The Effect of Dimple Configuration on Golf Ball Distance

Twitchell, Hunter

Golfers constantly strive to improve their game, shot distance in particular. There are many things that influence distance on a golf ball. Some of these factors include: dimple: quantity, depth, and shape, core layers, and cover material. These factors are broken down into two sections, those that are relevant during club contact (cover material and core layers), and flight (dimple: quantity, depth, and shape). This experiment will focus on how the dimple quantity and shape affect the overall flight distance. A golf ball launcher that can consistently release the same amount of air pressure was constructed to test the different dimple configurations. Golf balls of high, intermediate, and low dimple counts were tested with three common golf ball shapes (octahedron, tetrahedron, and icosahedron). After launching the golf balls 30 times each, it was found that there was sufficient evidence to conclude that one ball was different than the others (a P-Value of .0295 was found using an ANOVA test). However, when an ANOVA test was run on the balls grouped by shape it was found that there was not enough information to conclude shape is significant (P-Value of .137). The same test was run on the dimple quantities (high, medium, and low), there was not enough information to conclude one amount is better or worse than the others with a P-Value of .0584. It was determined that the shape of ball has an minimal effect on flight, while the amount of dimples have an impact on distance.

Awards Won: