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FROM THE Club FITTING BENCH

The Gear Effect

Hey, let's talk about gear effect! Eh? The what? The gear effect is defined as: the influence that the curved face of your driver and fairway clubs have on ball flight. This is a phenomenon that club fitters need to understand for two key reasons. First, we need to be able to understand what could be influencing the flight when customers describe how they hit the ball. Secondly, club heads can be selected from different manufacturers to increase or reduce this effect to some extent. The gear effect, quite simply, puts spin on the ball when it is struck away from the centre of the clubface, or the centre of gravity of the head. Because of the curve of the face in the horizontal plane, a ball struck near the toe, away from the centre of gravity, will spin towards the centre of gravity. That means an off centre toe hit that starts right will tend to turn left towards the centre of the fairway.

This is totally counter-intuitive. Most people would think that this would cause the ball to slice. But most people would be wrong. However, if the ball is struck with a very open face, or if the clubface strongly cuts across the ball from an outside swing, then the gear effect could be cancelled out by the slice spin that gets put on the ball. But with a usual, more or less square ball strike, the gear effect matters a lot.

The same thing applies to the vertical plane, which is also curved. Balls struck above the centre of gravity will tend to curve towards it, or downward. A lot of driver heads these days have a low centre of gravity; that is, the weight is toward the bottom of the face. In these heads gear effect tends to reduce the amount of backspin that the loft of the club imparts.

So, what does all this fancy physics mean? Well, maybe you have noticed that a lot of club heads, including drivers, fairway woods and hybrid heads, have weight ports in them that permit you to exchange one weight for another. The

weights are usually about one centimeter in diameter and, although they are not universal amongst manufacturers, they generally come in 2 to 14 gram denominations in 2 gram increments. A newer version of the same principle is the Slider from TaylorMade, which has a weight on the sole of the club that can slide forward toward the toe, or back toward the heel, and then be secured by a screw. Do you know what these are for?

Re-distributing the weight in a club head moves the centre of gravity. This influences the gear effect and subsequent ball flight, and can have a corrective effect if done properly. Moving the centre of gravity more toward the heel, by replacing the heel weights with heavier ones, would tend to create a stronger gear effect to help counteract a slice. By placing more weight farther back on the club head, it moves the centre of gravity backwards, and the player would tend to experience higher ball flight with the same club. We hasten to add that these effects are slight; you won't see profound changes in ball flight, just differences in the tendency for the flight to change.

So the next time you see club heads with exchangeable weights in the sole, or at the back of the club, it's all about manipulating the neat phenomenon call the gear effect. Knowing about this will make you a much more interesting guest at cocktail parties. And if you are a club fitter, like us, it's stuff you just have to know!

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