Winter Bike Commuting
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INTRO

First, a word about winter: It isn't three months of blizzards, sub zero temps, snow-packed roads and killer windchills. All of these will happen at one time or another during the winter, but winter also brings temperatures in the teens and twenties, almost clear roads and clear skies.

The trick to winter riding is to dress properly, maintain your equipment and pick your battles. If you are new to winter bike riding and have other options for getting around town, you can ride on the best days and use an alternate on the rest. It will make the season more tolerable, the ride more enjoyable and the odds that you will continue riding much better.

Our goal today is to get you started. There is no one-size-fits-all solution for handling winter conditions. Your tolerance for cold, length of commute, and willingness to ride in extreme conditions will dictate how you prepare for winter riding.

CLOTHING

Basics

Cover exposed skin. *Cold wind will find its way into the smallest opening.*

1. Wear gloves or mittens with a cuff that comes up your arm past the wrist.
2. Make sure your tights come below the top of your winter boots or booties.
3. Cover your face.

Layer for warmth

1. Adjust for changing body temperature or outdoor conditions.
2. Wear wool, fleece or poly garments. They stay warm when wet. Wet cotton chills by conducting heat away from your body.
    a. Thin wool or fleece against the body,
    a. Heavier mid layer
    b. Cover with a wind proof shell

        Note: Some riders prefer no shell. They add layers of insulation and let a small amount of air flow through to wick away moisture.

Circulation trumps insulation.

If your hands or feet are cramped, they will get cold, no matter how many layers you wear.

Specific Body Areas

Hands: *Circulation trumps insulation. If you layer a shell or heavy mitten over a glove or liner, make sure your hands have plenty of room to move and blood flows to your fingers.*

1. Mittens are warmer than gloves, but less flexible for shifting.
2. Three finger or "Lobster" gloves (thumb and two fingers) are warmer than five-finger gloves, more flexible than mittens.
3. Protect the wrists: The cuff of the glove or mitten should extend up the forearm. Arm protection (sleeves, arm warmers, base layers) should come down to the wrist.
4. Layer for warmth and flexibility. Wear gloves or glove liners inside mittens, but don't pack them in too tightly.
5. Pogies, the ultimate hand warmers, fit over your handlebars and shifters, then extend up your forearm.

    Note: Make sure that you are comfortable riding with your hands in something that is attached to the bike. In case of a fall, you want your hands to come out of the pogie.
6. Chemical hand warmers will keep your hands warm inside mittens. Some gloves have a pocket for hand warmers, but they aren't as effective for the fingers.

Feet: *Circulation trumps insulation. Buy boots a size or two larger if you want to add layers of socks.*

1. Clipless pedals are more efficient, but the clip conducts heat from your foot and the cleats can clog up if you step in snow
2. Non-cycling winter boots are very warm. Use platform pedals because the boots don't have cleats. Add reflective tape to the heels and outside side panels of the boots to increase your visibility.
3. Chemical foot warmers will keep your feet warm. Toes get cold before the rest of the foot, so move the chemical warmer into the toe box if practical.

Head/Helmet: *Expand the retaining system to make room for head layers.*

1. Wear a balaclava or neck warmer that creates a good seal around your neck.
    a. It should cover your cheeks, eyes and nose.
2. Wear a ski mask to protect your eyes.
    a. If you don't wear glasses, direct your breath up across your cheeks and eyes to keep them warm.
3. Eyeglasses fog up under ski goggles. The following hints may help.
    a. Some goggles now have a break in the shell to accommodate the eyeglass frame. Ask for them specifically.
    b. Direct your breath away from your cheeks and eyes. The warm, moist air will fog your glasses.
    c. Blow down and through the mouth or nose piece when exhaling.
    d. Pull the mask down and breathe directly out to the air when stopped at traffic lights or signs.
    e. If your head starts heating up, sweat will fog the glasses, control your head temperature, or pull the goggles up, away from your eyes, when stopped.
4. Your head radiates a lot of heat. Cover it to protect core body temperatures, but don't go overboard. In moderate winter conditions, the head can act as a chimney to vent excess heat from the core of your body.

Body:

1. Layer for warmth. See information above.
2. Wind protection: A wind shell will keep the wind off your body, but it can also trap moisture. Some winter cycling clothing adds a wind shell to the front and leaves breathable material at the back to allow your body to expel excess moisture. This works until you stop at a light with the wind blowing from behind.
3. Check the Civia Bicycles website for a general guideline to clothing choices. The site covers dry weather temperatures from 100 degrees above zero to 20 degrees below and wet weather conditions from 100 degrees above to 30 degrees above.
   http://www.civiacycles.com/civiaweather.php

Dry your clothes: *Nothing is more depressing than putting on damp clothes before you start your ride home.*

1. Start dealing with clothing moisture before you step indoors at work.
    a. Open zippers, pull off your helmet and remove a layer if practical. Cool your body down and let out excess moisture so it doesn't get soaked into your clothing.
2. Turn the shell inside out and drape it to expose as much area as possible.
3. Reverse your gloves or mittens to dry the inside, especially if they have a waterproof layer that might trap moisture.
4. If the bike is stored inside, and safe, drape clothing over the handlebars, hang your balaclava over the brake levers and lay out your gloves.
5. Clothes don't dry in lockers because very little air flows through.
    a. If practical, hang your clothes outside the locker, preferably in front of a fan.
    b. If your clothes won't dry during the workday, bring a spare skin layer to use just for the ride home.

BIKES AND GEAR:

Do I need a winter bike?

Snow, road salt and sand take a heavy toll on your bike. Chains rust, cassettes freeze up, brake pads grind road grit into bike rims. A winter beater is a bike that you don't mind subjecting to the extra wear and tear of hard riding. Some bikes work better in winter than others. But not everyone agrees on which is the best. See the Appendix for the pros and cons of several options.

Tires: Road conditions vary widely during winter. No one tire will be best for all conditions. Some riders have multiple wheel sets to handle different road conditions. Most riders choose the tires that work best for the conditions they expect to ride in most often. See the Appendix for the pros and cons of different tire styles.

Fenders, mud flaps: Use to protect feet and drive train as well as your back

1. Full fenders with a mud flap that extends to within a couple of inches of the road surface.
2. Fenders should be wide enough for winter tires and the snow and grit that accumulate.
3. Make sure your brakes work with the fenders.

Shifting systems: Shifting is harder with gloves or mittens.

1. Test gloves and mittens to see if they work with your system.
2. Consider bar end shifters, or grip style shifters.

Lights

Taillights

1. Flashing rear lights are essential
2. Use more than one because dark roads, especially in snowy conditions, make you very difficult to see.

Headlights

1. Rechargeable headlight systems last longer in the cold and burn brighter. They are expensive, but worth every penny on a dark and snowy night.
2. Motorists don't expect winter riders, use a light that rivals car headlights to get their attention.
3. The light should have a beam pattern that lights the road well enough to see hazards.

Other Gear Considerations: Winter riders have endless opinions about gear. I've included some of those opinions in the Appendix. Even if you don't use the information for choosing your own gear, it makes for great cocktail chatter and impresses others with your knowledge.

Maintenance

1. Keep your chain lubed. Salt and snow are tough on chains.
2. Clean grit off rims. Clean brake pads.
3. Rinse bike regularly to keep sand and grit out of bearings.
4. Freezing moisture in cassette can jam freewheeling pins. Cassette won't engage. Keep lubed with a lightweight lube.
5. Keep tires inflated.

ROAD CONDITIONS

General Information: Road conditions vary from wide cleared pavement to narrow, snow filled streets and the change, if a storm passes through, can happen within a couple of hours. No one set of tires, riding styles or techniques will handle all conditions. Adapt to the conditions at hand, ride cautiously and stay alert.

About Bike Paths: Many metro area bike paths are plowed. If you can find a plowed bike path, consider taking it even if the distance is longer. A long ride on a paved trail is safer and easier than a shorter ride on high traffic or ice rutted roads.

Specific Conditions:

Black ice

Nearly invisible, black ice is most common near intersections where the exhaust from idling cars freezes on the pavement.

1. Slow down before intersections and pull a foot from the cleat before coming to a stop.
2. If you are on ice.
    a. Ride through in a straight line if you can do it without going into the intersection or the path of a car.
    b. Don't brake or make sudden moves.
    c. If you must brake to avoid a collision, expect the bike to slip out quickly, rear wheel first. Put both feet out for stability.

Snow

1. New, untracked snow is relatively easy to ride through. Narrow tires cut through the snow better than wide tires.
2. Rutted snow, where traffic has passed through, can throw your wheel in unexpected directions and cause a fall.
    a. Wide mountain bike handlebars give you more leverage for controlling the bike.
    b. Move to the untracked snow near the edge of the road.
    c. If you have to ride through auto tracks, ride the center of the track, maintain a straight line where possible and don't take sharp turns.

Packed ice

1. New packed ice is very difficult to negotiate because it is often slippery and rutted. Ride slowly or get off and walk.
2. Older packed ice, usually ice that stays on the road all winter, is bumpy and jarring, but rarely slippery because of imbedded road salt and sand. Wide mountain tires will absorb some of the road shock.

Narrow roads

1. Low traffic:
    a. Take the lane.
    b. Be prepared to stop or pull over for oncoming vehicles.
2. High Traffic:
    a. Take the entire lane so motorists can't pass. Pull over where safe to let them pass.
    b. Don't ride icy shoulders or mounded snow next to lanes of traffic. You could slip into the path of the cars or under the wheels. Pull over periodically to let cars pass if you are traveling at a slower speed than traffic.
    c. Good lights, front and rear, are essential when riding at night.

Emergencies- Preparing for

1. Drink enough water and eat enough food before starting to avoid dehydration or the "Bonk." Your body will need more energy to stay warm. It also burns more calories because you are pushing thicker air and wearing more clothing.
2. Carry a spare chemical hand warmer and an extra layer of clothing.
    Fixing a flat tire or cleaning a gunked up chain in cold weather is very difficult. A chemical hand warmer will keep your hands from freezing up.
3. Cell phone: Carry it near your body.
    a. Cell phone batteries don't work well in extreme cold.
    b. Carry the phone inside a Ziploc bag to prevent body moisture from getting into the working parts of the phone and causing rust.

Emergencies-Mechanical Problems

1. Get out of traffic and out of the wind as quickly as possible.
2. Put on an extra layer of clothing before you begin to cool down.
3. Asses the problem in light of your ability to:
    a. Fix it in cold and dark conditions.
    b. Stay warm while working on the mechanical.
    c. Continue riding after the repair is made.
4. If you call for a ride
    a. Suggest a meeting place that you can walk to or a building where you can stay warm while waiting for the ride. Walking will keep you warmer than standing.
    b. Pick a spot that is easy for your ride to find.
    c. Make sure your driver can load you and /or your bike in a safe place away from traffic.

Emergencies-Accident

1. If you can move without causing further injuries, get out of traffic and the wind as quickly as possible. Put on extra layers and start a chemical hand warmer.
2. Call 911. Even minor injuries can become dangerous if your body temperature begins to drop in the cold weather.
3. If another vehicle is involved, deal with insurance and reporting the accident only after you are sure that you will not become hypothermic or frostbitten.

Appendix

What type of bike should I ride? Winter riders are quite opinionated about which bike is the best for winter commuting. Each of the bike styles listed below is very good for certain winter conditions, and not so good for others. Check the pros and cons of each, then decide which bike will work best for the type of winter conditions you expect to encounter most often.

Single speed, fixed gear bike
Pros:
1. Lightweight
2. Very few exposed parts
3. Steady pedal pressure on rear wheel provides extra stability in slippery conditions
4. Narrow tires cut through new snow for better control

Cons:
1. One gear doesn't offer options for headwinds and hills
2. No coasting. Takes time to adjust to the riding style.
3. Narrow tires provide little traction on ice.
4. Narrow tires more prone to flats.

Mountain Bike
Pros:
1. Wide tires provide more traction on ice
2. Wide range of gearing
3. Flat or wide handlebars offer more control for ice and snow conditions
4. More room for fenders and mud flaps
5. Heavy tires less prone to flats

Cons:
1. Wide tires "float" on new snow, less control
2. Heavy
3. Snow and ice can clog up derailleur and cogs

Internally Geared Bike
Pros:
1. All working components enclosed in hub
2. Chain guard option
3. Gears for hills and winds

Cons:
1. Less efficient than external geared
2. Heavier
3. Flat tire repair is difficult on the rear wheel

Tires Road conditions vary widely during the winter. Each tire style works best in some conditions and less well in others. Pick the style that will work best in the conditions you will most likely encounter.

Mountain Bike Tires: An all around tire for most riders. I have successfully used mountain tires with a slick tread in the middle and knobs on the sides. The knobs provide grip when riding through snow, but stay out of the way in dry or icy conditions.
Pros:
a. Wide tires with slick or semi-slick tread provide a lot of surface area on ice.
b. Absorb road shock, especially over hard packed snow and ice.
c. Puncture resistant.

Cons:
a. "Float" on newly fallen snow.
b. Difficult to control on new rutted snow.

Studded tires: The ultimate traction on ice
Con:
a. Heavy
b. They create a lot of rolling resistance when the roads are ice-free and dry.

Narrow tires
Pros:
a. Tires cut through newly fallen snow. The snow holds the line for the tires and provides stability.
b. Narrow tires offer the least road resistance on dry roads.
   Note: "Narrow" is a relative term. A "narrow" road tire in the winter has a 28-32cm profile.

Reduced air pressure: Limit to wide road tires (32cm or more) or mountain tires. The tire is ridden with lower air pressure than recommended by the manufacturer. The tire flattens out and provides more traction on slippery roads. Do not use with narrow profile tires. They will pinch flat.

Puncture resistant tires with a Kevlar casing or tires with a puncture resistant liner will reduce the risk of flat tires.

Other Gear Considerations

Drop bars versus flat bars
Riders have different opinions on this. Some claim that wide flat bars are essential in winter to give you the leverage needed to handle your bike through rutted snow and icy conditions. Others don't consider it a problem.

Brakes
Rim Brakes: The standard.
Pros:
1. Universally used, many varieties. Wide range of prices and quality
2. Cantilever and linear pull brakes allow more clearance for fenders

Cons:
1. Road grit grinds into brake pads and rims, creates excessive wear
2. Braking reduced in icy or wet conditions
3. Snow and ice will catch on the brake arms and pads, creating drag or blockage

Disc Brakes: The ultimate.
Pros:
1. Even, powerful pressure to a disc near the hub.
2. Grab more readily in wet conditions.
3. Road grit never gets ground into the rims, less grit overall because of the location of the brake calipers.

Cons:
1. Expensive
2. Require wheels and frames that are designed to handle the components.
3. Removing a rear wheel for flat repair may be more difficult.