

Matthew Grady  
ODED 4560  
4/23/14  
Dr. Hirsch

## Benefits of Cycling

Bicycling dates back to the early 18<sup>th</sup> century and has come along way since then. Biking as a means of adventure recreation did not come about till the late 1940's when road cyclists, who needed some form of training in the winter months, started what we know now as cycle-cross. Cycle-cross was the first form of trail riding, but it wasn't until the mid 1970's that the actual mountain bike was formally introduced to the public market. Since then great strides have been taken to improve rider awareness and rider safety. Within this paper we will take a look at riding as a lifestyle, what motivates people to ride, the rewards of riding, empowering the next generation of riders, and some of the common injuries among riders, and their preventative measures to those injuries.

Biking, specifically mountain biking has always been one of the outdoor adventure activities that I look forward to the most. The opportunity to get out and ride any trail, to experience "freedom," and to escape the boredom of everyday life is initially what pulled me in to the world of "trail riding" many years ago. Although the opportunity to momentarily escape life and ride is still an intrinsic motivator this desire is now so much more. In order to further explain this obsession with riding, we must first determine what motivates people to ride?

In order to understand these motivations I will use Pomfret's push and pull framework. This framework goes into the details of the factors that push people to mountain bike and the factors that pull people to certain locations. Escapism, mastering the challenge, seeking thrill, fun and enjoyment, adventure and exploration, physical exercise, a sociable activity, an accessible and flexible pursuit, and seeking novelty are all a part of the push factors that motivate people to ride. "Novelty has been described as a key component of adventurous activities. The joy of doing something new or discovering somewhere different can present a break from the usual routine" (Taylor, 2010, p. 265). From my experience the joy of riding new trails is unparalleled. The unknown is one of the "push" factors that personally drives me to keep exploring these new trails. These trails have the capacity to surprise you. The motivator is the anticipation of new and exciting trails waiting to be ridden.

At the current point in my riding career I now have a better appreciation for the push factor of "mastering the challenge." For me mountain biking is an all seasons' activity. It is also a relatively simple activity in the sense that there is not much preparation. Grab your bike, fill your water bottle, and ten minutes later you are riding. When I first began to ride it was to escape, to have fun, and to feel a sense of freedom like no other. Now I am motivated by achieving a feeling of being one with the bike, finding my state of flow, and gaining a mastery of the challenge on trail. Every trail system has its own challenge and it is up to the rider to decide what

section of the trail is their challenge and attack it to gain mastery over it! Characteristics of flow while on trail are described as, "intense concentration, and such immediacy that there is no time for reflection. A very in the moment feeling, or riding without consciously processing" (Taylor, 2010, p. 267).

Common to most adventure activities; riding with others is a huge motivator. Riding with others allows you to see how others tackle their challenges. It allows you to adapt to various riding styles and learn from the mistakes and successes of others. As riding with others is a positive it can also be negative. There is always the potential for miss-adventure to occur when riding with others. This typically occurs when riding with someone who is more experienced than you. Their actions on trail may tempt you to risk your safety and try something beyond your comfort zone that typically leads to injury. Although stepping out of your comfort zone can have a negative outcome, it can also be a motivator for growth. "You always have to move out of you comfort zone to feel that you have achieved something on a ride" (Taylor, 2010, p. 267). As a rider I can add some validity to this statement, which also serves as a motivator for more experienced riders. In the pursuit of nirvana on the trail, riders must give way to risk in order to feel a sense of accomplishment. That sense of accomplishment is the next step in mastering the challenge and ultimately motivating you to keep pushing.

Site attributes or trail characteristics are what "pull" riders to the trail. So what constitutes a good trail? First we have single-track, which is a narrow mountain bike trail that is usually the width of the bike. Single track is the most sought after experience that riders seek. Then there is double-track, which is a trail wide enough for four-wheelers or off-road vehicles. Double-track was initially the first ever off-road trails that bikers used. These trails were actually forest service roads that received the name double-track because riders had the ability to ride side-by-side.

Within single-track there are fast and flowing trails and technical trails. Both styles attract a variety of riders. Fast and flowing trails are usually free of obtrusions, such as protruding rocks and roots, and allow riders to increase speed and gain momentum with the trail. Riders get into a rhythm that allows them to "flow" along the trail. Technical trails are quite the opposite due to "technical" obtrusions on the trail; boulders, roots, and ledges, etc. They require a bit more on trail thought from riders. Riders on technical trails must think about where their "line" of travel is going to be. These site attributes motivate riders to either overcome these obstacles, or overlook them. I think that Taylor (2010), sums it up best when saying, "It's the combination of motivation, behavior, and environment that lead to a satisfactory experience" (p. 261).

Now that we know some of the characteristics that motivate people to ride, let's take a look at some of the benefits that cycling can bring about. One group of people that cycling is affecting in a positive way is troubled youth. "Cycling helps because it gives me a purpose. If I go to jail, I'll either get killed or kill myself" (Ross, 2014, p. 14). Ridge View Academy in Watkins, Colorado is a school for delinquent youth, run by the Division of Youth Corrections. Ridge View offers many sports teams, from football to golf, but they also offer cycling. Not very many boys join the

cycling team. “The few that join do, join because they think it will let them escape their problems, while others remember the fun they had riding Huffys as children. Few are prepared for how hard they will work, because Ridge View cycling is grueling” (Ross, 2014, p. 3). Cycling coach Greg Townsend has been with Ridge View Academy since 1986 reshaping kids lives on the bike. Townsend has produced positive results with the biking program. Since 2009, his boys have brought home the Title from the Bicycle Racing Association of Colorado series three times. The riding season at Ridge View lasts 9 months. Coach Townsend boys ride 6 days a week, and he strives for his boys to reach 300 miles weekly. Throughout his career at Ridge View, Townsend has seen many transformations in the lives of the boys he coaches.

At the end of each season coach Townsend rides with his team on their 700 mile, 11 day, “right of passage” journey from Ridge View to the Grand Canyon. Most of the boys are pushed to the point of exhaustion. Coach Townsend also informs his boys that this trip offers a chance for reformation. It will help the boys move past the pain and confusion that brought them to Ridge View. A great number of the boys on the Grand Canyon trip have reported their own cycling-induced epiphanies. Averaging over 70 miles a day Townsends boys have a lot of alone time to think back on their past mistakes and how they want to continue with their life. Mid-way through one of the many Grand Canyon trips, Townsends recalls, “One of my boys finally broke down, saying, “Help me. I don’t want to hurt people. I don’t want to die” (Ross, 2014, p. 4).

Although the completion of the Grand Canyon ride gives these boys a sense of accomplishment, I believe that it enables them to look beyond their past on to their future to the greater good that they will accomplish in life. Ross states, “It gives these kids something concrete to strive for. You encounter a hill and you have to pedal hard to reach the summit. But there will be another hill, and another, it’s an ongoing struggle. To keep reaching the top takes self-awareness and owning your own actions in spite of innumerable and unknowable obstacles” (p. 12).

So I have talked a lot about the aspects of trail riding, lets now explore the aspect of riding as a lifestyle, specifically commuting. For some folks commuting is not even an option that they would consider. From being out of shape, to nasty weather conditions, to concerns of safety on motor-vehicle roads they disregard the notion of commuting. For those who can overlook these barriers, commuting is a way of life. These commuters are trying to recruit as many people as possible.

“The average annual operating cost of a bike is \$308, compared with \$8,220 for an automobile, according to the U.S. Bureau of Transportation Statistics” (Schlosberg, 2012, p. 4). So besides the obvious fact of saving money what are some of the more relative benefits of commuting? Its good for your health, on average commuting burns 42 calories per mile or 7 calories per minute. The health benefits are not just physical either. “People have an improved focus at work, better mood and better mental acuity as a result of commuting by bike” (Schlosberg, 2012, p. 3). It also reduces your carbon footprint here on earth. Commuting will not solve the issue of global warming but with increased commuting populations it will cut back on the amount of pollution that is thrust into the atmosphere.

Over the past 20 years, with the addition to added bike lanes and paths, the commuting rates have tripled or quadrupled in the bigger U.S. cities. Within the past few years, with the rise of gas prices, we have seen a rise in the amount of bike share programs implemented in major U.S. cities. The main purpose of the bike sharing programs is to encourage transportation on bikes. The programs allow individuals to depart from point A and arrive at point B without the worries of ownership.

In 2013 New York began its bike share program with 10,000 bikes. In contrast Washington D.C. only had 1,670 bikes within their program. Cities with higher amounts of cyclists have recently been shown to have the lowest percentages of accidents. "The more people who choose to bike and walk, the safer it is for everyone" (Tuhus, 2013, p. 21). Tim Blumenthal, president of Bikes Belongs says, "Mayors of cities are very supportive of bicycling because for a relatively small investment they get a big return. Bike infrastructure reduces road congestion, which is the enemy of business and quality of life. Cities are struggling to meet the capital costs of road repairs and building new parking lots, so anything a mayor can do to avoid spending big bucks like that --- mayors love that. Also, it seems that cities that are most successful at attracting and retaining a highly trained, highly motivated workforce are those with a high quality of life, and bike amenities contribute to that" (Tuhus, 2013, p. 22).

As we can see, commuting as a way of life has just started to be seen by the public as a viable option for transportation, and in the coming years the potential for growth is enormous. Since 1986 Rails to Trails Conservancy has been raising support to convert abandoned rail lines, all across the country, into multi-use trails for anything from exercise to commuting. The U.S. alone has over 21,400 miles of abandon rail lines. Think of the communities that could benefit from these conversions that would allow for a whole different avenue of transportation for non-motorized vehicles.

Now that we have seen how riding as a lifestyle can impact communities, lets take a closer look into some communities and see how their local biking programs are being used to develop growth opportunities and empower the coming generations to keep this lifestyle alive.

Since 2011 the goal of West Town Bikes, in Chicago Ill. has been to help underserved young people throughout Chicago cultivate entrepreneurial and employment opportunities by training them in bicycling and bicycle mechanics. In the past three years, West Town Bikes' mechanic apprenticeship program has guided youth through the process of creating and sustaining 20 successful entrepreneurship ventures, and placed 36 of the local youth in bicycle related employment opportunities. As a result of the opportunity youth have discovered, "That the skills learned working on a bike go far beyond turning a wrench or going for a ride. The bicycle is powerful tool in transforming their lives and the lives of those in the communities" (Empowering the Next Generation, 2013, p. 20).

Local Spokes is located in New York City and was created to develop community involvement in the planning of biking access and infrastructure for the Lower East Side and Chinatown. Devlynn Chen, age 17, was accepted into their Youth Ambassador's Programs where she was given the opportunity to be involved with survey and visioning sessions to better understand and help the local

community. Her main take away from the program was that, "Local Spokes YA Program allowed me to explore and influence change in my very own Lower East Side neighborhood. My bike gave me a voice in a community with a lack of voices" (Empowering the Next Generation, 2013, p. 21).

Spoke'n Revolutions Youth Cycling is a youth leadership program out of Chapel Hill, NC. Their goal is to provide opportunities not likely given to youth due to many factors beyond their control. They use the challenge of distance cycling, as a means for confidence building, self-reliance, and a building block for greater accomplishments in their future. During the summer of 2013 Spoke'n Revolution accompanied 10 youth on a 1,500-mile journey from New Orleans to St. Louis, Missouri. Along the way many of the youth shared their thoughts and inspirations in blog posts.

Here is what they had to say. Jose Pastillo wrote, "We were on our bikes and the feeling was amazing. The open road with nothing but the beauty of nature surrounding us. The feeling of being in nature that I never paid attention to before. I felt like I had been cheated on all other travels because, when I rode by in the car, I paid little to no attention to the surroundings and I never really stopped and looked; to appreciate the scenery. It's a life-changing moment when you realize that the smallest things can make a difference" (Empowering the Next Generation, 2013, p. 18).

Khin Aye wrote, "Because of Spoke'n Revolution, I recognized my strengths and weaknesses and I realized that I am not alone. Everyone has problems and getting to talk to someone who won't judge you and knows you very well is truly a blessing." The youth affected by these programs have all been empowered to continue with what they have learned. Because of this their generation will be the one who sets the standard for the following generations to come.

We have explored the benefits of riding as a lifestyle and within communities. Let's take a closer look at the risk that riders take on as a part of this activity, specifically in mountain biking. Injuries are a part of riding, they will occur, the best way riders can ready themselves is to be prepared in advance. Throughout this section I will cover some of the more common injuries related to trail riding, causation and factors associated with these injuries, and finally preventative measures to reduce the risk of injury.

Like stated before, all riders run the risk of injury. Reports show that during the course of one year a mountain biker will experience at least one major injury with every 1000 hours of riding. The most common reported injuries are to the head and neck region or to the upper and lower extremities. Thankfully, due to helmets, cranial trauma is not a common occurrence, but facial injuries are numerous. Due to excessive speeds and the loss of control, falling over the handlebars is very common which leads to soft tissue disruptions and fractures to the face. In some cases dental injuries have been reported.

Upper body injuries are very common as well. These injuries are most commonly seen in riders who have fallen over the handlebars. This type of injury is caused by the instinctual habit to outstretch the arms in the attempt to protect the face and brace the fall. This type of fall can lead to abrasions, muscular strains, and

dislocations. Wrist pain is also a very commonly seen stressor, with numbness and tingling occurring in the hands and fingers. "Common overuse injuries include reported compression from the handlebars and vibration leading to neurovascular complications in the hands" (Aleman & Meyers, 2010).

With the induction to clip-in pedals falls off to the side of the mountain bike, due to the inability to un-clip, brought the onset of lower body injuries. Contusions, abrasions, lacerations, fractures, and dislocations commonly occur to the legs or hips. With proper riding techniques and bike adjustments upper and lower body injuries can be drastically reduced.

Now that we have seen the more common types of injuries lets take a look at what causes these injuries and their factors. Overuse and fatigue is the number 1 cause of most injuries. The most common form of fatigue among mountain bikers is the repeated vibration of the handlebars. With increased speed comes an increased vibration, causing the body to become fatigued more easily, leading to the loss of grip strength and control.

Another common cause of injury is the age of the rider and their lack of experience and skill. Mountain biking is an extremely technical sport. It is essential that riders become familiar with specific riding techniques early on in their riding career. "Simpler errors in judgment, incorrect riding technique, incorrect braking maneuvers, and riding on a trail to difficult for one's level" (Aleman & Meyers, 2010). greatly increases the risk for injury.

Lack of proper equipment can also lead to numerous injuries. There has been an increase in younger riders who have decided to only wear helmets half of the time. In this case they are putting their selves at risk. Bar ends are attached to handlebars to increase comfort, but are the number one causes to blunt abdominal injuries. With increased rider awareness these injuries can easily be avoided.

Excessive speed, trail conditions and rider behavior are the more common factors associated with the listed causes of injuries. "Excessive speed, unreliable terrain and steep slopes ultimately enhance the probability of loss of control and subsequent falls with little time to react, regardless of experience level" (Aleman & Meyers, 2010). Trail conditions; rocks, roots, sharp turns, and the addition to man-made structures such as stairs, plank bridges, jumps, and unforeseen obstacles are the trademark conditions that are associated with mountain biking. Coupled with excessive speed, riders must be able to manage these conditions or they run the risk of severe injury. Finally rider behavior can be the downfall of any rider. Lack of attention, loss of control, indecision and an unrealistic evaluation of ability are considered to cause the majority of rider accidents.

Now lets look at some of the methods and equipment used to prevent the more common injuries. Before one decides to begin their riding career they should attend an educational course on riding techniques and safety. Equipment that riders should consider include: any form of approved headgear, whether a regular or full facial helmet is up to the rider and their style. Mouth guards can significantly reduce the risk of dental injury. "The use of protective equipment and a suitable mountain bike can reduce the incidence and severity of injuries. Coupled with attention to bike maintenance and reasonable behavior, mountain biking can be an enjoyable sport for everyone" (Aleman & Meyers, 2010).

Biking as a lifestyle is coming becoming more prevalent. My hope is that as more people begin to ride they will consciously think about what motivates them to ride. I also hope that they will want to spread their motivation to the coming generations to keep the spirit of riding alive and well. As more people begin to see biking as a way of life, we will begin to see more injuries and new problems arise. It is my hope that with the information provided people will be able to make more informed decisions when it comes to riding and their safety on a bike.