

# What Will The Ball Do?

How do I hit the ball up or down? How do I hit with Top Spin. How do I Cut the ball for greater distance? The answers to all of those questions are on this page.

## The swing plane lie

There is a common belief that if you want to hit the ball up in the air, you have to swing up at the ball and lift it. This is absolutely false. All you have to do to hit the ball up in the air, is to hit the bottom of half of the ball. You see, where the shell or barrel of the bat hits the edge of the ball, is what determines whether you will hit the ball up in the air, on a line, on the ground, or somewhere in between. So, while it is easier to hit the bottom of the ball if you are swinging up, you are much better off hitting the bottom of the ball with a level swing, or a slight down swing.

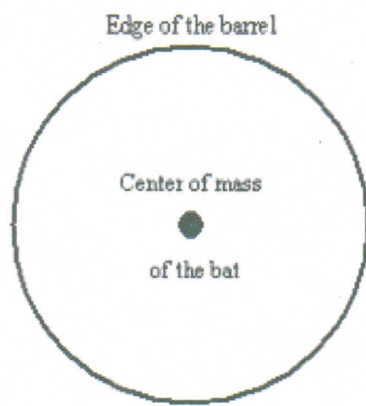
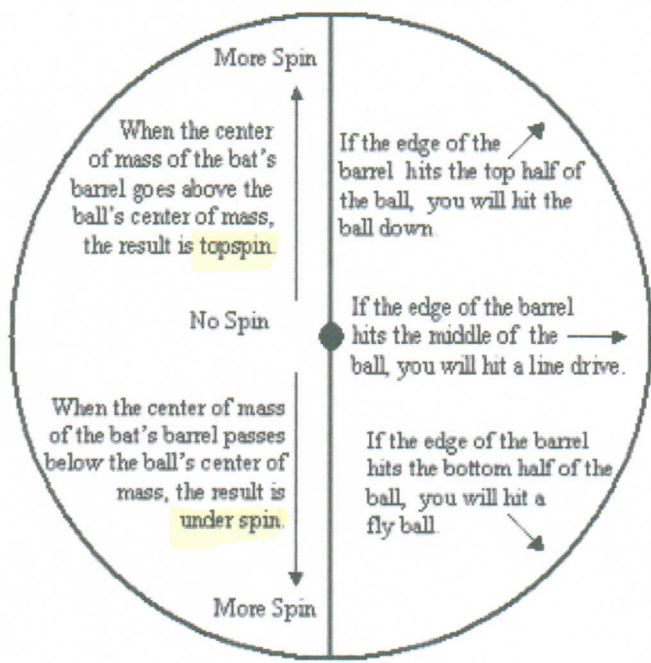
How to put spin on the ball is a whole separate issue. To hit long homeruns and really drive the ball into the gaps, you need to put under spin on the ball. You do this by what we call "cutting" the ball. Generally this is thought of as swinging down on the ball, but that is not entirely accurate. In order to put under spin on the ball, you only need to do one thing. You need to make the center of mass of the bat's barrel pass below the center of mass of the ball. In other words, if you looked at a cross section of the barrel of the bat (like you had taken the end plug out and were looking down the end of the barrel), you could plot the point which is the center of mass of the barrel. This point needs to pass through the bottom half of the ball at the mid-line (a vertical line through the center of the ball. If that happens you will get under spin. If the center of mass of the barrel goes through the center of mass of the ball, you will hit a knuckleball, and if it goes through the top half of the ball at the mid-line, you will hit with topspin. This dispels the belief that swing plane (swinging up, down, or level) somehow relates to hitting with a certain type of spin or to hitting line drives, grounder, or fly balls. Your swing plane only dictates the possible spin and flight combinations. For example, if you swing down on the ball, you could hit a topspin grounder, an under spin line drive, or an under spin fly ball (which is how you ultimately want to hit to really launch the ball).

Look at the picture on this page to see how, where on the ball you make contact, and where the center of mass of the bat passes through the midline of the ball, dictate the flight and spin of the ball.

# Spin / Flight

Spin is determined by where the center of mass of the bat passes through the ball

Flight is determined by where the edge of the Barrel strikes the edge of the ball.



# Ball

# Bat

(Cross Section of the barrel)