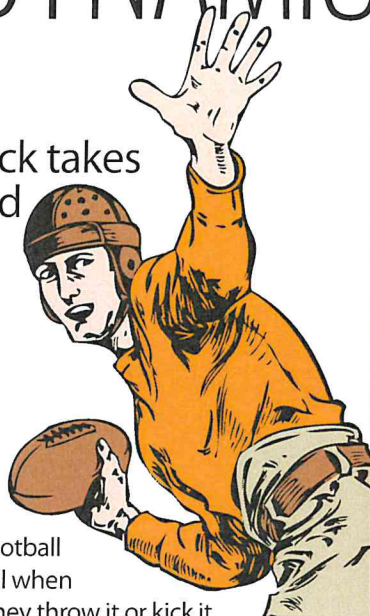




AERODYNAMICS IN FOOTBALL

The quarterback takes the snap and gets ready to throw the **prolate spheroid** to the open receiver downfield and ...



Wait. What?

That strange football shape is called called a **prolate spheroid**. That shape lets football players put a spin on the ball when

they throw it or kick it. This spin creates air flow over the ball while it travels. That matters because **gravity** is always trying to pull the ball down to the ground.

FUEL FOR THOUGHT

NEED A LIFT?

The word aerodynamics comes from two Greek words:

AEROS

(meaning 'of the air') and

DYNAMIS

(power, strength, force)

Scientists use aerodynamics to make things go fast and far – like cars, jet planes and footballs.

The weight of an object makes it harder to lift.

But knowing about aerodynamics keeps a 300,000 pound plane in the air!



HEY, GRAVITY! JUST WHOSE SIDE ARE YOU ON, ANYWAY?

GET A GRIP!

Quarterbacks grip the ball in different ways to create spin. And spin is how they get more lift on the ball. Air traveling above the ball is forced downward by the spin and the air below creates lift.

SPIN TO WIN

When the football spins around the x-axis – or horizontal axis – it keeps the ball on its intended path.

This spinning around the x-axis is called a gyroscopic effect.

