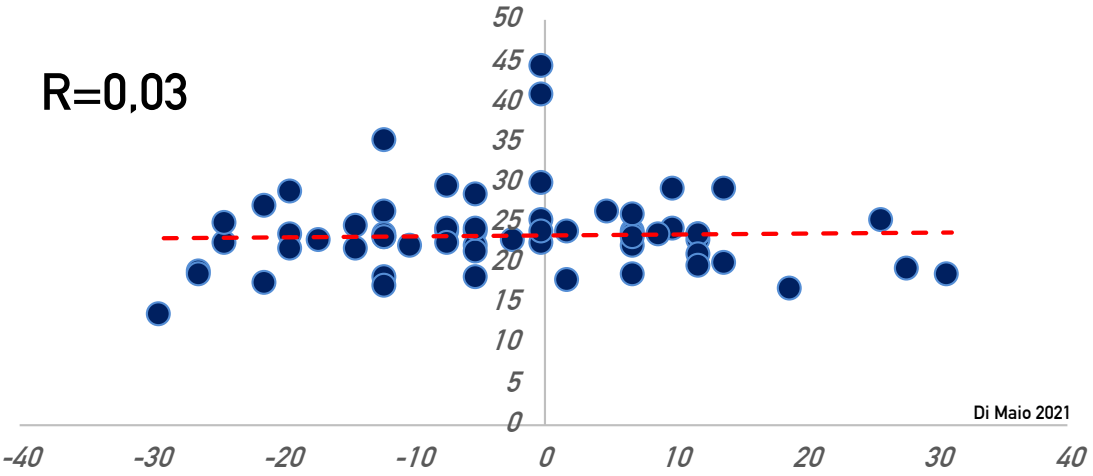
Correlation between Metabolic Power game time and Result (point difference)



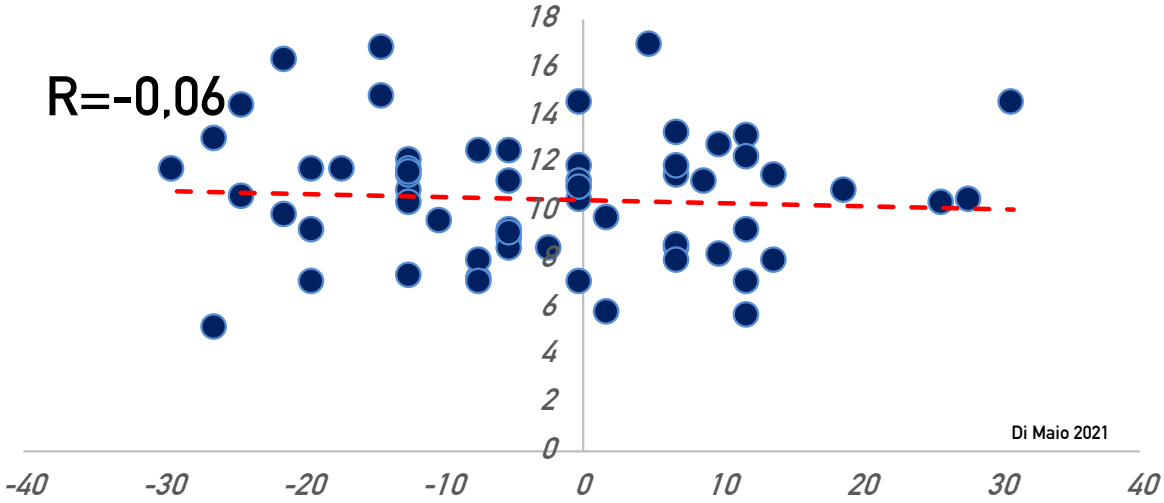
Correlation between number of intense actions and Result (points difference)



Correlation between intense accelerations and Result (point difference)



Correlation between distance> 16Km \ h in game time and Result (points difference)



The results demonstrate the total independence of the result from the running data.
In fact, the GPS parameters alone cannot fully describe the events of the match.
Once again, the importance of tactical moments must be highlighted. The choices (cognitive sphere), the execution of the specific gesture (technical sphere) and individual skills-abilities are the real protagonists of this part.
This research demonstrates the possibility of describing a physical performance model (concerning running aspects) independently of factors such as possession and result.

With team data, the model must serve as a reference for building business and identifying the real load that players have endured during tournament matches. All this is done through a comparison with an average given by the model itself. These factors can hardly be useful to express a judgment on performance above all, if the aspects to the game are totally excluded.