

TOP **10** TIPS

SKI RESORT EMPLOYEES



This material is based upon the results of a study with patrollers, instructors, and lift operators at snowsport areas in Western Canada.

Written by Delia Roberts, PhD, FACSM © 2012. All rights reserved.



STOKED FOR A GREAT SKI SEASON ?



It's going to be a deep powder year, you have the dream job at a fantastic ski area, new gear and you can't wait to get those first tracks... so **what can you do to make sure that you're on top of every run, and that your body lasts the season, plus the next 10 seasons to come?**



This program is based on a study carried out at 5 snowsport areas in Western Canada on patrollers, instructors and lift operators just like you. **If you follow the advice in this booklet, you will:**

- Increase aerobic power so you can ski or board hard all day, everyday
- Strengthen muscles and tendons to protect against wear and tear
- Speed up reflexes to protect your joints
- Decrease fatigue, increase power, speed up your reflexes and enhance health by eating and drinking the right things at the right time

NUTRITION GOES LEAN + GREEN

Eating right will help you ski or board hard all day, give you the energy to stay social, then wake up and do it all again. The information in this package is based on the findings of a sports science study conducted on workers just like you. You may not be training for an event, but you *are* putting your body through the same sort of challenge, day after day.

Eating right will help you do more than just survive the season. You will be stronger and able to take your skiing or boarding to a new level. And that's what you want, right?



NUTRITION GOES LEAN + GREEN



Workers who followed the eating program were able to react up to a full second faster when faced with a complex visual stimulus. Think about how much that would improve your performance on snow, and how much it would help you avoid getting injured!



Sharpen your reactions by up to 15% by following the recommendations in this book.

PERFORMANCE ENHANCEMENT

After you read the information in the Top 10, check out the *Fit for Snow* manual, too. It explains more about:

- The Top 10: Why they are important and how they work.
- How to prepare food to make it better fuel for instructors, patrollers and lift ops.
- Delicious skier and boarder tested recipes.
- Training programs to improve endurance and power.
- Proprioceptive programs to enhance your joint stability and decrease existing joint pain.



Learn how to support your back and knees to avoid injury.

1 CARBOHYDRATE = ENERGY

Carbohydrate is the key nutrient for fueling your activity.

Carbs are the preferred fuel for the brain and nerves, and for muscle movements that are fast or powerful. Snowsport professionals and other active people need to get as much as 70% of their calories from carbohydrates.

Sugars are simple carbs (White and brown sugar, honey, jam, syrup; pretty much all sweet tasting foods). **They're digested and absorbed quickly (within 5-10 min)** so they generally

cause a large rise in the hormone insulin. Insulin in turn causes the sugars to move from your blood into cells where they can be used. **If you're not exercising the sugars are mostly converted to fat and stored instead of being burned,** and once they are turned into fat they can't easily be used by your nerves and brain.



When blood sugar changes too much it makes it hard to concentrate and react quickly to unexpected events like catching an edge. **People who ate snacks high in complex carbs and low fat protein every 2-3 hours while working were able to make the correct choice faster when faced with a complex visual stimulus. Overall, their performance was improved by 15% vs. when they ate more sugar and fat.** Just think about how much better you would read the terrain if your nervous system was reacting that much more accurately.

Complex carbs are starches,

made up of long chains of the sugar glucose. You can find them in all grains (rice, oats, corn, quinoa, barley, millet etc); flour products like breads, crackers, and pastas; as well as in fruits and vegetable foods. Since you have to break complex carbs down to release the glucose units,



the sugars are released in small amounts over about 1 hour. This makes them perfect for supplying your nerves and brain with a slow steady supply of fuel.

If you're going to start skiing, boarding or shoveling right after you eat, foods that contain simple sugars can give you a jumpstart.



But sometimes you have a long wait in between eating and starting an activity, like during the drive to the hill or if you have an hour in the shack. In this case, choose complex carbs with more fiber so that you don't trigger a large release of insulin which leads to a drop in blood sugar and you

crashing! Most active people know the feeling caused by low blood sugar; irritability, fatigue, shakiness, loss of attention, dizziness, and maybe some nausea.

Carbohydrates are also a critical fuel for your immune system. If your diet is too low in carbs your ability to fight infections will be impaired, and being sick on a powder day sucks!



Nobody wants to be sick on a powder day!

Have a look at the *Fit for Snow* manual at www.selkirk.ca/research/faculty/skiing for a list of foods that are high in sugars and others that are better choices for skiing, boarding and good health.

2 PROTEIN FOR PUNCH

Protein is in constant demand for the repair of body tissues, to create fresh enzymes, and build new muscle.

Your protein requirement may be slightly higher than usual when you're skiing and boarding all day, every day. Since your muscles contract as you resist gravity pulling you down the hill, (eccentric contractions) small tears are more likely to occur in working muscle.



A little more protein can help keep your muscle from breaking down too much and give it the building blocks to make necessary repairs.

Protein, which is made up of units called amino acids, is more complicated than carbohydrates and takes longer to digest (about 2 hours).

Since protein takes longer to digest, it can supply you with energy longer.



When protein is part of a meal or snack, it slows down the digestion of carbohydrate, providing a slow, steady release of fuel.



So eating a little protein every 2-3 hours with each snack is a good strategy, it can help keep you from running out of energy.



Protein from meat, fish, poultry, eggs, and dairy products – often referred to as *complete* protein has all the

amino acids your body needs to create new tissue. (Some of these foods also contain substantial amounts of fat, which is a good reason not to overdo some high-protein foods like cheese, beef and nuts).

Protein from tofu, dried beans and lentils is also highly useful. These vegetable sources are sometimes said to have *incomplete* protein because they lack one or more of the essential amino acids. But eaten in combination

with each other, vegetable proteins have what it takes (Combine beans or tofu with whole grains over the course of your day to get “complete” protein). Vegetable protein also has the advantage of being lower in fat and full of great vitamins, minerals, and disease fighting fiber. Plus, it’s generally way less expensive than animal protein foods.



For a nice steady supply of energy all day long, try to

include a small amount of low-fat protein, such as lean meat, skinless chicken, fish, low-fat milk products, tofu, or cooked dried beans in every meal and snack. Check out the *Fit for Snow* manual for menus, recipes and great snack suggestions that have just the right combination of complex carbs and proteins to keep you skiing and boarding like a champ.

3 CAP THE FAT

Fat is twice as concentrated in calories as carbohydrate and protein and it can be stored in unlimited amounts (darn!). But don’t trash fats completely, they do provide the very important essential fatty acids and vitamins A, D, E, and K.

Fats have the most staying power because they’re high in calories and digested very slowly (3-4 hours). But because the release of energy is so slow, fat will only fuel slow work. **If you want to ski or board hard, too much fat can make you feel sluggish.** And it’s never a good fuel for your brain and nerves.

Save your fat allowance for places where it really makes a difference. You can often reduce the fat in a meal by half or more without it changing the taste or texture of the foods (Check out the *Fit for Snow* manual for some great low fat recipes and tips on to how to take your favorite food and decrease the fat content.)

Make your fat choices count for health too, by **avoiding trans and saturated fats and using nutrient-rich unsaturated oils like olive or canola when you have to add a bit of fat for cooking. You'll find the important inflammation fighting omega-3 fats in cold-water fish, canola, walnuts, and fresh ground flax seed**; try to eat

a little of these foods on a regular basis.



Cap the fat by using olive or canola oil for cooking!

Choose leaner cuts of meat and remove the skin from chicken. Skim milk and other low fat dairy products are great sources of protein and calcium to keep your bones strong enough to withstand damage when you bite it big time.



Choose skim milk and low fat dairy products for stronger bones.

Switch out high-fat margarine or butter for nutrient rich cottage cheese mixed with a little jam as a topping for your toast. Use chutney or mustard and vegetable slices on your sandwiches instead of cheese, butter and mayo, and your sandwiches will give you the energy you need when you need it.



This attention to fat may seem a bit picky when you're shoveling, loading chairs, or riding all day. But you need the right kind of fuel at the right time to work at your peak, avoid injuries and stay healthy – and that won't happen with a diet of high-fat foods.



Keep your reflexes sharp by fueling up with complex carbs and low fat protein.

Staying hydrated is important for health and your ability to concentrate, make good decisions and avoid injury. This holds true even though dehydration



doesn't impair physical performance as much in the cold as it does in the heat. You should try to drink about 3L of water each day, best if consumed in small amounts.

Dehydration occurs because physical activity in the cold still generates heat. While it's possible to release heat into the cold air, it's likely that you are all bundled up to stay warm while riding the lifts or standing around waiting for students/chairs/toboggan. So by creating your own mini-climate with your down jacket, you lose water through sweat when you are working hard. There is also a fair bit of water lost by evaporation into cold dry air as you breathe, especially at higher altitudes.



Drinking 3L of water already presents an on-the-job challenge, but it becomes even harder to stay hydrated if you are a coffee drinker or been out boozin' the night before. Both of these substances have strong diuretic effects. After a night of partying with a wee bit too much alcohol, there are **significant decreases in your ability to be attentive, to concentrate and to react to unexpected situations.**

The more hangover you are, the worse your performance at both mental and physical tasks.



Consuming the equivalent of 4 drinks will dehydrate you by about a liter; combining alcohol with energy drinks makes that even worse. The energy drink masks your perception of how affected you are by the alcohol, making it more likely that you will drink more, do more tabletop dancing, and sleep even less.

And the **caffeine it contains will dehydrate you even further.** So if you do find yourself in that situation



try to make sure that you drink WATER to replace that litre, while you are consuming the alcohol. (You might just find that your hangover is not quite so severe.)

The fastest way to move liquid into your body is to drink cool water, just a small amount at a time.

Adding a little carbohydrate together with a small amount of salt and potassium (like in a sport drink) speeds the process up even further. But unless you've been sweating very heavily (big shoveling job), been drinking heavily (partyin' down), or you don't have access to enough water (big hike), you probably don't need to worry about the electrolytes.

And sorry to say, but beer is not an effective hydration drink, unless its alcohol content is less than 2%. (Most beer is at least 4%).

5 TIMING IS EVERYTHING

The timing of eating is particularly important for people with strenuous jobs – just as it is for athletes during competition. **When you eat your meals and snacks and what you choose to eat at particular times can make a huge difference to your ability to stay alert, slay the gnar, and have fresh legs each day.**



The key to working the energy game successfully is to look at which fuels generate power and speed (complex carbs and low fat protein), which are slow and steady (fats), which fuels are in limited supply (carbs) and which ones are stored in bulk (guess? Your hint is muffin top).



Carbs are great for keeping us alert and making good decisions, speeding up our reflexes and generating powerful movements. The problem is, we don't store very much of them.

After a night of sleep, or about 90 minutes of moderate activity carb stores (called glycogen) are pretty much depleted. At that stage we eat; or get grumpy, stop paying attention, lose coordination, slow down and feel tired.



Eat breakfast to make sure you have energy to get the hill opened up

Fats are big complicated molecules that we store in abundance, so while they have a lot of energy available, they also take a long time to break down, and the brain and nerves are never very happy running on fat. It is possible to increase our ability to get more power out of fat burning. That's how marathon runners get such great speed for such long races, but you have to put in a *lot* of hard training to get there.

So most people need to keep their carb supply topped up, and that's where timing becomes important. **In order to make sure that you have enough glycogen, first you need to eat breakfast** just like Mom said. Afterwards, **munch on small complex carb and low fat protein snacks every 2-3 hours.** Leave it longer than that and your blood sugar won't be able to supply your brain, nerves and muscles. Remember that workers who followed the **small complex carb, low fat protein snack regime every 2-3 hours were able to perform 15% better** when faced with a complex visual task than when they ate high fat and sugar foods. **Faster reaction time combined with increased accuracy is guaranteed to take your riding up a notch or two** not to mention how it might help save you from hitting that tree.



And what you eat right after work will make a big difference to how your legs feel the next day (please read on).

6 MAKE MEALS WORK FOR YOU

Each meal should be based on complex carbs.

Look for whole grain products to include fiber, vitamins and minerals. The less processing the product goes through the more likely it is to contain nutrients.

Fresh fruits and vegetables are also great carb sources and are almost limitless in variety. Then add in a little low-fat protein; both animal and vegetable sources have their advantages, so mix it up.



Here are a few suggestions, but check out the *Fit for Snow* manual at www.selkirk.ca/research/faculty/skiing for lots more information including menus, recipes and other hints and tips on how to get the most from your meals.

BREAKFAST TO ORDER:

For a drive to the hill of 1.5 – 2.5 hrs, go for low-fat proteins: Wholegrain bread french toast with non-sugar yogurt and fruit, or an omelet made ½ whole eggs and ½ egg whites, some veggies plus whole grain toast are both great choices



If you have 1 - 1.5 hrs, favor complex carbs with protein such as low fat cottage cheese with fresh fruit, slow cooking oats (but stay away from the sugar or syrup) or a power smoothie (see the *Fit for Snow* book for great recipes).



For less than ½ hr, you'll want foods that digest quickly: Wholegrain no-sugar cereal plus low-fat milk or no-sugar-added low-fat yogurt; or toast with non-fat cream cheese and fresh fruit (this won't last very long though so be sure to **pick power snacks** from Tip #7 to make it 'til lunchtime!).

MUNCH SOME LUNCH:

Lunch should be a readily digestible, **power snack** (see Tip #7), and a couple of your favorite runs. That means not settling for a pocketful of candy or a plate of french fries. Choose a sandwich or power muffin (see the *Fit for Snow* manual for some great recipes), plus fresh fruit. Bonus: Fruit is full of protective antioxidants and hydrating fluids!



AFTER WORK:

This is your secret weapon; don't share it with the competition. It will prevent "heavy leg syndrome" on day 4 of a storm cycle, big tour, or race series!

Immediately after you stop physical activity, your body is primed for restoration and repair. This is a **key time to take in mostly quick digesting carbs and just a bit of protein – the sooner the better. The enzymes that replenish glycogen are highly active only in the first 1 to 2 hours after exercise stops.**

So unless you will be eating supper within 1-2 hr of stopping work, be sure to pack an extra power snack (small sandwich, fruit, and baked good) for the drive back. **This is the one time that getting some insulin going is helpful** – it will promote recovery and muscle building in this short window of 1-2 hours after exercise. So you can go ahead and have something sweet (but low fat as it needs to digest quickly) 😊



DINNER:

You won't be ravenous at suppertime if you've fueled up all day – and that's a good thing. Eat what you like and let your body tell you when you've had enough (be sure to listen for that STOP signal). BUT - **if you haven't eaten since skiing, pay special attention to carbs (rice, pasta, potatoes, bread). It's critical to replace muscle glycogen (the storage form of carbohydrate) before tomorrow.**



7

PICK POWER SNACKS

Snacking has a bad rep. That probably comes from the term “snack food” which usually refers to high fat and sugar foods that aren’t particularly good for you. But eating small amounts of nourishing foods often is a good way to keep your body functioning smoothly 24/7.

For hardcore skiers and boarders, snacking is indispensable. How else to keep your energy level steady so you can keep going hard? And avoid the discomfort and loss of performance that comes with being either hungry or stuffed.

Pack some solid nutrition before you leave for work each morning. The more variety, the better:

Whole grain bagel with light cream cheese.

Low fat, high protein muffins with ingredients such as berries, banana, and bran and wheat germ.



Fresh fruit and low fat non sugar yogurt (aspartame does NOT cause cancer).

Raw veggies: Carrot, parsnip, squash, jicama, radish, zucchini, cucumber, hot or sweet peppers, broccoli and cauliflower with bean spread or non fat cream cheese dip.



Whole grain buns, bagels, bread, or pita with lean meat, chicken or turkey breast, or bean spreads and lots of veggies.

Whole wheat wraps with rice plus chicken, or cold cooked dried beans or lentils and some veggies.

Cold potatoes (skin on) with lean meat, chicken, cooked lentils or dried beans or hard-cooked eggs.

Cold whole wheat pasta with a little lean meat or fish and low fat sauce (see the Power Eating book for some recipes).

A few nuts.



Power squares or cookies from the *Fit for Snow* manual that are high in complex carbs, low fat protein, low in fat and taste yummy of course!

8

JOINT PROTECTION

There are small **nerve endings located inside of muscle, tendon, ligament and the joint capsule that provide information to your brain and spinal cord about your body position and how fast it is changing.** These nerve endings are **very important to protect us against injury** because when something is changing very rapidly there is a much greater chance that it may be forced beyond its normal range.



The good news is that **these sensors are very sensitive and they respond very quickly,** sending their information back out to the muscle to get it ready to

support the increasing load. For example as you are landing a jump, the increasing pressure in the joints between your vertebrae tell the muscles of the back and abdomen to contract and support the spine.

The bad news is that **these nerve endings are very easily damaged. Previous injury, pain, swelling, cold, vibration, and fatigue all slow or even distort the signals.** The end result is that the force on the joint or the muscle increases faster than the protective reflex can kick in. **An injury results because the force exceeds the strength of the joint structure when the muscle doesn't provide support in time.**



The other thing that contributes to the problem is when because of a previous injury, poor fitness or bad habits, **the reflex is re-set so that the wrong muscle is recruited.** In some cases, this not only reduces the muscular support, but can even increase the force being exerted on the joint making it even more susceptible to injury.

Recently this whole field of muscle recruitment and stabilization has become a focal point for injury prevention.

and performance enhancement for sport scientists.

Programs designed to reset and sharpen the reflexes have been shown to be very effective at decreasing injuries in non contact sports like soccer, basket ball and volleyball. Even more recently it is being applied to snow sports and occupational injuries.

Focused agility exercises and correct core activation can be incorporated into an exercise program to reduce the risk of injury. The bonus is that when the right muscle is recruited at the right time, with increased speed, you get much better power outputs!

Check out the *Fit for Snow* manual at www.selkirk.ca/research/faculty/skiing for more information and some examples of exercises that you can incorporate into your day, like when you are riding the chair or standing around waiting for something. It doesn't take much time before you will see some great results.

If you want to attain peak physical performance, you need to be fit. It doesn't matter whether it's skiing, boarding, free heeling, shoveling, hiking or bumping chairs. It's the powerful muscles, stable joints, good endurance, fast reflexes and speed when you need it that will allow you to reach that higher level you are aiming for.



Don't plan to wait until you start your season: There just isn't enough recovery time if you want to push the limit every day. Add-in sleep loss due to socializing and a poor diet, and instead of adapting your body starts to break down.

Without the resources to heal the small bits of damage that occur each day, they get worse and worse until all of a sudden it hurts too much to go for a run and you have a repetitive strain injury.



In the research study **most snowsport workers tested were not very good at completing a series of functional movement tests that were designed to evaluate strength, endurance and stability.**

And 80% of patrols, 92% of instructors and 88% of lift operators reported previous injuries that caused chronic pain or some limitation of activity.

It takes time and hard work to get in shape. When you work out harder than usual you send your body a signal that it needs to adapt. Then you need the right **building materials** to create new tissue and enzymes (amino acids, sugars, essential fatty acids, vitamins and minerals) and then finally you have to make sure that you have the **energy and time** to allow your body to make

the desired changes. **But increased fitness has been proven over and over to reduce overuse injuries.**

Visit www.selkirk.ca/research/faculty/skiing and download the training program designed specifically for patrollers, instructors and lift operators. It's not the only way to get in shape, but it was designed to help you get in shape faster than a standard program. Based on the latest in sports science techniques, it's aimed at strengthening the muscles, tendons, and ligaments that are under stress during skiing and boarding, shoveling, bumping chairs and lifting up students, and training them to work along with your nervous system to protect your joints.

If you are already into your season, you won't be able to do the full program, but even just getting started with some of the core work will help to reduce further injury and decrease existing pain.

10 LEARN TO BE WEIGHT-WISE

If you are like almost 80% of the population, you probably have some concerns about your weight being either too high or too low. Surprisingly, many of the participants in the research study at the 5 ski areas were overweight.

Regular, strenuous exercise is the best technique for burning fat.

But don't use a scale to assess fat loss.

Chances are you'll build muscle while working at a snowsport area, and muscle is heavier than fat. Know that if your clothes are getting looser, you're losing fat.

If you were **lean before you started your season, make sure you eat enough healthy food to keep your weight up. When you don't take in enough food to meet your energy needs, your immune system can't fight off infections** like colds and flus, or repair the small bits of wear and tear in your muscles and other tissues.



Even worse, your nervous system won't be getting the fuel it needs to keep your reflexes working at top speed, leaving you vulnerable to injury. A quick way to pack in some healthy calories is to add ¼ cup of dry skim milk powder to anything. It's a great inexpensive source of low fat protein and some carbs, and will help maintain your weight.

Even if you would be happy to shed a few pounds, eat to keep your blood sugar stable and supply your body with all the nutrients it needs to stay healthy. Lose weight too fast and your body will do everything in its power to gain it back – and more. Human bodies are programmed for survival: the rate at which a body burns calories will drop if you don't eat enough.

Be cautious of cafeteria food. High

fat items like pizza, french fries and commercial muffins might look attractive, but they are loaded with nutrient poor calories. The combination of fat



and sugar is guaranteed to decrease your performance on the hill.

If you practice the recommendations in this program you will be learning healthy eating and activity patterns. Wherever you go at the end of the winter, you can take those good practices along. You may not be worried about your health now, but did you know that there are

4 simple things that are guaranteed to significantly lower your risk of death? Compliance with a program of:

1. Exercise
2. Diet rich in fresh fruits and vegetables, whole grains and low in fat
3. Stop smoking
4. No more than two drinks of alcohol/day

Decreases your risk of cancer by 25%, cardiovascular disease by 45%, back pain by 65%, diabetes by 70%, and depression by 95%. Pretty nice odds!



RE-FOCUS ON RECOVERY

To ride hard, stay healthy, and avoid injury, give your body time and materials to make repairs and rebuild. The only way to do this is to eat a healthy diet and get enough rest. The temptation might be to party, but if you want to push your performance on snow you need to get 8 hours sleep minimum, every night.

At the end of a workday, treat your body with care. It's your most valuable piece of equipment. **If you feel sore, deal with it immediately.**



Ice the sore area right after work and another couple of times during the evening.

A dedicated bag of frozen peas inside a thin pillowcase makes a great ice pack, but don't leave it on for more than 10-15 minutes at a stretch. It's

possible to damage your skin if it gets too cold for too long. For muscle strains, alternating ice and warmth can also be effective.





Gently move the sore area through the full range of motion and massage it a couple of times during the evening and again during the next day. This helps prevent scar tissue from forming and increases the blood supply to the injured area so that nutrients can be delivered and wastes removed. And if you can afford it, book a session with a massage therapist.



Anti-inflammatory drugs. Pain and tissue damage are mediated by small molecules produced in damaged tissue. Non-steroidal anti-inflammatory drugs are very effective at inhibiting the production of these signaling molecules, blocking pain and decreasing peripheral damage (you are trying to do the same thing when you ice). Beware however, that these same molecules have many important functions in your body (like blood clotting and making red blood cells) and the drugs will block them all. **Omega-3-fatty acids** are natural anti-inflammatories - good food sources are cold water fish and ground flax seed. Taking omega-3 oils may



If icing and stretching don't stop the pain, think about asking to be assigned to an alternate duty. **Taking a day or two off early on in an injury can allow enough healing to take place that you can recover, whereas trying to work through the pain can escalate something minor into a more serious, long term problem. Be careful if you are using pain medications as you are blocking an important safety signal.**



may be easier, but they are expensive, and because omega fatty acids are very unstable they may not even be active.

For more information on recovery and all of the Top Ten Tips check out the *Fit for Snow* manual. If you don't have a copy you can download it at www.selkirk.ca/research/faculty/skiing





KEY POINTS ABOUT EATING

To work hard, enjoy your snow sport and avoid injury it's important to keep your blood sugar levels from getting too low or too high. To do this:



Eat a good breakfast that will be digested within 30 min of starting your activity



Eat a small snack of complex carbs and low fat protein every 2-3 hours. Some examples are:

- 1-2 pieces of fresh fruit and a cup of skim milk.
- A sandwich made with chicken breast on whole grain bread, with lettuce, sprouts and tomato.



- One cup of cut up fresh vegetables and ½ cup of non-fat unsweetened yogurt or 1 tbsp non-fat cream cheese.
- One Power Muffin, Bar or Cookie made using the recipes in the *Fit for Snow* manual.

- One piece low sodium beef jerky and a piece of fresh fruit.

Look at the *Fit for Snow* manual for many more suggestions!



Eat a snack immediately after stopping physical activity for the day. This snack should be higher in simple sugar than your regular snacks throughout the day



Carbs are essential to keep you focused and alert, so that you continue to be a valuable team member at work.





KEY POINTS ABOUT CARBS

Carbs that are higher in fiber take about 1 hour to digest. Whole-grain breads and cereals and fruits and vegetables are good to eat anytime.

Higher-sugar carbs will be absorbed quickly. They're good if you are already engaged in an activity and need a boost or right after your activity stops at the end of the day.

Carbs give you energy for powerful movements, riding hard, climbing hills, and shovel duty. They also provide energy for the nervous and immune systems, keeping you alert and focused while protecting you from injury and illness.



Eat complex carbs in small amounts every 2 hours for energy to keep you working hard on the hill.

Carbs are not stored in large amounts so breakfast is essential to restore liver glycogen, and small frequent snacks are important to keep it topped up. The only way to keep your legs from being depleted of glycogen after 3-4 days of hard riding is to make sure that you take in **fast digesting carbs within an hour or two of stopping your activity for the day.**



The best way to restore your legs for the third and fourth day of hard riding is to get a good snack right after work.





KEY POINTS ABOUT PROTEINS



Protein takes about 2 hours to digest.

Include a little low-fat protein at every meal or snack.



Proteins are important because they provide building blocks to repair and make new tissues, and they slow the digestion of carbs down just a little.



KEY POINTS ABOUT FATS



Fat takes about 3-4 hours to digest. Make your fat choices based on good health and the small amounts that are necessary for cooking and good flavor.



The healthiest fats come from fish, fresh ground flax, and canola and olive oils. Avoid trans fats and limit saturated fats, found mostly in animal sources.



KEY POINTS ABOUT PROTEINS + FATS



KEY POINTS ABOUT WATER



It's important to replace the water you lose through sweating and respiration every day. **To absorb fluid fast and keep it in your body, drink small amounts often.** If you have been consuming **more than 4 drinks of alcohol in the past 24 hours or drinking a lot of coffee or energy drinks you will be dehydrated** enough to impact your ability to focus, react quickly and make good decisions.



Carry a small bottle of water in your pocket so you can keep yourself hydrated for best mental and physical performance.

KEY POINTS ABOUT WATER





SHARP SHOPPING

Here is a list of budget buys to get you started with your power snacks and meals.

FAST CARBS

- Hard candies
- Yogurt – house brand is fine, look for “live culture”, “low-fat” and no sugar added
- Bruised fruit – half price and you can boil it down to make power muffins. See the *Fit for Snow* manual for easy recipes
- Chocolate syrup or jam for your recovery drink
- Raisins



SLOW CARBS

- Pasta – whole wheat is more expensive, so buy a bag of raw wheat or oat bran and one of wheat germ and add ¼ cup to your spaghetti sauce.
- Tomato sauce or tinned crushed tomatoes – essential for pasta sauces.
- Potatoes – leave the skin for fiber and nutrients



SLOW CARBS continued

- Rice – brown is a better choice and only a little more pricey, but you can go for the white and add the fiber back in. Try adding a tablespoon of wheat germ too for the vitamins (way cheaper than pills!!)
- Any kind of fresh vegetable or fruit. Variety is good so get whatever is on sale this week. Next week it will be something different. Organic fruits and vegetables are NOT more nutritious, though they are better for the environment... but they can be very expensive. Walk around town instead of driving, recycle, re-use and you’ll feel better if you can’t afford organic. Sometimes frozen vegetables are cheaper, they are also good choices unless you get the ones in cheese sauce.





SHARP SHOPPING

SLOW CARBS *continued*

- Whole grain bread, bagels, pita, buns – bread has gotten expensive and you don't want the brown wonder bread that is just white bread colored brown. Buy it on sale and if you don't have a freezer you can build one outside by digging a hole in the snow and burying an ice chest (Keep it sealed tightly to keep out animals). Buy a couple of loaves on sale, or day olds are half price!



PROTEINS

- Get the big bag of dry non-fat or skim milk powder and check out the *Fit for Snow* manual for delicious power packed recipes. Make up a batch of milk at 2x the recommended strength and use it instead of creamer and for power shakes.
- Fish. This one is a bit of a problem because it's expensive. Tins of water packed tuna are affordable, and when you can, fresh salmon!

PROTEINS *continued*

- Go through the bulk section and buy a selection of dried beans, grains like barley and buckwheat, and different kinds of lentils. Now you are set to make just about anything more powerful with vegetable protein. And you know where to go for recipes.
- Watch for the sales, chicken and turkey are much cheaper with bone in and skin on, but there is a lot of waste and it takes time to remove all the fat. In the end the boneless, skinless are a better buy. Stretch the protein in the dish by adding a few beans.
- Beef: again, regular ground is much cheaper, but there is a lot of waste. If you crave meat, it's often less expensive to purchase a large roast on sale, and cut it up yourself for steak, stewing beef, or stir fry. Go for lean and add a few beans.





SHARP SHOPPING

PROTEINS continued



- Tofu. A great source of protein, but don't bother with tofu based cheese or meats. They are usually very high in fat and salt
- Cottage cheese, get the low fat version, and again watch for when it's on sale. Same for cheddar and mozzarella.
- Eggs and skim milk, cheap and a great source of protein.
- Don't bother with lunch meat, see the Fit for Snow for lots of good lunch ideas.

FATS

-  Wheat germ and avocados – good sources of vitamin E, a powerful antioxidant.
- Margarine – non-hydrogenated, trans fat free!
- Canola oil is inexpensive and is rich in the right kinds of fats.

FATS continued

- Flax seed – invest in a coffee grinder and grind your flax fresh to make sure the omega-3 oils are good. If you can't afford salmon or walnuts this is a great source of this inflammation fighting oil, and much cheaper than supplements.
- Peanut butter – note I put this one under fats and not with protein.

MISC

- Fresh garlic, onion, ginger and lime - staples of the good cook and cheaper than the processed items. 
- Spices – when you make food from scratch it's healthier, and a lot less expensive. Get together with a friend and share the cooking, it makes it a social event.
- Water bottle – get two! No need for expensive soft drinks and juices or plastic consuming bottled water. Mountain water is delicious, straight out of the tap.

.....
Good luck - and have a great season!
.....



DISCLAIMER

If you haven't been exercising regularly it's important to check with your physician before beginning this or any other exercise program to make sure that you are not at risk for cardiovascular disease or have any other health concerns. Neither the author nor the sponsoring organizations are responsible for any illness or injury that may result from this program, if you chose to follow it you do so entirely at your own risk. If you feel faint or experience pain while doing these exercises seek medical attention immediately.
