

What Makes it Hard.

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No, not male enhancement pills. We're talking about cycling, so get your mind back on the road.

Many elements of riding conspire to increase effort beyond that which is required for a casual spin on the trail: base/peak elevation, weather, distance, road surface, fatigue and competition/pace share spots atop the list. But perhaps the greatest challenge of all is the total elevation gain required to cover a route.

Thanks to the proliferation of bar-mounted GPS devices, elevation gains can now be captured for every face, pitch or bump on a ride – right down to the 20 feet required to scale an overpass or the 2,200 feet required to mount the Oxbow Corkscrew Wall. This data is now available to be quantified and analyzed as a key element in determining ride difficulty. This is why Cycle Folsom provides elevation profiles and cumulative elevation gain on our routes. And that is the purpose of this article.

Knowing (or estimating) elevation gain is important in route planning because it helps predict how much you will suffer. We've dubbed this measure "feet per mile" (ft/mile). Divide total elevation by total miles to determine average elevation gain (10,000 feet climbing / 100 miles = 100 ft/mile). We somewhat arbitrarily say that any distance route exceeding 100 ft/mile is extreme (we've also conducted extensive testing just to be sure). Beyond that you will find nothing but beastly efforts.

The chart below is a list of damn hard rides – centuries, double centuries, training rides and other serious events. When you've ridden one of these routes (below) or climbs (page 3), you'll have a better idea what to expect before tackling one of the others. You'll also know you've ridden one of the toughest routes in North America. Note: this list is not intended to rank overall ride difficulty, just total elevation gain.

Route	Distance (Miles)	Total Elevation Gain	Ft/Mile	Notes
Everest Challenge UCSF State Climbing Championships: Sunday	86	13,570'	158'	The second day of torture in Bishop is more or less an uphill time trial.
Leadville 100 MTB race, Colorado	100	14,000'	140'	Base elevation 10,200. Even Lance backed out).
Training Ride: Sea Ranch Annapolis, Skaggs Spring/Rancheria, Fort Ross, Hauser Bridge, Annapolis	73	10,000' (unverified)	139	A 20% grade, ocean panorama, redwoods, ferns – and that's just the first half mile. This route is THE reason to ride.
Everest Challenge: Saturday	120	15,465'	129'	The first of two stages attracting pros and other UCSF categories.
Sierra Century	95	11,700'	123'	Organizers shortened the route to decrease climbing due to concerns about riders finishing before dark.
Mount Shasta Summit Century (long course)	135	16,500'	122'	Harder than Death Ride? Maybe but the high point is just 7,700' above sea level.
Training Ride: Iron Serpent	48	5,907'	120'	Ride almost every climb in El Dorado Hills.
Death Ride (Tour of the California Alps)	129	15,000'	116'	Base elevation of 6,000' and five passes over 8,000' equal serious oxygen debt.
Training Ride: The Beast to the East	170	19,172	113'	No fable. Cycle Folsom made The Monster even more difficult.

Route	Distance (Miles)	Total Elevation Gain	Ft/Mile	Notes
Training Ride: The Monster	135	15,000	111'	Start in Auburn and tag Iowa Hill, Oxbow Corkscrew, and "Big Foot" country.
Auburn Century ("Lone Ranger")	140	15,000	107'	Ride Dutch Flat, Iowa Hill, and out to China Wall and beyond.
Georgia's 6-Gap Century	100	10,700'	107'	This is the measuring stick in the SouthEast. "Go west young man."
Auburn Century	106	11,000'	104'	Any ride involving Iowa Hill is serious.
Summer Solstice Double Metric	133	13,400'	100'	Quincy (NE Cal.) and Highway 70.
Mount Shasta Summit Century	100	10,000'	100'	This ride may be worth the trip.
Training Ride: Folsom to Iowa Hill returning via Forest Hill	104	10,300'	99'	Classic distance ride from Folsom.
Devil Mountain Double Century	206	20,000'	97'	The doubly-whammy of climbing and distance makes this the hardest organized ride in California.
The Climb to Kaiser	155	13,500'	87'	While the elevation gain occurs on the way up, completing the ride requires that you ride home too.
The Terrible Two Double Century	200	16,000'	80'	Heat and hella steep climbs make this one uber tough.
Sierra Century route '96 – 2006	100	8,000'	80'	Solid training for the race set; tough for weekend warriors.

These numbers are enlightening in comparing one loop route to another. Comparing climbs with loop routes, however, can be misleading because even the hardest routes have relatively low ft/mile numbers. While routes typically include climbs, they also include downhill, flat, and rollers – ultimately returning to their original elevation – all of which is reflected in average ft/mile. While flat and downhill doesn't add to cardio fatigue as quickly as climbing, they are inseparable from the ride experience – and downhill is a primary reason we put ourselves through the effort of climbing in the first place. After all, a route with 10,000 feet of climbing has 10,000 of descending too.

On the other hand, the numbers captured on climbs are generally tabulated in one direction – up. So as long as you're comparing one climb with another, feet per mile is an accurate measure. Why? Posted gradients on highway signs typically display gradient for the steepest portion of the hill while the average is often less. For example, the sign at the top of Kingsbury Grade in South Lake Tahoe, says 9%, 8 miles. The actual numbers are 2,600 feet elevation gain, 325 ft/mile, and 6.16%.

While we somewhat arbitrarily set 100 ft/mile as the benchmark for an "extreme" loop route, judging the difficulty of a climb is somewhat more fickle. Climb difficulty must factor grade (ft/mile), distance and effort in separating true monsters from pretenders. Long climbs may be difficult without being steep (think Carson Pass) because the fatigue of climbing accumulates quickly. On the other hand, if a climb is steep, it will be difficult even if moderate in length (Mix Canyon). Finally, if the climb is the site of regular attacks on group training rides or races (Costco Hill in Folsom), the pace becomes the dominant factor in determining difficulty. Somehow these axis cross at a point of difficulty that is different for each rider and ride. While watching the best climbers in the world go mano-e-mano on long, deciding climbs with a yellow jersey on the line, you can actually see the point when their bodies stop responding to their will. That is the point when gradient, distance and pace intersect and the rider "cracks."

According to our feet-per-mile metric, Carson Pass is last in difficulty on this list. I can say from personal experience however, that this climb is among the toughest sum bitches I've ever ridden. I've seen it cause grown men to cry, and I once severely sprained my Achilles tendon during the effort. The 3.73% average is misleading because the climb is split into three distinct segments: the canyon (Woodfords to Picketts); ~five miles of flat/rollers west of Picketts; and the final face. The two climbing segments are in the

6-9% range. The difficulty of Carson must also consider a prevailing west wind that funnels and concentrates in the canyon, the fact that this climb falls at mile 100 on the Death Ride, the effort required to follow my buddies, and a peak elevation that exceeds 8,500.' The payoffs: a nickel-size pin that proves you earned all five passes of the Death Ride, an ice cream bar, and a screaming-fast, 15-mile drop to the car.

The following list is provided in descending order of average grade. It is not intended to rate which climb is the hardest, rather it simply provides data to compare climbs you may have ridden with those you have not – and perhaps most importantly, so you will say, “yeah, I can do that!”

Climb Name	Distance (Miles)	Total Elevation Gain	Ft/Mile	Avg. Grade	Max Elevation
Mix Canyon (top 1.73 miles)	1.73	1,245.73	720.08	13.64%	
Iowa Hill, Colfax, CA (initial pitch)	1.77	1,140.09	644.12	12.20%	
Hauser Bridge, Plantation, CA	1.28	775.00	605.47	11.47%	
Brasstown Bald, TN	3.01	1,768.00	587.38	11.12%	
Mix Canyon, Dixon, CA	4.06	2,318.00	570.94	10.81%	
Sierra Road, San Jose, CA	3.5	1,730.00	494.29	9.36%	
Prospectors Grade, Lotus, CA	2.43	1,190.00	489.71	9.27%	
Oxbow Corkscrew Wall, Foresthill, CA	4.5	2,200.00	488.89	9.26%	
Rancheria Wall (Skaggs Spring Rd.), Sea Ranch, CA	1.87	890.00	475.94	9.01%	
Alpe D'Huez, France	8.08	3,641.00	450.62	8.53%	
Ebbets Pass (DeathRide, Pass 4), Markleeville, CA	4.55	1,744.12	383.32	7.26%	8,844.07
Monitor Pass (DeathRide, Pass 2), Markleeville, CA	9.34	3,228.05	345.62	6.55%	8,623.83
Kingsbury Grade	8.00	2,600.00	325.00	6.16%	
Monitor Pass (DeathRide, Pass 1), Markleeville, CA	8.21	2,595.69	316.16	5.99%	8,623.83
Mt. Rose (West) Incline Village, NV	8.52	2,468.17	289.69	5.49%	8,868.17
Ebbets Pass (DeathRide, Pass 3), Markleeville, CA	8.92	2,538.91	284.63	5.39%	8,844.07
Salmon Falls, Pilot Hill, CA	3.6	915.00	254.17	4.81%	
Mt. Rose (East), Reno, NV	14.49	3,393.70	234.21	4.44%	8,868.17
Silver Fork Road, Kyburz, CA	15.2	3,030.00	199.34	3.78%	7,130.00
Carson Pass (DeathRide, Pass 5), Woodfords, CA	14.98	2,947.35	196.75	3.73%	8,588.61

What it all means:

- Don't expect to sit in a pace line and rest.
- Motivated, Cat 4/5 riders will likely require around six hours ride time for a 10,000 foot century.
- Ride in a group with similar skills because you don't want to suffer alone.
- You'll need sharp descending skills too. That's the payoff for all the climbing.
- Put down the donut. Pour out your beer. When the road tilts up, every ounce counts.