

## Biomechanics and Database

### Definition of BIOMECHANICS

: the mechanics of biological and especially musculoskeletal activity (as in locomotion or exercise); *also* : the scientific study of such mechanics

The company's biomechanical evaluations determine a horse's potential capabilities as an athlete or producer by taking fifteen precise measurements of its skeletal anatomy and comparing these measurements to all the horses contained in our database.

In the past 40 years, Cecil Seaman & Co. has measured over 112,000 horses, amassing a database that is unparalleled in the industry. The database contains horses measured from all over the world.

Through 2017:

2,207 Grade 1 stakes winners

5,844 Graded stakes winners

13,313 stakes winners

910 champions

1,029 millionaires

1,251 dams of Grade 1 winners.

442 dams of champions

658 dams of millionaires

57 Kentucky Derby Winners, 55 Preakness winners, 55 Belmont winners

From years of scientific analysis all the horses in the database, Cecil has identified what it takes biomechanically to be an elite racehorse, broodmare, or stallion. Using this information, he can advise clients which young horses have the potential to be classic winners, which broodmares will be able to reproduce those desired characteristics, or which stallions will be able to sire a high percentage of A+ offspring.

Standard pedigree analysis relies on evaluating the black type in the family, but this tells you nothing about the biomechanical ability of an individual horse. A pedigree page tells one kind of story, and a biomechanical analysis tells another. Because there is such a wide variability in the phenotypes of black type winners (sprinters vs stayers, turf vs dirt, etc), trying to rely on black type to purchase or breed a horse is not very reliable. Alternatively, if the individual horse is measured, then those numbers can identify if that particular horse has capabilities similar to the black type horses in the family.

Conformation analysis is also commonly used to select horses, but no matter how good an individual looks, visual analysis cannot equal the information gained by physically measuring and scientifically evaluating a horse. Cecil Seaman & Co. scores each horse for conformation from a biomechanical standpoint as part of the overall grade.