

# Relationship Between Height, Driving Distance and Success

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## 1. Introduction

This paper looks at the question of how differing heights on professional tours influence driving distance and success. Data from both the PGA TOUR and European Tour are studied in this report. Unless otherwise specified in this report, only players who have played in 40 or more rounds on a tour have been included in that tour’s statistics. This is the criteria for inclusion in the year-end PGA TOURTOUR statistics lists.

## 2. Historical Development of Height

The average height of players on the European and PGA TOUR in 2018 are displayed in Table 1.

*Table 1 Average height of players on the PGA TOUR and European Tour in 2018.*

Tour	Average Height (cm)	Average Height (ft)
<b>PGA TOUR</b>	182.1	5' 11.7"
<b>European Tour</b>	181.6	5' 11.5"

It can be seen that the average height on the PGA TOUR in 2018 was 0.5 cm taller than that of the European Tour. Figure 1 shows the historical development of height on both tours, with error bars showing tje standard error of the mean.

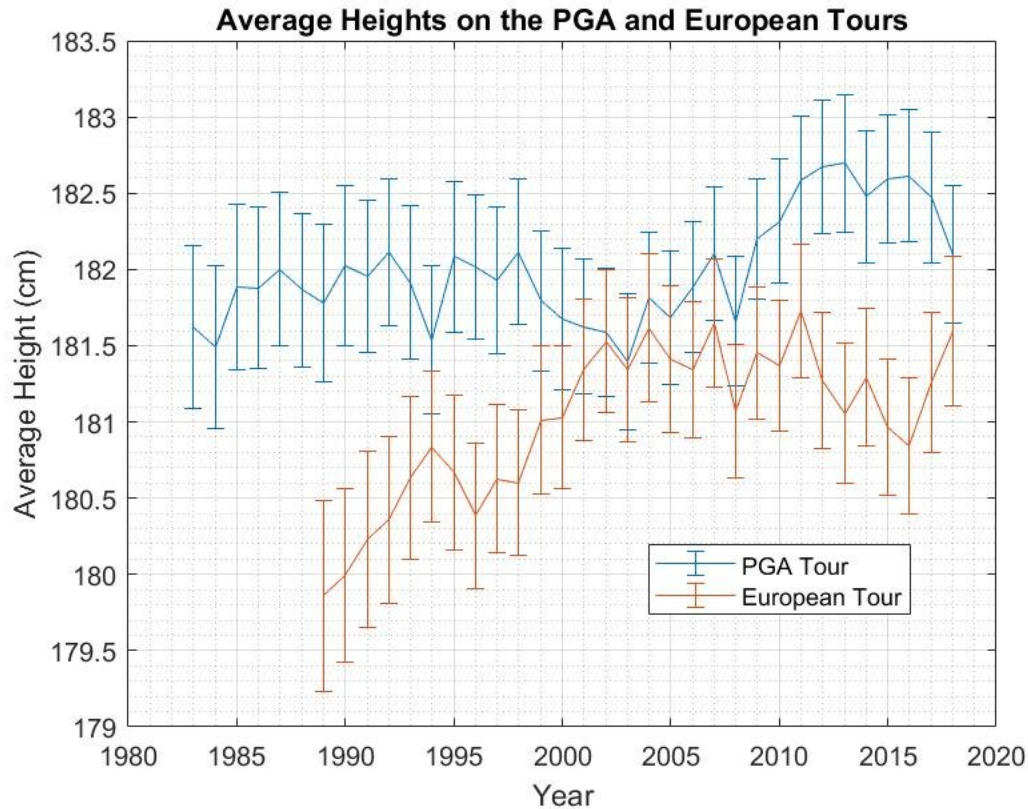


Figure 1: Average height of players on the PGA TOUR and European Tour.

The average height on both tours has increased since data has been available, with an increase of 0.2 cm between 1983 and 2018 on the PGA TOUR, and a larger increase of 1.7 cm between 1989 and 2018 on the European Tour. The average height on the PGA TOUR has generally been higher than that of the European Tour, with the only exceptions to this being 2002 and 2003, where the average on the European Tour was slightly higher.

Figure 2 and Figure 3 show the distribution of heights on both tours, with the 10<sup>th</sup>, 25<sup>th</sup>, 75<sup>th</sup> and 90<sup>th</sup> percentiles shown along with the median.

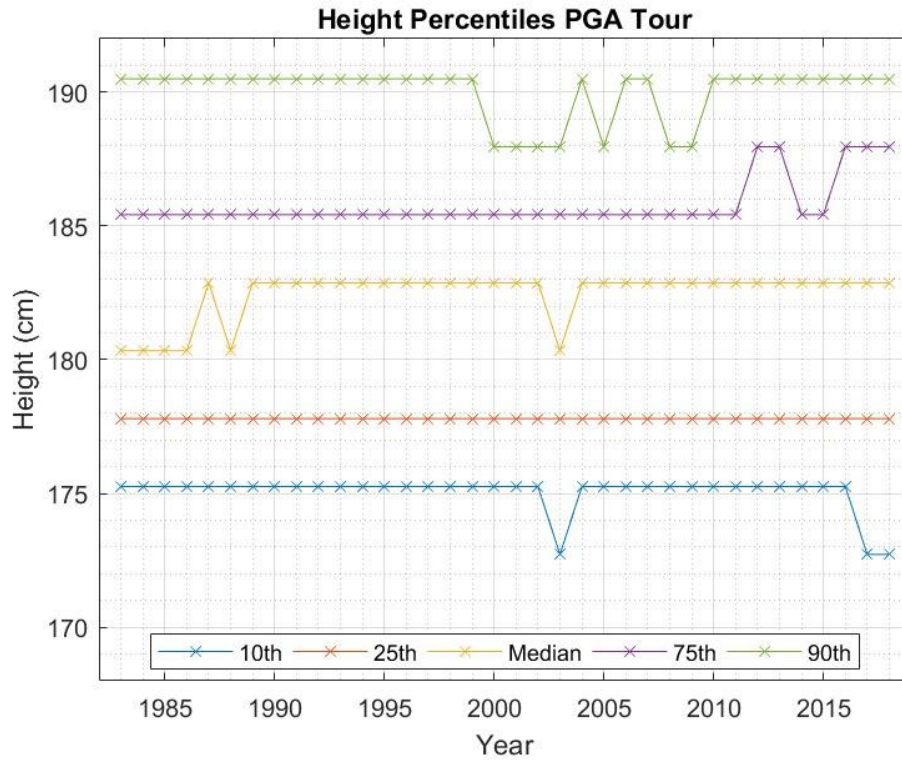


Figure 2: Distribution of heights on the PGA TOURTOUR.

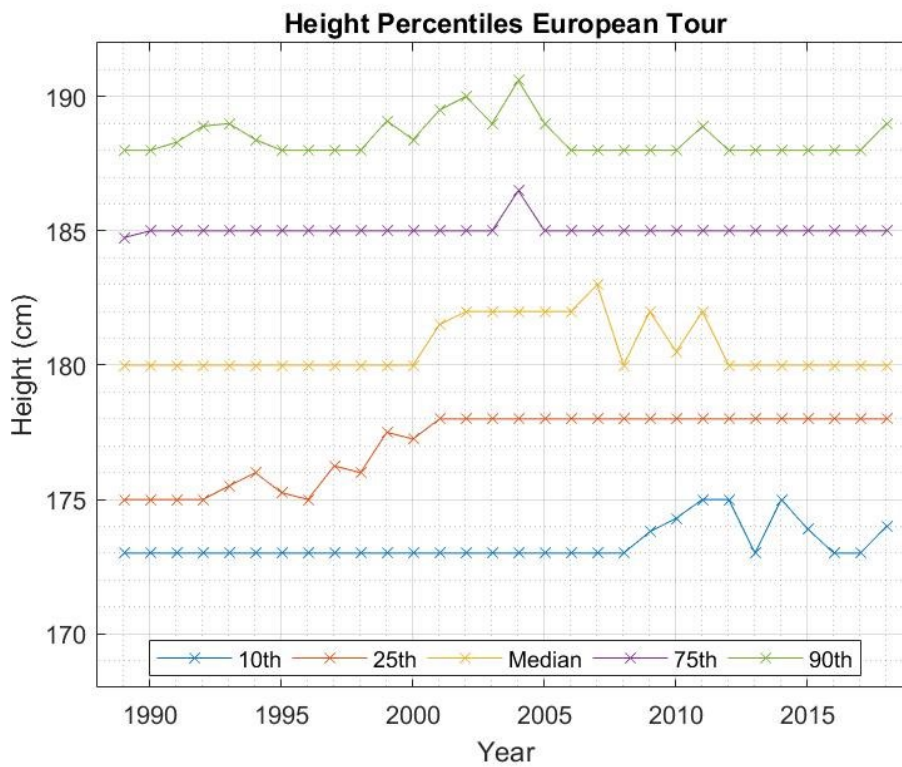


Figure 3: Distribution of heights on the European Tour.

It is worth noting here that the apparent difference in year-to-year fluctuations between the PGA TOUR and the European Tour may be associated with the different units used for recording height. The PGA TOUR uses imperial (inch) and the European Tour uses metric (cm).

### 3. Driving

#### 3.1 Driving Distance

To get an understanding of how player height influences driving distance, the average height of the players ranked in the top 10 of the year-end driving distance list each year was compared to the overall average. Figure 4 shows these results for the PGA TOUR and the European Tour.

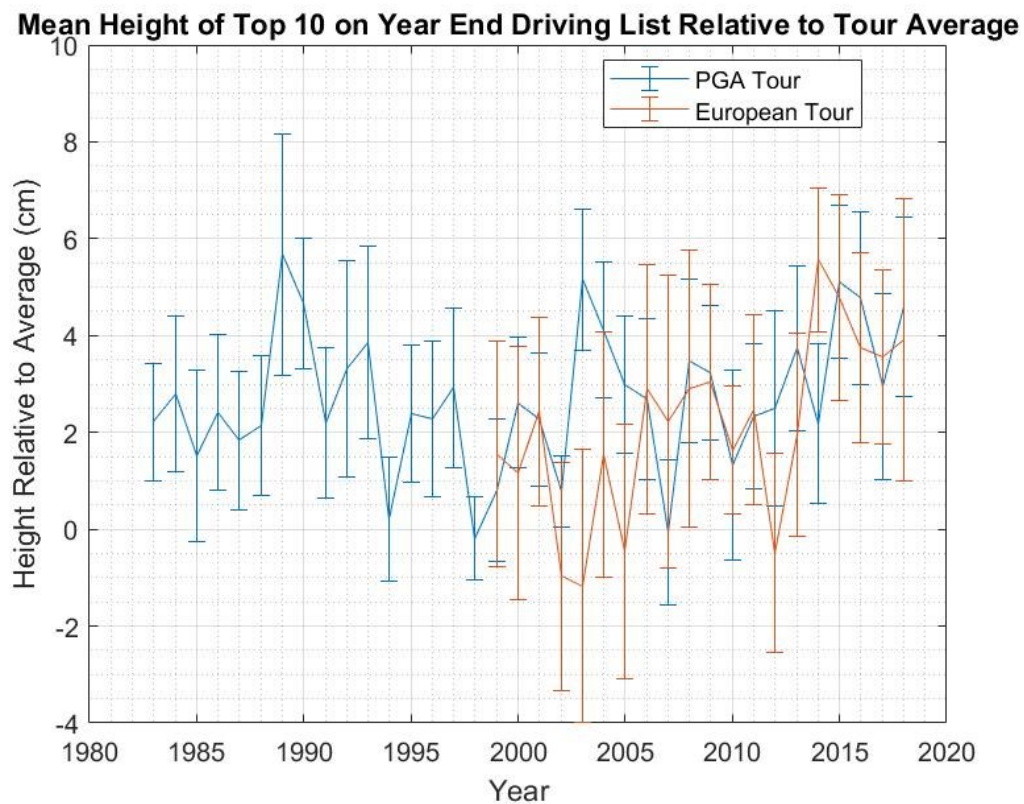


Figure 4: Difference between average height of the top 10 on the driving distance list and the tour average.

In 2018, the 10 longest hitters on the PGA TOUR were 1.8cm taller than the overall average, and on the European Tour they were 3.9cm taller. It can be seen that since 1983 on the PGA TOUR, the average height of the 10 longest hitters has only been shorter than the tour average twice, in 1998 and 2007. There is more year-to-year variability on the European Tour, however since 1999 the top 10 longest hitters have been longer than the tour average in all but 4 years.

Figure 5 and Figure 6 show average driving distance by player height between 1999 and 2018. Players averages are calculated from all their drives within this period on the respective tour.

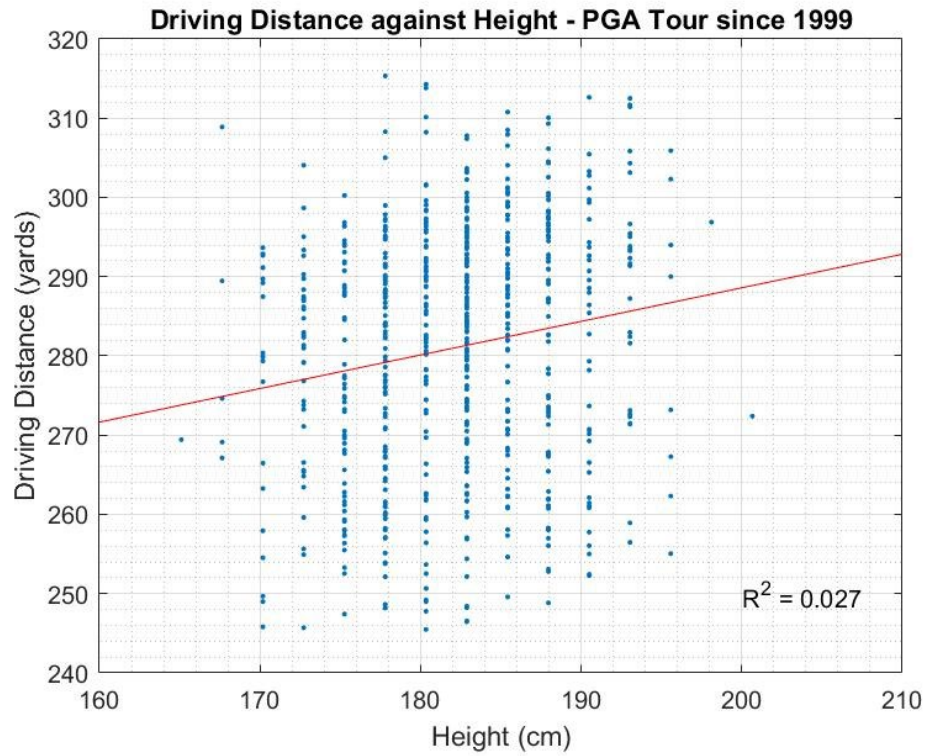


Figure 5: Driving distance by height on the PGA TOUR since 1999.

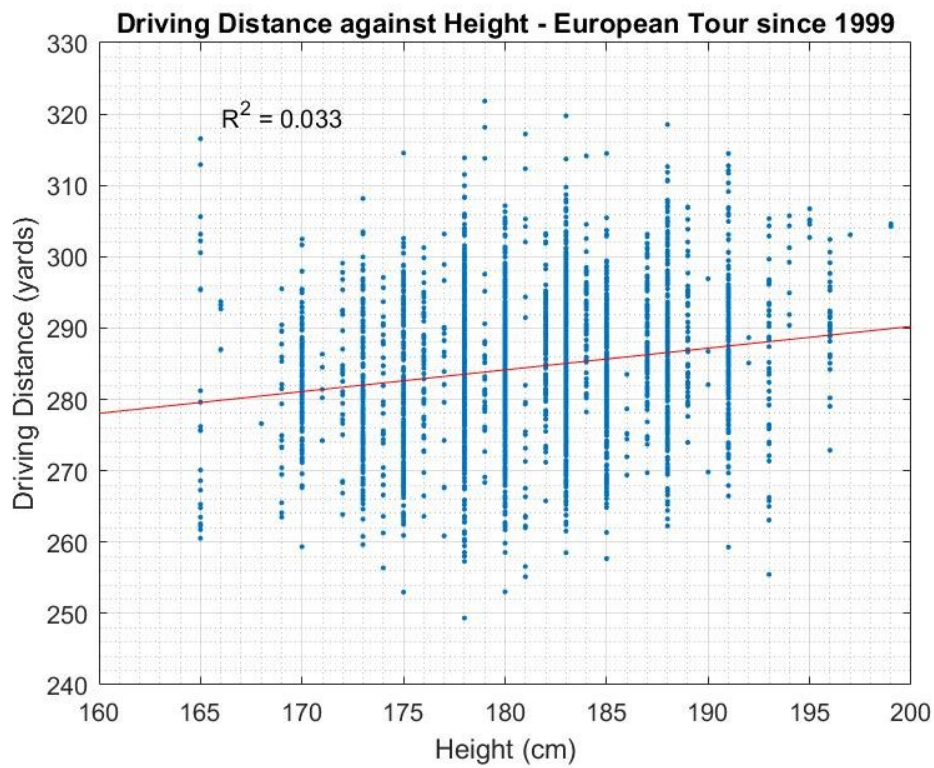


Figure 6: Driving distance by height on the European Tour since 1999.

It can be seen that in both cases, there is a positive relationship between height and driving distance. However, in both cases there is a lot of scatter in the results, with R-squared values of 0.027 and 0.033 for the PGA TOUR and European Tour respectively. In both cases, an increase in height of 1cm corresponds to an increase of around 0.35 yards in driving distance.

### 3.2 Clubhead Speed

The PGA TOUR has also measured launch data as part of the Shotlink system since 2007. This allows us to study how launch conditions change with player height. Figure 7 shows how clubhead speed varies with player height. Each player is only included once, with their average driving distance across multiple years plotted.

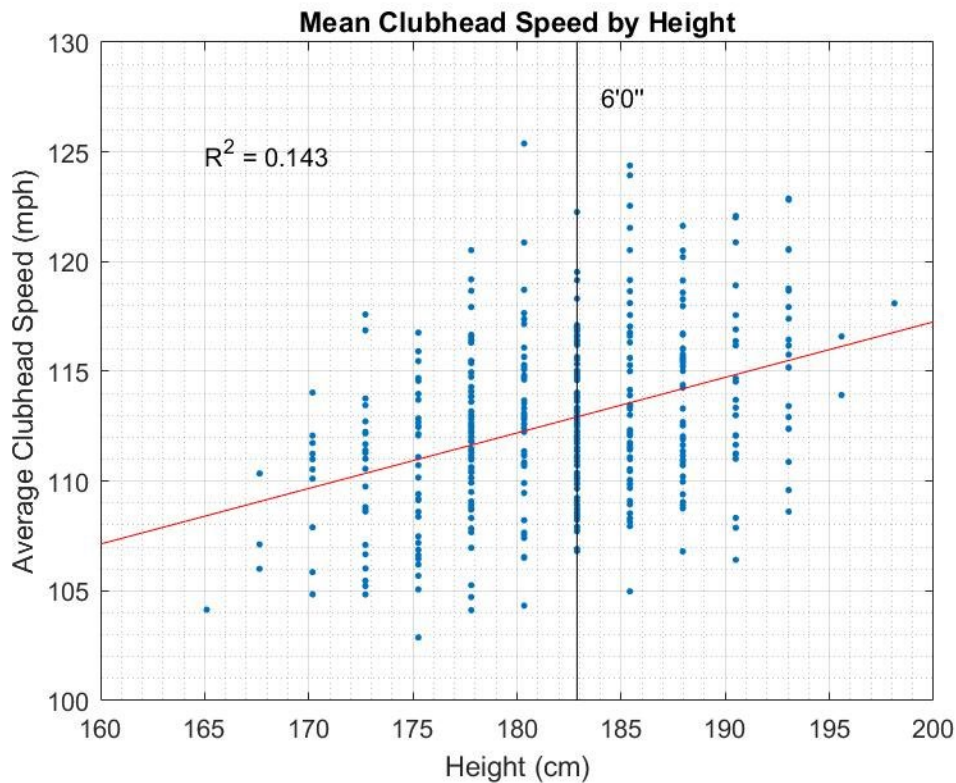


Figure 7: Mean clubhead speed by player height.

This tells us that for each centimetre in height, a player gains approximately 0.25 MPH clubhead speed, however this should be tempered by the relatively low value of  $R^2$  of 0.143.

## 4. Success

### 4.1 Money List

The influence of height on success on professional tours may be analysed by studying the relationship between a player's height and their position on the end-of-season money list. Figure 8 shows the

average height of the top-10 on each tours' end-of-season money list against that overall average for that year.

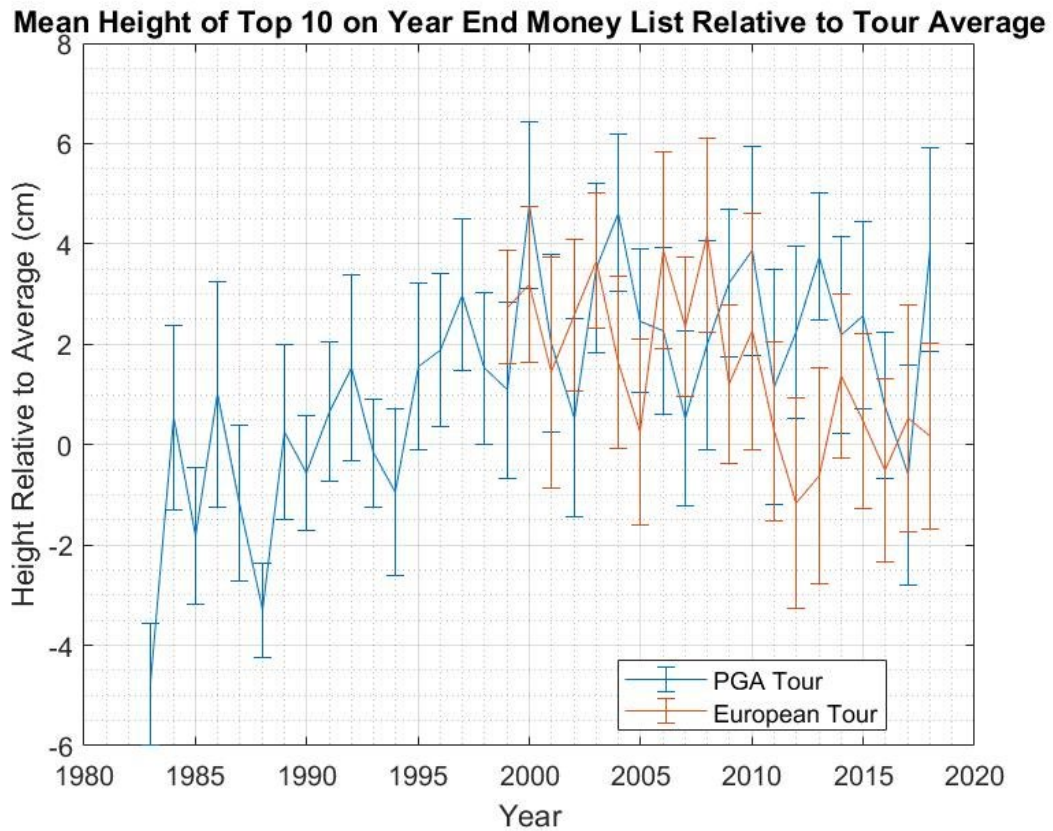


Figure 8: Difference between average height of the top 10 on the year-end money list and the tour average.

There is clearly is substantial year-to-year variability in this statistic. However, since 1995, there has only been one year on the PGA TOUR where the tour average height has been taller than the top 10 on the money list. On the European Tour since 1998, there have been 4 years where this has been the case.

Figure 9 and Figure 10 show the normalized money earned against player height on both tours since 1999. Normalized money here is the fraction of the total money awarded on tour that season the player in question earned. This is done to remove the impact of increasing prize money on both tours over time.

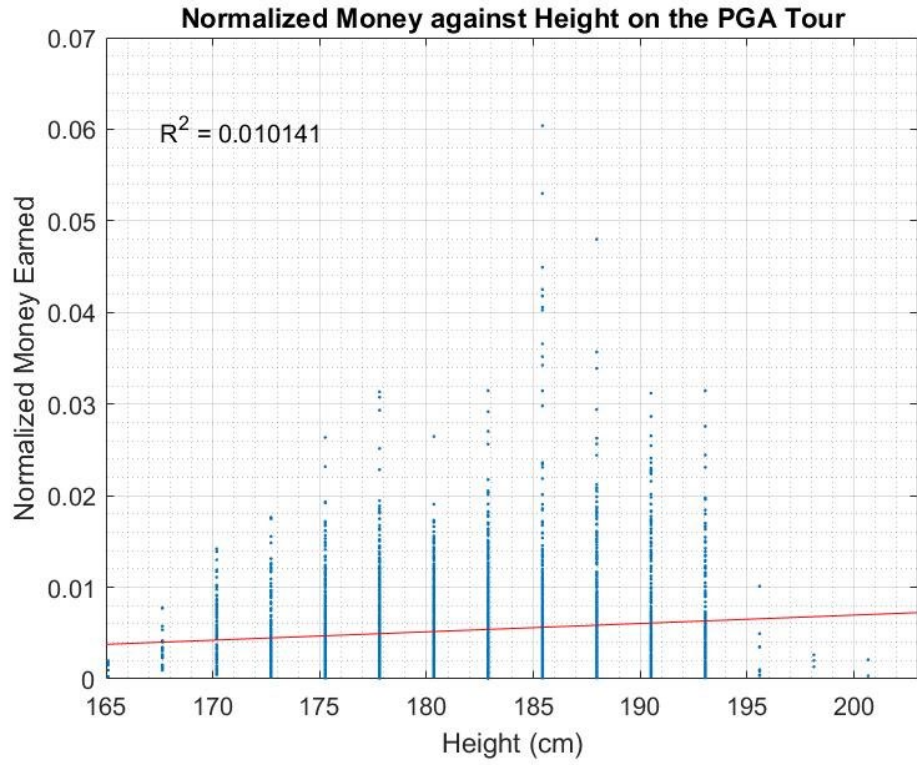


Figure 9: Money earned by height on the PGA TOUR since 1999.

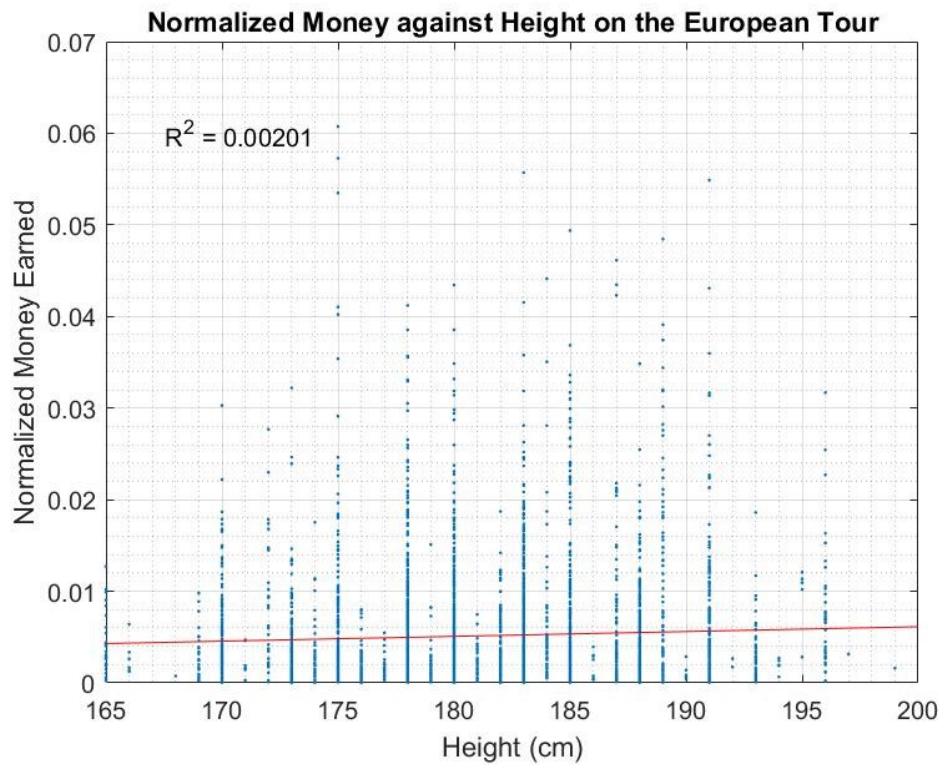


Figure 10: Money earned by height on the European Tour since 1999.

Although there is a slightly positive correlation in both cases, the low R-squared values mean these are very weak relationships.

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