

ARTEMIS HIGHLAND 100

Saturday 11th September 2010 . Kenmore, Scottish Highlands



Your training schedule:

WEEKS TO EVENT	MON	WED	WEEKEND
12	10km	10km	10km
11	10km	15km	20km
10	10km	20km	30km
9	15km	25km	40km
8	15km	30km	40km
7	15km	35km	50km
6	20km	40km	60km
5	20km	45km	60km
4	25km	50km	65km
3	25km	55km	75km
2	30km	55km	80km
1	30km	40km	Event day

If you're aiming for the bronze route, reduce the distances by a third; if you're aiming for the gold route, increase them by a third.

The Bike Program

Feel free to mix up your training – and maintain motivation – by adding in one of the following sessions a week to really give you a fighting chance of nailing the route.

"This is essentially weight-training on a bike," says Shane Sutton, Welsh national cycling coach.

A Commonwealth Games gold and silver medalist, two-time Olympian, and Milk Race winner, Sutton has forgotten more than we'll ever know about building muscle and fitness through cycling. In addition to strengthening and developing the quadriceps, hamstrings, calves, glutes and hip flexors, hill riding offers unbeatable aerobic training for events like the Artemis Highland 100. This workout can be done on a road, mountain or stationary bike.

If you're cycling outdoors, find a moderately steep, quarter-of-a-mile-long hill (slightly shorter if you're riding off-road). Clip or strap your feet to the pedals – and don't cycle in running shoes. To better protect your knees, says Sutton, wear stiff-soled cycling shoes. The workout consists of four high-effort climbing intervals. Recover between the intervals by pedalling back down the slope to your starting place and circling there for 30 seconds.

The Warm-up

Begin with 10 minutes of pedalling on flat or slightly graded terrain. Pick a gear in which you can spin at a cadence of 90 to 100 revolutions per minute (rpm). An easy way to keep track of this is to periodically count the times your right leg comes up in 10 seconds, then multiply by six. If you're using a stationary bike, choose a resistance that allows you to spin at this rate.

The Workout

First interval: Shift to a slightly harder gear – one that lets you take your first trip up the hill at a rate of 60 to 70 rpm. Don't stand or get out of the saddle. You should arrive at the turnaround point winded but not exhausted. Recover by pedalling back down the hill in an easy gear at a cadence of 95 to 110 rpm. Again, if you're using a stationary bike, choose resistance settings that allow you to maintain these same cadences.

Speed interval: On your next climb, use the same gear or resistance as in the first interval, but increase the pace to 70 to 80 rpm. Your breathing should be heavy but controlled, and you should feel a burn in your thighs as you approach the top of the hill. Get out of the saddle if necessary. Recover by pedalling back down in an easy gear, spinning at 95 to 110 rpm.

Power interval: Perform your third interval in the hardest gear or at the greatest resistance you can manage, pedalling at 30 to 40 rpm. However, do not get out of the saddle. If you're really struggling, shift to an easier gear that you can sustain right to the top. Recover as you did for the speed interval. (If you have knee problems or pain, steer clear of this interval, or at least ease up on the gear.)

Spinning interval: For your final climb, shift to your easiest gear or resistance and try to maximise your rate of turnover. (In other words, pedal fast up the hill at 75 to 85 rpm.) When you reach the turnaround point, start descending immediately in the same gear.

The Cool-down: Ten minutes of pedalling in an easy gear or at a low resistance on level ground at 90 rpm.

Ultimate hill-power session

If you can handle hills, you're halfway there with the Artemis Highland 100. Here's the one key session that Jim Henderson, National Hill Climbing Champion in 2006 and 2007, swears by:

"My one core hill session is short, sharp and guaranteed to improve your power output in a matter of weeks. First, find a quiet road that has a gradient of about 1 in 7 to 1 in 10 – you'll be too exhausted to move out of the way of on-coming cars so don't take risks. Starting at the bottom, do a 100% 1-minute effort so you literally couldn't put one more ounce of energy in if you tried. At the top, stay on the bike, coast back down and do three minutes of active recovery, gently cycling around. Repeat this four times, then do 15 minutes of easy peddling and repeat the whole session. Don't worry about technique here, just put everything you have into it so your muscles are overloaded and you're hurting with all the lactic acid pumping through your whole body. In all it should take about 90 minutes, after which you'll be completely spent. If you're not, you haven't done it right."

Take a seat

"Sitting down is a more efficient way to climb than standing up," says Stuart Dangerfield, who won the National Hill Climb Championships five times in the 1990s. Dangerfield says that standing up wastes energy as you're having to support your bodyweight as well as propelling yourself skywards.

"If you're always getting out of your saddle on climbs it's a sign that you're either in the wrong gear or you that need to work on your power," he says. Mind you, if you do decide to tackle a hill on a fixie or single-speed – be it in a race or a commute – standing up might have its advantages, says Dangerfield. "Pedal sitting down and you can pedal at a higher cadence," he says. "But when the hill steepens you'll have to get out of the saddle. You'll slow down naturally but you will keep going."

Dangerfield is supported by the results of separate studies carried out at the University of Franche-Comté in France and Utah State University in the US. The French researchers found that standing was less efficient – you use more oxygen – when intensity is lower than 75% VO₂ max, while the Americans reported that on a 5% incline sitting down is 3.7% faster than standing at 400W. However, the US study went on to report that the speed difference between standing and sitting is negligible above an incline 15%.