



Pedalling and Choosing the Right Gear

Right from the start, I will concede that this topic is “mysterious” and often misleading. There seems to be a lot of mumbo jumbo that makes no sense whatsoever, and riders often pass over this topic as being too technical and confusing. This is unfortunate. Once you have a bike properly fitted for you, “pedalling and choosing the right gear” is perhaps the next important subject to understand.

Why? Simply, understanding the relevance between efficient pedalling and choosing the right gear will allow you to get the most enjoyment from your ride. Let’s tackle the pedalling part of this first, ‘cause I think it’s the hardest to grasp.

Pedalling

What is efficient pedalling? In cycling, we refer to the frequency at which you turn the pedals as “cadence” and it is usually measured in rpm’s or revolutions per minute. **THERE IS NO PERFECT CADENCE!** It differs for everyone so the best advice I can offer is for you to try to find the “optimal cadence” for you. It may be slower or faster than mine, but that’s okay. Ideally, what you should be trying to do is spin the pedals somewhere between 60-90 revolutions per minute and maintain this all the time. That may seem uncomfortable if you have been grinding along slowly all these years, **BUT** a cadence in this range will allow you to **spin**, almost effortlessly, and an easy spin will not stress your knees and hips nor will you tire yourself out. Riders who push big gears often complain of having knee pain. Basically, they have no “torque” which is like driving the car in too high a gear, and so the knee joint is stressed far more than it was ever “designed to be”. You’ll know if you’re spinning too fast because you’ll bounce on the saddle. Cycling is supposed to be an enjoyable activity, so make it so! Our preferred cadence on the tandem, or on our individual bikes, is around 80 rpm’s. We find we can do this for 5 hours a day without feeling completely spent. Our legs are tired, but we can get on the bike and do the same thing the next day, and the day after that, which I doubt we could do if we were riding in too large a gear. Be kind to your body!

So what happens when you come to a hill? Read on!

Suppose you are about to climb the CN Tower. You might want to do it two steps at a time, but that would tire you out very quickly. By taking one small step at a time, you will take longer to reach the top, but you will get there. It's not a race to climb the hills we ride, so use an easy gear, spin, maintain your smooth "optimal cadence" the one that feels right for you, and climb slowly.

Choosing the Right Gear

Now, onto the gears. Let's go back in time. Sixty, or more, years ago, you likely rode a tricycle. It had no gears, as the pedals were directly connected to the front wheel. One revolution of the pedals, and your little tricycle traveled a distance equal to the circumference of the front wheel. We call this "gear inches". Today, with multiple geared bicycles, the numbers are simply a reference point and are calculated in a different, but relevant fashion.

Too much mumbo jumbo? This is often the point where folks tune out because they fear they will never understand the gears of a modern bicycle. Bear with me, please, and give yourselves a chance. You have a lot to gain by reading on!

On your bike, your pedals are connected to the rear wheel by a chain, which runs from two (or three) chain rings (between your feet), to a cluster of gears in the rear wheel. By moving the chain from one chain ring to another, and/or up and down the "cogs" on the rear wheel, you select a gear ratio that "feels best for you" at any given moment on your ride. If you're on a flat stretch of road, perhaps enjoying a tail wind, you can choose the big chain ring and a smaller rear wheel cog to move you along more quickly. You paid good money for all those gears so why not experiment and learn how to use them efficiently? If you are about to climb a huge hill, shift the chain to your smallest front chain ring and then you can select, from the rear cogs, a gear ratio that lets you crawl up the hill. Experiment! You will know when you have found the right gear, as it will allow you to spin at a good cadence and it will not feel too difficult. Even on a long uphill climb, if you have the right combination of gears front and rear, you will get to the top without being totally exhausted. Whatever combination you choose, try to keep the chain running in a straight line. If you find you have the chain on your largest chain ring AND the largest cog in the rear wheel, you are "cross-chaining" which stresses the chain sideways, causes premature wear of the chain and you could be ruining your rear derailleur. Find a combination of chain ring and cog that allows you to spin without too much stress and keeps the chain running in a straight line.

Okay, so you are wiped on the hill and you have to get off and walk. Big deal. I've never met a hill I couldn't walk up, even in Tuscany! Chances are the gearing combinations on your bike are not suitable for the type of terrain you are riding on. What to do? Go to a good bike store and explain the situation and ask them to "swap out" your gears for something easier for climbing hills. It's an inexpensive fix. Remember, we seldom miss having a larger gear, but we always miss not having a lower gear to handle the hills!

Back to School. Let's do the Math!

Now, back to “gear inches”. Today, cyclists determine gear inches by multiplying the diameter of the back wheel, usually 26”, by the number of teeth in the front chain ring divided by the number of teeth chosen in the cog on the rear wheel. For example, (and I apologize for the technical jargon!), if your chain is on a 42 tooth front chain ring and then on a 30 tooth rear cog in the back wheel, and the back wheel is 26”, then the “gear inches” would be $26 \times 42/30 = 36.4$ gear inches. This gear will do fine on the flat, but you're not going to pedal around Hall's Lake in this gear. You need something much lower.

Many in our Haliburton club have a triple chain ring, which gives us even more scope for climbing hills, but beware. Friends had a 26 x 30/30 combination as their lowest gear, which gave them a lowest gear of only 26”. This won't do in Haliburton! (They don't call it the “Highlands” for nothing!) So, they swapped their gears at the bike store for a better combination and got 26 x 28/32 = 22.15” and now they can manage the hills. On our big, heavy tandem, our lowest gear is 26 x 24/34 = 18.35” The lower the number, the easier it is to crawl up hills. You won't get to the top very quickly, but then it's not a race.

In recent years, road bikes have introduced “Compact” chain rings (50/34 versus the old standard 53/39) and expanded rear cassettes to eleven cogs (11/32). These work well for cycling on Haliburton's hilly roads.

Here's a final word of caution. If you have a good low gear for crawling up hills, you will have to spin. If you don't spin in your really low gear, you will not be moving forward fast enough to balance the bike, and you risk falling over. Not good.

- Get your bike set up to fit you properly. This is MOST important!
- Keep your cadence between 60 and 90 rpm's, and pedal smoothly;
- Shift to your easier gears to maintain that smooth cadence whenever you feel resistance; i.e. hills, headwind or fatigue
- Shift often, up or down, and it becomes second nature to maintain your optimum cadence
- Try not to “cross-chain”
- Don't wait until you are on the hill to shift gears, do it early!
- If you are still struggling, a good bike store can swap your gears to something more suitable for riding in the Haliburton Highlands.
- SPIN and enjoy your ride