

## **Result by Changing the Release Point**

### **(The first three releases are 3 inches apart)**

The table below shows 4 different release points and the effect on the launch angle and highpoint downrange. Each release is numbered 1 through 4. For comparison purposes release #2 shows a release at 3 feet above the ground and 25.5 feet from the stake. The leftmost circle defines the starting point before striding forward. The shoulder hub is 50" from the ground and moves horizontally 30" toward the foul line

For the sake of interpreting this table the emphasis is on Circle #2. Visualize the image as a wagon wheel with the shoulder as the HUB, each SPOKE as the arm holding a horseshoe with the arc at the Center of Gravity, a total of 27" (radius). The HUB does not move to show the impact of releasing a shoe earlier or later relative to the launch angle, highpoint and initial velocity. Releases #1 thru #3 occur 3 inches apart, only the distance from #3 to #4 is slightly less to show the result of testing an initial velocity for 45 degrees.

Unless some manipulation at release is added, any horseshoe when released, will be tangent to the arc (wheel). Tangent means that the arm is at 90 degrees (perpendicular) to the arc when the shoe is released.

| <b>Release #</b> | <b>Distance From Stake</b> | <b>Distance From Ground</b> | <b>Launch Angle</b> | <b>Highpoint At 7.5' Downrange</b> | <b>Highpoint and Distance</b> | <b>Initial Velocity</b> |
|------------------|----------------------------|-----------------------------|---------------------|------------------------------------|-------------------------------|-------------------------|
| #1<br>Earliest   | 25.69'                     | 2.88'                       | 28.40 deg           | 5.5'                               | 5.75 up<br>10.70 dr*          | 28.62 fps               |
| #2               | 25.50'                     | 3.0'                        | 34.07 deg           | 6.5'                               | 6.8' up<br>11.0' dr*          | 27.37 fps               |
| #3               | 25.28'                     | 3.16'                       | 40.93 deg           | 7.48'                              | 7.94' up<br>11.13 dr*         | 26.81 fps               |
| #4<br>Latest     | 25.19'                     | 3.25'                       | 45.0 deg            | 8.26'                              | 8.83' up<br>11.37' dr*        | 26.80 fps               |

\*dr = distance downrange

NOTE: As a general rule, the effort needed to throw any object the maximum distance with the least amount of effort is 45 degrees. Noteworthy is, in these examples, the Highpoint varies significantly, while the downrange location of the Highpoint varies little.