

The Drive Hump is the reduction in boat acceleration following the blade entry. The term Drive Hump was first identified by Dr. Varery Kleshnev and explained in his book the Biomechanics of Rowing. This loss in acceleration is common for all crews, but the amount and duration vary and affect boat speed and performance.

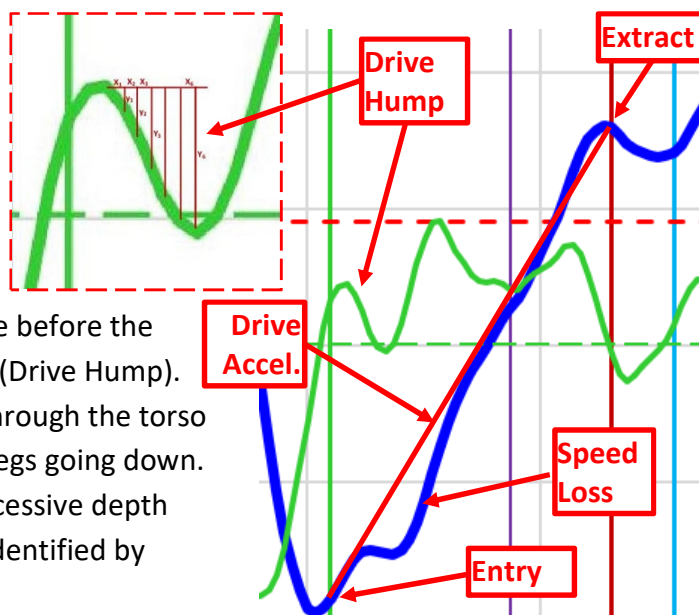
² Drive Hump. (t*accel.)	0.165	drive hump is acceleration loss after catch multiplied by time.
Drive Accel. (entry to extract)	2.87	boat acceleration between blade full bury and blade extraction.
Drive Accl. Eff. (entry to extract)	93.5%	percentage of area under the curve compared to straight line accel.

Purcerverance Boat Speed Curve Sheet – Drive Hump, Drive Acceleration, Drive Acceleration Efficiency

The Drive Hump factor value is the sum of the reduction in boat acceleration multiplied by the time. Greater drive hump factor values represent an additional loss in acceleration and are detrimental to boat movement and performance. The graph below shows the green acceleration line with the drive hump in detail on the left. The blue line is the boat speed and clearly shows the loss in speed correlated with the drive hump.

Coaching:

- Immediately following the blade entry, the focus must be driving the legs to accelerate the boat while holding the torso angle forward and straight arms. The torso (upper body) and arms ‘hang’ onto the oar handle as the legs extend aggressively.
- The knee joint opens through a ninety-degree angle before the torso engages to minimize the loss in acceleration (Drive Hump).
- Coaches must emphasize the **leg drive** continues through the torso engagement and watch to identify any stall in the legs going down.
- Monitor blade depth at entry. Blade entry to an excessive depth contributes to the loss in acceleration and can be identified by excess oar shaft underwater.
- Monitor arm hang through the first half of the drive phase.
- Monitor athletes are not following an over-powerful catch with reduced drive force.



Drills:

- Rush-in catch.
- Three-part drive (legs only, legs than torso, legs than torso, then arms).
- No-power/low-power entry, with emphasis on correct technique synchronization.
- Quick clean entry followed by acceleration build.
- New-old-new with a focus on feeling the difference.