



## Lehigh Gorge State Park, Rail Trail – 10 Mile Section White Haven to Rockport, PA Fitness Case Study

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***“With the rising cost of healthcare in America, now is the best time to take control of your health.”***

**Did you know that rising health costs are closely associated with inactivity?** According to a study in 2004 by Dr. Guijing Wang and Dr. Caroline Macera, it was shown that for every dollar invested into mountain biking, an approximate \$2.94 surplus of direct medical benefit was made. (Guijing Wang 2015)<sup>1</sup>. This shows that rail trail biking is cost beneficial from a public health perspective. In addition to being cost effective, it augments other essential areas of your life such as: family bonding, meeting new people, and recreational activities. The Lehigh Gorge Rail trail starts in White Haven sits just below the Pocono Plateau at just over 1100 feet above sea level, and it provides riders with refreshing Pocono air along the Journey, a nice change of pace compared to the tri-states’ surrounding cities. White Haven (Elev: 1150’) to Rockport (Elev: 896’) Section 1 – Lehigh Gorge Trail **10 miles** (Avg.5-1% downhill grade)

**If you are stressed from a long week of work, a weekend outing on the trail could be just what you need!** A study conducted by The Center for Disease and Control (CDC) has shown that outdoor physical activity helps prevent Heart Disease and Osteoporosis, controls high blood pressure, and reduces the risk of Diabetes and Arthritis.<sup>2</sup> Biking on the rail trail is an awesome way for people of all ages to stay in shape while putting low stress on your joints. As compared to running on concrete, grass, a treadmill or an elliptical, mountain biking is a low impact, fun and fat burning exercise. A beautiful day spent Biking equates to a physical and mental confidence boost on or off the trail, and plays a role in emotional well-being. Rail trail riding doesn’t have to be an exhausting activity because it can be done at your own pace and leisure.

**In a report from the surgeon general, the CDC states that “People of all ages can benefit from moderate physical activity, such as 30 minutes of brisk walking only 3 times a week”.** This small amount of time dedicated to exercise releases endorphins a chemical which reduces pain perception. “Through a modest increase in daily activity, most Americans can improve their health and quality of life.”(Manley 1996).<sup>3</sup> The Lehigh Gorge State Park Rail Trail has also been voted by Outside Magazine as “1 of the best 50 rail trail rides

<sup>1</sup> Division of Nutrition and Physical Activity, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Atlanta, GA 30341, USA (2009).

<sup>2</sup>Centers for Disease Control and Prevention. Prevalence of doctor-diagnosed arthritis and arthritis-attributable Activity limitation—United States, 2003–2005. MMWR 2006;55:1089–1092. Available from: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5540a2.htm>

<sup>3</sup>Audrey F. Manley “Physical Activity and Health” A report of the Surgeon General National Center for Chronic disease prevention and health promotion (1996)

in America” (Outside Magazine May 2014).<sup>4</sup> Pocono Bike Rental, takes pride in providing customers with the safest mountain biking experience in the Northeastern PA at an affordable family rate! Whether it be losing weight or building cardiovascular fitness an all- inclusive wellness program will help.

**We have conducted an authentic study on the benefit of biking on the trail and its effect on your cardiovascular system.** By using a polar heart rate monitor on myself while gauging heart rate on the trail, we were able to analyze pre & post heart rates, at normal/resting and steady state heart rates and compare those to ranges. A heart rate of about 60-70% of your maximum is the best range for fat burning. This is known as “The fat burning zone” because of the rate that fat is optimized and endurance is built. For example, if you are a new biker that is looking to shed some pounds, your body would rely more on utilizing fat as a fuel source as compared to avid mountain bikers. Since they tend to move at a faster pace, carbohydrates are now being expended because they provide the body with more immediate energy that meets the demand required.<sup>5</sup> “Using this concept, you can approximate the point at which fat burning peaks during exercise”. (Huff post Healthy living).<sup>6</sup>

**My Pre-resting heart rate was increased to about 101 bpm, well above normal due to an onset anticipation of biking.** So as you can see it is in fact possible to lose weight at your own steady cadence even before getting on the bike. One method to find maximum heart rate is to subtract 220 from your age, then take about 40-60% of that number to find your “maximum fat burning zone.” On average we found that around an excess of 400-600 calories are expended along the 10 mile trek (about 2-hours). On top of riding the wonderful Lehigh rail trail to trim the edges, a healthier balanced diet that limits intake of fat and cholesterol is beneficial for improvement.

**As we all know, a balanced diet plays an integral role in weight loss if it’s your objective.** These steps are vital to your body’s sustenance and efficiency. Interestingly enough, The Lehigh Gorge Rail trail s .5 -1% grade between White Haven and Rockport so the return trip is uphill if you choose to forgo the return shuttle. According to an article on Livestrong.com, it is proven that nearly 3 times the calories are burnt biking uphill than on a flat terrain. The simple reason is that your body is forced to work harder due to the increased gravity and there are multiple factors that influence this. These include Hill grade steepness, Cycling length, speed, pedaling gear, and wind resistance. They continue by stating, “These are uncontrollable factors, but still play a crucial in how many calories you may burn”.<sup>7</sup> **So you can double your caloric burn of upwards of 1200 calories, if you want to ride down and back 20 total miles.**

**“Eating a quick snack beforehand rich in carbohydrates like a salad, peanut butter and jelly sandwich, or oatmeal prevents the body from using muscle tissue over fats or carbs.** The use of muscle tissue is the body’s response to finding any source of fuel when carbs or fats aren’t available for use for energy. Your muscles are made up of protein which is the body’s last resort for energy. When your body uses protein stores as a form of energy, the result is loss of body mass or weight.”<sup>8</sup> These complications can lead to changes in metabolism, which is the rate at how fast you burn calories, and the disorder known as anorexia. Each week, we will be conducting similar observations of the improvement on heart rates of bikers on the rail trail and prove its benefits to the public.

*“In conclusion, we learn that for the cost of an order of wings and a pitcher of beer you can substitute a healthy bike ride down the Lehigh Gorge State Park Rail Trail!”*

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<sup>4</sup> <http://www.covepoconoresorts.com/blog/better-by-bike>

<sup>5</sup> How the Body Works By Dr. Peter Abrahams

<sup>6</sup> Huffpost Healthy living [http://www.huffingtonpost.com/ben-greenfield/fat-burning\\_b\\_1246983.html](http://www.huffingtonpost.com/ben-greenfield/fat-burning_b_1246983.html)(2015)

<sup>7</sup> <http://www.livestrong.com/article/315791-calories-burned-by-biking-uphill/>(2014)

<sup>8</sup> <http://healthyeating.sfgate.com/body-burn-carbs-protein-energy-9112.html>

<http://www.bbcgoodfood.com/howto/guide/what-eat-cycling>