

ROLLING RESISTANCE

FRAMES & ROLLING RESISTANCE:

Pavements are riddled with surface imperfections that slow a bicycle down. Without suspension, both the rider's and the bicycle's weight must be lifted up and over these imperfections for the vehicle to move forward. With suspension, the majority of the weight is sprung mass. Only the unsuspended portion (wheel and lower frame) and a small amount of the rider's weight need to be lifted (about 35 pounds for both). It takes far less energy to lift 35 pounds than 175.

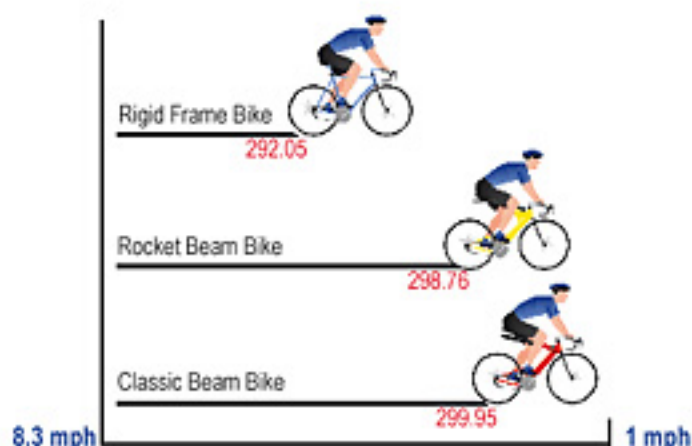
Suspension also directly reduces tire rolling resistance. Tire rolling resistance is not as much about tire width or tire pressure as it is about consistency of tire contact patch. The more consistent the tire's contact patch is with the road, the less rolling resistance the vehicle will have.

How can the frame you choose effect this? Without suspension, the majority of the vehicle's weight is unsprung and the road imperfections must be absorbed by the rider and tires. Therefore, the vehicle will be slowed as the tire deflects and deforms in an attempt to absorb the shock. By redirecting the load into the suspension system, the tires are kept from having to deflect as much. The more consistent the contact patch, the lower the rolling resistance and the less energy the rider will have to use to overcome the resistance.

Rolling Resistance TIME COMPARISON

Frame	Distance	Power Output	Time
Softride Classic Frame	112 miles	185 watts	5:26:49
Softride Rocket Frame	112 miles	185 watts	5:27:07
Rigid Frame	112 miles	185 watts	5:36:00

Times are based upon a math model that considers rolling resistance as the only changed variable. The results are based upon variable terrain and conditions with a rider generating an average of 185 watts.



Rolling resistance tests were conducted on a controlled 300 ft. test track with surface variations of .375" (typical asphalt) over 96 runs. The test recorded the distance it takes for the vehicle to slow from 8.3 mph to 1 mph. Rigid bike was oversized aluminum. Details on how to implement your own test can be found at softride.com

Coast Down TEST