ARGUABLY the most common mechanical issue a cyclist will encounter on the road or trail is a flat tire. Anytime you head outside for a ride you can expect your route to be littered with broken glass, sharp rocks, staples, nails, thorns, wires, and other miscellaneous pointy objects that are just sitting there waiting for an unsuspecting cyclists to roll over them.

Assuming you’re prepared with a spare tube and pump, a punctured tube is relatively simple to fix away from home. Regardless, this misfortune still possesses the ability to change the mood of a ride for the worse in a hurry. If you’re out in the rain and cold, repairing a flat can be downright miserable. If you’re in mosquito territory, it’s enough to make you consider riding the flat tire to the nearest safe haven. Even on the most pleasant of days, a leaking tube can deflate any rhythm you may have had and make you second guess the stability of your tires for the remainder of the day.

Flats simply aren’t fun, but when you’re dealing with a tube filled with air, you’re not going to find a 100 percent flat-proof system. There are some things you can do before each ride that will help improve your chances of a flat-free day. Inspect your tires for excessive wear, deep gashes, or bits of sharp debris that are already loosely embedded in the tire. It’s also in your best interest to make sure your tires are properly inflated to reduce the risk of pinch flats.

While this is all well and good, there are also a great deal of products available that are specifically aimed at improving your chances in the fight against flats. Most of these products are very basic, and it’s likely that you’re already using one or more of them right now. Here’s a look at five ways you can reduce the amount of flat tires you encounter.

**Puncture-Resistant Tires**: This is about as basic as it gets so I won’t spend too much time here. Almost every bicycle tire manufacturer has put together a range of puncture-resistant tires, which more or less consists of a durable belt that runs between the tire tread and casing. This belt is a good line of defense for your tube against small sharp debris, such as crushed glass. There are many tires in this category, but two that I’ve come to trust over the years are the Continental Top Contact II and the Schwalbe Marathon HS 440.

**Thorn-Resistant Tubes**: Another low-budget flat prevention option are thorn-resistant tubes. Ranging from $8 to $15 a tube, these are about as low-tech as it gets. They do a great job of deflecting thorns, glass, and other sharp debris that try to penetrate your tube and are available for nearly any tire size, including fat bikes. There are quite a few companies producing tire liners, but Mr. Tuffy (mrtuffy.com) could be singled out as the leader in the industry. Aside from being both very effective and inexpensive, another thing I appreciate about tire liners is that they take a long time to wear out. Over a few years of use, they can become somewhat brittle, and that’s when you want to start thinking about replacing them.

**Tire Liners**: If you’re looking to take your puncture protection to the next level but don’t want to spend a lot of money, tire liners are what you want. These are simply strips of hardened urethane that are placed between your tire and tube, and you can pick up a set of tire liners for under $20. They do a great job of deflecting thorns, glass, and other sharp debris that try to penetrate your tube and are available for nearly any tire size, including fat bikes. There are quite a few companies producing tire liners, but Mr. Tuffy (mrtuffy.com) could be singled out as the leader in the industry. Aside from being both very effective and inexpensive, another thing I appreciate about tire liners is that they take a long time to wear out. Over a few years of use, they can become somewhat brittle, and that’s when you want to start thinking about replacing them.

**WITH OR WITHOUT TUBES METHODS FOR PREVENTING FLATS**

**BY JOSH TACK**

ARGUABLY the most common mechanical issue a cyclist will encounter on the road or trail is a flat tire. Anytime you head outside for a ride you can expect your route to be littered with broken glass, sharp rocks, staples, nails, thorns, wires, and other miscellaneous pointy objects that are just sitting there waiting for an unsuspecting cyclists to roll over them. Assuming you’re prepared with a spare tube and pump, a punctured tube is relatively simple to fix away from home. Regardless, this misfortune still possesses the ability to change the mood of a ride for the worse in a hurry. If you’re out in the rain and cold, repairing a flat can be downright miserable. If you’re in mosquito territory, it’s enough to make you consider riding the flat tire to the nearest safe haven. Even on the most pleasant of days, a leaking tube can deflate any rhythm you may have had and make you second guess the stability of your tires for the remainder of the day.

Flats simply aren’t fun, but when you’re dealing with a tube filled with air, you’re not going to find a 100 percent flat-proof system. There are some things you can do before each ride that will help improve your chances of a flat-free day. Inspect your tires for excessive wear, deep gashes, or bits of sharp debris that are already loosely embedded in the tire. It’s also in your best interest to make sure your tires are properly inflated to reduce the risk of pinch flats.

While this is all well and good, there are also a great deal of products available that are specifically aimed at improving your chances in the fight against flats. Most of these products are very basic, and it’s likely that you’re already using one or more of them right now. Here’s a look at five ways you can reduce the amount of flat tires you encounter.

**Puncture-Resistant Tires**: This is about as basic as it gets so I won’t spend too much time here. Almost every bicycle tire manufacturer has put together a range of puncture-resistant tires, which more or less consists of a durable belt that runs between the tire tread and casing. This belt is a good line of defense for your tube against small sharp debris, such as crushed glass. There are many tires in this category, but two that I’ve come to trust over the years are the Continental Top Contact II and the Schwalbe Marathon HS 440.

**Thorn-Resistant Tubes**: Another low-budget flat prevention option are thorn-resistant tubes. Ranging from $8 to $15 a tube, these are about as low-tech as it gets. They do a great job of deflecting thorns, glass, and other sharp debris that try to penetrate your tube and are available for nearly any tire size, including fat bikes. There are quite a few companies producing tire liners, but Mr. Tuffy (mrtuffy.com) could be singled out as the leader in the industry. Aside from being both very effective and inexpensive, another thing I appreciate about tire liners is that they take a long time to wear out. Over a few years of use, they can become somewhat brittle, and that’s when you want to start thinking about replacing them.

**Tire Liners**: If you’re looking to take your puncture protection to the next
so that you will have anywhere from 3.5mm to 4.5mm of thickness at the top of the tube, and 1.5mm to 2.5mm of thickness at the bottom where the tube rests against the rim. As the name would suggest, these are excellent for protecting against flats in thorn country or roadways littered with sharp debris. I’ve found that they also do a good job of limiting pinch flats.

**Tube Sealants**: This is where we start to get a little bit more involved with setting up your puncture-resistant system. Tube sealants have been around for a long time, and the idea is that if something sharp stabs through your tube, exiting air pressure will cause the sealant fluid to rush to the hole and seal off the exit wound before your tire has time to deflate. This works really well for small puncture holes of upwards to 3mm in diameter, which accounts for a huge percentage of the punctures you’ll have.

There are two ways to go about setting up a sealant system for your tubes. The first method is to just go out and buy a tube that is pre-filled with sealant — doesn’t get much easier than that. The other option is to inject a standard tube with sealant. The only catch there is that your tube will need to have a removable valve core. Personally, I’m a fan of filling up my own tubes with sealant for a couple reasons. Sealant itself isn’t too expensive to buy in large quantities, and you can decide for yourself how much sealant you want to put in a tube. Slime ([slime.com](http://slime.com)) is a well known and trusted company producing tube sealant, and they offer both pre-filled tubes and containers of sealant.

**Tubeless**: Now we’re getting into territory you may not be quite as familiar with. As you probably guessed from the name, a tubeless system removes the bicycle tube from the equation and relies on your tire to form an airtight seal with the rim to prevent air from leaking out. Setting up a tubeless system requires more time, attention to detail, and is also more expensive than the previous four methods of flat prevention. While that doesn’t sound so hot, if you do your fair share of riding on gravel roads or singletrack, I’ll argue that the ride quality gained from a tubeless setup makes switching to a tubeless system worth your time and money.

How does tubeless improve ride quality and prevent flats? Since there’s no tube, you don’t have to worry about pinch flats, allowing you to run lower tire pressures than normal. For instance, on a 700c x 32mm tire, I might run between 30 and 35 on a tubeless tire as opposed to the 60-70 psi I would run with tubes. This takes a noticeable amount of vibration out of rough surfaces, which you’ll appreciate on longer rides. Tubeless also works best with sealant added, which will clog up most punctures you encounter.

If you choose to give tubeless a try, new wheels are likely in your future, and Stans NoTubes ([notubes.com](http://notubes.com)) seems to have the best system right now. With a Stan’s NoTubes rim, you will want to use tubeless tape to seal off the rim’s spoke holes, and install the air valve directly to the rim. Then comes the fun part, where you mount the tire.

You might hear people say that an air compressor is handy for installing a tubeless tire since you need a quick blast of air to quickly push the tire’s bead against the rim to create an airtight seal. Compressors are indeed handy, but I’ve found that soapy water can be effective as well. With the tire mounted to the rim, give it a good bath in soapy water. The bubbles from the soap will make it more difficult for air to escape when you’re adding air for the first time. You can also remove the valve core when initially pumping up the tire, which will force more air through with each pump. Once you have the tire sealed up to the rim, you can deflate the tire, add your sealant, and pump it back up. If you do suffer a flat while riding, don’t fret. Just toss a tube into the tire, and keep rolling.

I wouldn’t recommend tubeless for loaded touring. This is better suited for weekend exploring off road. The additional weight of a heavy load would put too much stress on the tire, and increase your chances of a blowout. I would also recommend seeking out tubeless-specific tires for this application. While you can get a non-tubeless tire to hold air on a Stans NoTubes rim, they aren’t as reliable.

No matter how you decide to go about preventing flat tires, just remember that no system is 100 percent effective. Always have a flat-tire repair kit on hand when you roll out.

---

**Josh Tack** is Adventure Cycling’s Membership Manager. If you have questions or comments about this article, or anything related to bicycle travel, feel free to shoot Josh an email at jtack@adventurecycling.org.

---

**Why Leave Anything Behind?**

Bike Friday introduces its non-folding Cargo Bike, the Haul-a-Day. Lighter and more agile than most Cargo Bikes, yet still a workhorse and great for touring.

---

**Adventure Cycling Member Special**

Earn $150 toward upgrades

Valid until April 30th
PROMO CODE: 2308

BIKE FRIDAY
Made in USA
800-777-0258 // BikeFriday.com