



Top 3 Clipless Pedal Myths

&

How to Build a Better Pedal Stroke

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Top 3 Clipless Pedal Myths

Most people go through life never realizing that most of "reality" is nothing more than their paradigm on stuff, shaped by physical and mental experiences. For example, most people would think that running a marathon is extremely hard, if not impossible. Based on their lack of endurance and experience running, plus the extra 20-30 pounds they are likely carrying, their mind forms the reality that a marathon is "hard".

However, someone who trains for a marathon and runs them regularly probably has a different opinion on the subject. Their brain scans their physical shape and mental experiences and says that running for a few hours at a good clip isn't so bad and is, in fact, enjoyable. Each person has their reality...and it can change.

If the first person decided to train hard and make it happen they could get to the physical and mental place where they too feel that running a marathon isn't "hard" anymore. If the second person broke their leg and had to take a lot of time off their physical and mental state would change and what used to be easy is once again hard. Your reality isn't permanent and it can be changed rather easily.

So, what the heck does all this have to do with mountain biking? There are a lot of "truths" surrounding clipless pedals that are nothing more than a shared paradigm towards working around common weaknesses. Here are 3 of the biggest myths surrounding clipless pedals that are holding riders mentally hostage:

Clipless Pedal Myth #1: Clipless pedals let you pedal with more power.

Absolutely not true...there is nothing that shows that clipless pedals definitively let you produce more raw "power". In fact, some of the highest power outputs ever measured have been done on flat pedals (Nathan Rennie at the Australian Institute of Sport, for one). They do let you artificially strengthen the weak link of the feet which allows you to pedal longer before power starts to wane, which is useful for multi-hour/ multi-day racing, but there is absolutely no raw "power" advantage in clipless pedals. The fact that you can't climb that steep hill without them is more in your head and lack of pedaling technique (see below).

Clipless Pedal Myth #2: You need to be able to pull up on your pedals to produce max power.

Again, this is simply not true no matter how many times it gets repeated. When studied, the most powerful and efficient method is not pulling up and producing power on the upstroke, it is instead driving hard with the lead leg and un-weighting the trail leg (Korff et al. Med Sci Sports Exerc 2007; 39:991-995). In fact, your pedal stroke with flats and with clipless pedals should remain exactly the same – there is no "magic" pedal stroke that is only available by attaching your feet to your pedals (Mornieux et al. Int J Sports Med 2008; 29:817-822).

Clipless Pedal Myth #3: Your feet will bounce around and you'll have a hard time keeping them on the pedals.

Logically this makes no sense - some of the top downhill racers in the world run flats (World Champ Sam Hill among them) so obviously it is possible to go very fast through rough terrain and not have a foot bounce off. Two things make this possible, the first being 5:10 brand shoes with sticky rubber soles and some good flat pedals. That combination makes your feet feel attached like you were clipped in and will completely change how you view riding with flats. Second, being able to "ground" your feet into the pedals is a specific application of core strength that you have to learn and, once you do, you won't feel like you feet are floating over your pedals anymore.

I think that a lot of riders are trapped by the paradigm that clipless pedals are somehow definitively superior when the facts tell us something much different. Just because most people come into mountain biking with dysfunctions that make it initially easier to use clipless pedals doesn't mean that they are better, or even good in the long run.

In the hands of someone whose reality isn't shaped by the same dysfunctions, flat pedals allow you to ride every bit as hard and far; you just have to use a different technique that isn't possible without addressing the core and hip weakness that are really at the root of the issue.

Let me close with this...in the hands of someone who isn't using them to mask dysfunction clipless shoes and pedals are a useful tool. I just feel that they are competition level technology that isn't meant to be used everyday by your average rider. Flat pedals will enhance your technical skills and confidence, teach you better pedaling technique and save your knees, hips and low back – not a bad trade off if you can get past the "myths" surrounding clipless pedals.

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Building a Better Pedal Stroke

When you look at building a powerful, efficient pedal stroke, there are 3 things that we need to address:

- **Drive with the lead leg hip/ Activate your glutes:** The glutes and hamstrings, aka the hips, are the strongest muscles in the lower body and can drive both down and behind the body, which is stronger than pulling through the top with the opposite leg. However, for most riders this is literally impossible because they can not contract their glutes. This makes a glute activation drill like the Cook Hip Lift a must when trying to fix your pedal stroke.

This drill looks a little weird but it locks your body in a position that forces it to use your glute to initiate and drive the movement. It is a subtle movement and takes a more "mind-muscle" link than your standard exercise.

Cook Hip Lift



- Start by lying on your back with your feet shoulder width apart and your heels one hand length away from your butt. Take a tennis ball and place it towards the bottom of your ribcage, bringing your knee towards your chest holding your knee to keep the ball in place as shown above.

- Brace your core and get the glute on the leg still in contact with the ground tight. Drive through your heel and squeeze your glute harder to raise your hips off the ground. Come up as high as you can without letting your knee come away from your chest and while keeping the tension in your glute—feeling too much in the hamstring is not what we want out of this exercise. Hold for a 3 count before lowering yourself back down.

- **Get the trail leg out of the way/ Coordinate your hips and hip flexors:** While the lead leg is driving down and back with the hips, the trail leg should be minimizing its interference with the power being produced. Any weight on that back pedal will slow the pedal stroke and waste energy.

In order to combat this we need an exercise that builds single leg balance while coordinating the hips to drive and the hip flexors to raise the trail leg. For this I like to use the Reverse Lunge with High Knee. You will probably find that one leg is much harder to stabilize on than the other and this is an indication of uneven pedal stroke. Getting things evened out will make you a much stronger pedaler and decrease your chance of wearing out one knee or hip faster than the other one.

Reverse Lunge with High Knee



- Start with your feet hip width apart. Brace your core, get tall and step back into a reverse lunge position. Look to maintain a tall spine as you step back; any forward lean as an indication of you trying to use your lower back and not your hips. You should maintain your weight back on your heel as you step back; lightly raising your toes helps keep you from shifting your weight to your toes.

- Once you reach the bottom of the reverse lunge position brace your core, squeeze your glute and drive through your lead leg heel to reverse directions. As you stand back up squeeze your lead leg glute and raise your trail leg. At the top position you should be squeezing your lead leg glute as tight as you can, getting tall thin through the core and have your trail leg thigh raised up parallel to the ground.

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- **Learn how to drive the feet into the pedals with the hips:** Being able to drive your feet into the pedals comes from having a strong core that is coordinated with the hips. A strong core is characterized by having your shoulders pulled down and back away from your ears, your abs drawn in and braced and a strong arch in the lower back. Losing any or all of these things as you pedal means wasted energy and less balance on the bike.

In order to apply this to the bike you need to be able to bend at the hips instead of the lower back. Most riders have a rounded and weak low back position because they don't know how to move from the hips. The single leg deadlift will work on your ability to slide the hips back instead of dropping them down and to maintain that stronger core position while driving from the hips.

This exercise may take a little work to get down but it is one of the most "mountain bike specific" exercises you can find. Once you have developed the strength and body control to easily do this exercise your hard pedaling efforts will never feel the same. You can view a video demo of this exercise by [clicking here](#).

Single Leg Deadlift



- Start by standing on one leg, puffing your chest out and getting your core engaged—think “tall & thin”. Descend by driving your butt behind your heel & letting your chest come towards the ground.

- Keep your weight back on your heel, your chest puffed out and a strong arch in your lower back—don't come down too low and lose your form! Keep the weight in line with your heel—don't push it in front of you to counterbalance yourself.

- Pause at the bottom and then come back up by driving through your heel and squeezing your glute. Think about driving your hips back over the top of your feet to come back up. Squeeze your glutes and get tall at the top; don't lean back.



You can get started fixing your pedal stroke by using this routine 2-3 times per week:

- Exercise #1: Cook Hip Lift 3 sets X 8 reps each leg
- Exercise #2: Reverse Lunge with High Knee 3 sets X 6-10 reps each leg
- Exercise #3: Single Leg Deadlift 3 sets X 6-10 reps each leg

Start with just your bodyweight and when you can do 3 sets of 10 reps on each leg you can add some weight by holding a dumbbell. Remember that you are trying to build a specific movement pattern, not just "get strong", so if your form changes a lot when you add weight then it is too much. Understanding how the exercises relate to your riding and making that mind-muscle connection your priority will help you see better results where it matters most – on the trail!

All of this is yet another example of why strength training is a must for any serious rider. In order to quickly fix your pedal stroke you have to improve your core strength and hip drive. That means that you have to get off the bike and do some things that target those areas. You can not fix bad movement and body alignment on the bike – you have to fix it off the bike and then apply those improvements to the bike.

How you look at riding right now is based on your current strengths and weaknesses. Attacking those weaknesses will change how you look at the trail. If you want to be able to pedal harder and longer then stop relying on your pedals to do it for you and take control of your own pedal stroke. Fix the problems that are holding you back and watch your pedaling power take off.

James Wilson is the owner MTB Strength Training Systems, the world's only company dedicated to developing strength and conditioning programs for the unique demands of mountain biking. As the strength and conditioning coach for the Yeti World Cup Team and 3 National Champions his programs have been proven at the highest levels. As a regular contributor to Decline Magazine, Pinkbike.com and his own popular blog BikeJames.com, James has helped thousands of riders just like you have more fun by improving their fitness, skills and mindset on the trail.

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