Observations:

#1 - We can see that there is a moderate correlation between the number of gold medals won and gdp, based on an r-value of 0.48.

#2 - For female athletes, there is a correlation coefficient of 0.52 which indicates that perhaps there is a stronger correlation for females athletes between the number of gold medals won and gdp.

#3 - On the other hand, a correlation coefficient of 0.36 suggests that there may not be as strong of a correlation for male athletes between the number of gold medals won and gdp.

#4 - Overall, there does not seem to be a strong correlation between the percentage of participants who won gold medals for their country and the country's gdp. This leads us to conclude that perhaps gdp does not have a great impact on a country's performance at the Olympics.

#5 Based on a p-value of 0.0999, we conclude that there is not a statistically significant difference between the percentage of gold medals won by male athletes compared to the overall percentage of gold medals won.

#6 Based on a p-value of 0.0364, we conclude there is a statistically significant difference between the percentage of gold medals won by female athletes compared to the overall percentage of gold medals won.

Conclusions:

From our analysis, it is evident that females are more greatly impacted by economic factors such as gdp than males. In addition, there is a statistically significant difference in the rate at which females win gold medals compared to males. These all suggest that perhaps it is worth investing in specialized support for female athletes aspiring to one day compete in the Olympics.