

BORN to RUN

No one really knows what it takes to make a champion, but scientists have narrowed it down to genetics and talent.

ANATOMY OF A CHAMPION

The thoroughbred can trace its ancestry more than 300 years back to one of three Arabian stallions. These horses were bred for agility, to carry weight and sustain speed over long distances.

Back is short and strong. A horse with a long back may not be as strong.

Aflect Alex, bred in Ocala, won the 2005 Preakness and Belmont Stakes. AP photo

Hindquarters are strong and have the heaviest muscles for better propulsion.

Legs are light but disproportionately long, which puts the horse at risk for leg injuries because of its fragile bones.

Lungs tend to bleed if a horse has been overexerted.

Shoulders are muscular and well-sloped. The angle affects stride length and lessens the strain on the forelimbs.

To accelerate, the horse swings its shoulder blade in a wide arc, allowing it to take a longer stride

The bit, bridle and reins guide the horse; but to maintain control, the horse's teeth must be kept in good condition.

Neck should be long, well-proportioned and blend smoothly into the shoulders. A good neck makes the stride smoother and more rhythmic.

Chest is broad and deep so there's ample room for the heart and lungs. Narrow-chested horses may lack power and stamina.

Racing shoes are lightweight, usually made of aluminum.

Silks identify each owner participating in the race.

Jockey profile

A typical jockey is small in size, agile and in fit condition. A good jockey is able to keep his or her horse relaxed.

Average height: About 5 feet 5
Weight: Ideally 110 pounds
Average body fat: Less than 3%
Average salary: \$40,000 a year
Training: Most ride horses in training before riding in small and then larger races
License: All jockeys begin as apprentices until proving their abilities.

Saddle is flat and lightweight to help the jockey balance on the horse. Five-pound handicap weights are placed in the saddle number cloth.

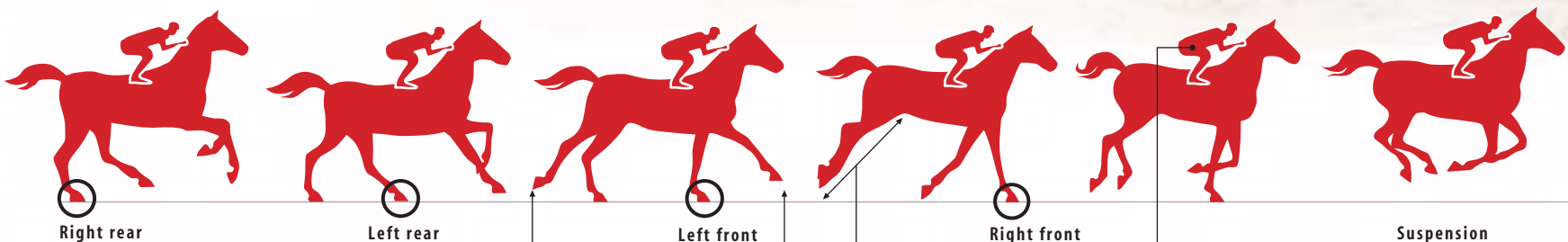
Barrel (girth) is deep, allowing for well-spread ribs. If too narrow, the forelegs brush against each other.

Galloping boots protect the tendons and restrict movement.

Jockey Stewart Elliott rides Smarty Jones in the 2004 Kentucky Derby. Smarty Jones won that race and the Preakness, but lost to Birdstone in the Belmont Stakes. AP photo

CALCULATING SPEED THROUGH STRIDE

When a thoroughbred is at a rotary gallop, its feet strike the ground in a circular sequence. For each stride, all four feet leave the ground before becoming completely suspended in air.



Horses speed up by taking longer, faster strides, which reduces the time each foot remains on the ground.

A typical stride length is 23 feet. Legendary horse Man O' War had a 28-foot stride.

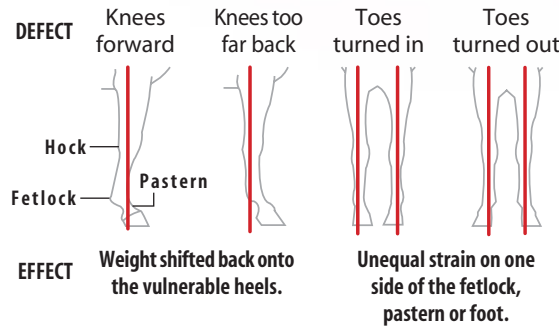
Longer legs allow for long strides.

A jockey must ride low, leaning on the horse's neck, with his legs pressed on the horse's side for motion.

Longer strides increase the time spent in suspension.

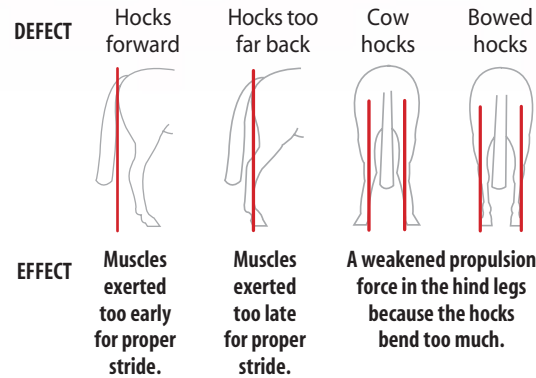
Weight strain

Because the legs carry the most weight, they must be vertical to minimize strain.



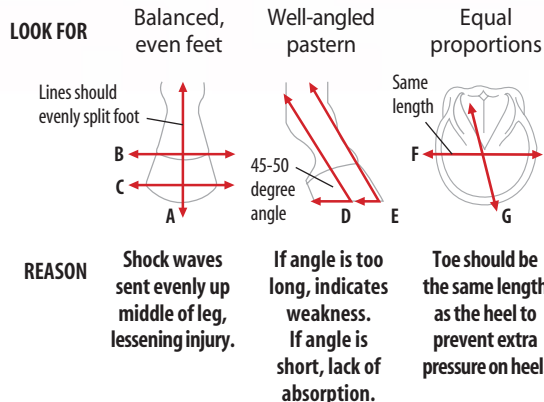
Spring action

Legs act as springs as they bend and straighten, pushing the horse forward.



Symmetry and balance

A balanced foot allows the horse's body to evenly absorb pressure while running.



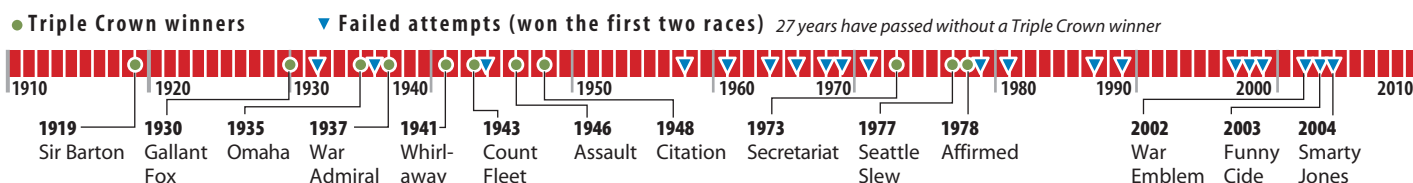
Thoroughbred profile

Height: About 64 inches (calculated in hands which equals 4 inches) from the top of shoulders to the ground.
Weight: About 1,000 pounds
Speed: Up to 40 mph; can cover 60 feet per second. For every step the horse takes, 1,800 pounds of pressure is put on each leg.
Peak age: Runs fastest at age 5.
Training: Starts at the track usually when the horse is 2 years old, with jogs leading to gallops and workouts at near race speeds.
Breeding: A majority of thoroughbreds bred in the United States come from Kentucky, Florida and California. There are more than 840,000 for racing.

2004 U.S. foal crop
 Total: 33,864
 Kentucky **28.7%**
 Florida **12.9%**
 California **10.9%**

THE TRIPLE CROWN CHALLENGE

The Triple Crown consists of three races during a five-week span. The races are the Kentucky Derby, the Preakness and the Belmont Stakes and are only for 3-year-old thoroughbreds. Only 11 horses have won the Triple Crown, the last being Affirmed in 1978.



Kentucky Derby

Louisville, KY
Churchill Downs
 The "Run for the Roses" is the longest continuously held U.S. sporting event.
Established: 1875
Held: First Saturday in May
Distance: 1 1/4 miles
Purse: \$2 million
2005 racers: 20
Record: 1:59 by Secretariat in 1973



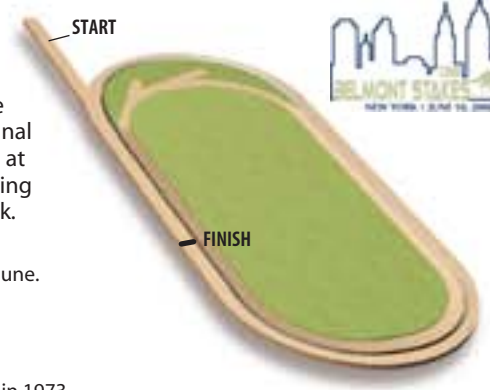
Preakness Stakes

Baltimore, MD
Pimlico Race Course
 Known as the middle jewel of the Triple Crown; it's Woodlawn Trophy is valued at \$1 million.
Established: 1886
Held: Third Saturday in May
Distance: 1 3/16 miles
Purse: \$1 million
2005 racers: 14
Record: 1:53 by Louis Quatorze in 1996



Belmont Stakes

Elmont, NY
Belmont Park
 The longest race of the Triple Crown. The original Stakes races were held at Jerome Park before being moved to Belmont Park.
Established: 1867
Held: Second Saturday in June.
Distance: 1 1/2 miles
Purse: \$1 million
2005 racers: 9
Record: 2:24 by Secretariat in 1973



SOURCES: The Baltimore Sun; KRT; The Jockey Club; American Horse Council; The Triple Crown Challenge; The Nature of Horses by Stephen Budiansky; Complete Horse Care Manual by Colin Vogel; Sports: The Complete Visual Reference; The Visual Dictionary of the Horse; Sun-Sentinel files and research

Staff graphic/Belinda Long; horse illustrations by the Baltimore Sun and San Jose Mercury News