Nutrition and Menu Planning

This section discusses food and menu planning for a trip. Food is an important part of any trip. The basic objectives of menu planning are to meet the group's nutritional and energy requirements for the activity level and the environmental conditions encountered daily. Furthermore meals that are tasty and enjoyed by everyone are a great morale boaster. Meal preparation and consumption can be one of the most sociable ingredients of any trip if well planned. In this section you will learn about:

- Energy requirements: calories needed and quality calorie sources.
- The right food at the right time
- The importance of snacks and grazing
- Keeping hydrated
- Group considerations
- Menu planning
- · Packaging and packing food

This section provides the following tools to help you plan your trip:

- Menu Plan Worksheet
- Quantity Calculation Worksheet

Energy Requirements – Nutrition Basics

Most activity failure is due to energy failure. Activity intensity, terrain, weather, and physical fitness contribute to exhaustion. Each of these factors uses energy which comes from food and fluids. The best way to prevent exhaustion is to take in enough food to generate energy to complete the task. Your choice of fuel (food and fluids) affects how well this works, when and how much energy is released.

For good health and to generate the energy to fuel your body you need a balanced diet. The five nutrients needed to balance your diet are carbohydrates, proteins, fats, vitamins, and water. A diet of 60%–70% carbohydrates, 20–25% fat, and 10–15% protein is considered balanced and maximizes performance.

The energy the body uses is measured in units of heat called calories. A normal female consumes approximately 2000 and a male approximately 2500 calories during a normal day. Depending on the activity intensity, terrain, and weather an outdoor enthusiast can use between 3500 to 5500 calories a day. The majority of calories come from carbohydrates, but the body will also use fat and protein to generate energy. The body first burns simple sugars then complex starches acquired from carbohy-

drates before using fat and at times protein for energy. Water, vitamins and minerals are the catalysts in this process. Below is a brief explanation of the importance of each nutrient.

CARBOHYDRATES

During digestion carbohydrates in food and fluids are converted rapidly to glucose that is transported by the blood to cells. Glucose in the form of glycogen is stored in the muscles and liver. Carbohydrates come in two forms — simple sugars and complex starches. Simple sugars are depleted quickly by activity, while starches are released over a longer period of time. Your storage capacity is small, so during a strenuous activity like backpacking or cross country skiing, your blood sugar levels can drop dramatically in a single hour. To keep your blood sugar and energy levels high over time you must eat complex carbohydrates on a regular basis. In other words "graze" by snacking throughout the day.

Sources of simple carbohydrates: energy bars, chocolate, candy

Sources of complex carbohydrates: fresh or dried fruits, low-fat cookies, whole grain bagels, muffins, muesli, whole grain breads, beans, peas, bulgur, lentils, oatmeal, pasta, brown rice, cereals, fruits, vegetables, applesauce, juices, potatoes and energy bars.

FAT

One calorie of fat produces twice the energy of a calorie of carbohydrate but your cells do not release it for use unless the exercise period is extremely long and intense. Fat will start to be burned after 60 to 90 minutes of exercise.

Sources of fat: butter, margarine, cooking oil, mayonnaise, cheese, peanut butter, peanuts, chocolate, meat, eggs and some nuts.

PROTEINS

Protein contains amino acids necessary for tissue maintenance, repair and growth. They are responsible for the regulation of water balance and production of compounds essential for normal body functions. Proteins are essential in the metabolism of carbohydrates. Sources of protein: meat, fish, poultry, eggs, milk, beans, cheese, and nuts.

VITAMINS AND MINERALS

Vitamins and minerals do not provide the body with energy, but rather assist in metabolic functions, including those that release energy from food sources. Only minute amounts are needed; therefore, the best and safest way to obtain optimal amounts of the essential vitamins and minerals is to eat a well balanced diet, e.g. foods from all food groups.

WATER

Water is the most neglected nutrient. Water is essential for maintain-

CALORIC INTAKE

Don't try to lose weight by counting on your body fat to supply energy during the trip. It takes a lot of heavy activity over many days to lose weight. Your focus should be on maintaining a constant blood sugar level and energy level by continually eating complex carbohydrates.

ing normal body temperature, maintaining normal blood volume, digestion, and transporting essential elements to and metabolic waste away from the cells. One way to determine if you are getting enough fluid is to check the colour of your urine. It should be very pale yellow. If it is dark you are likely dehydrated. Water is the best replacement fluid, unless the exercise continues longer than two hours. A carbohydrate drink such as fruit juice diluted 50/50 with water is useful in providing carbohydrates to maintain normal blood sugar levels. Dilute juice also provides electrolytes and vitamins, which will be useful for all—day activities. Diluted fruit juices are more thirst quenching.

The Right Food at the Right Time

Correctly planning what and when to eat ensures that your body will have ample energy when it is needed.

The body metabolizes carbohydrates, protein, and fat at different rates. Glucose in the bloodstream is used first, followed by the glycogen stored in the muscles and liver. Once these sources are depleted the body starts to break down fat reserves and then protein in the muscle. Simple sugars are digested within 20 to 60 minutes. On average complex carbohydrates, protein, and fat require 1–3, 4–5 and 5–9 hours respectively, to digest. This varies among individuals according to their metabolic rate. Eating protein and fat with carbohydrates slows absorption of carbohydrates extending the time period glucose is released into the blood.

- A breakfast high in complex carbohydrates is important for quick energy production for days when you are starting out early. Examples are oatmeal with dried fruit or whole wheat bagels with cream cheese or peanut butter.
- A high fat breakfast would not be used by the body until the afternoon, impairing your morning performance. Examples are most granola cereals or pancakes fried in oil or butter.
- If you feel tired, eat a simple sugar food source for a quick boast but it must be accompanied by complex carbohydrates, e.g. chocolate or candy followed by an energy bar.
- The best snack choices are foods high in complex carbohydrates, with small amounts of simple sugars, and plenty of water. Examples are fresh fruit, which are a great source of both simple and complex carbohydrates, plus they contain a high percentage of water. Food bars or other supplements are appropriate only if they are low in fat and high in carbohydrates.
- Supper can include a higher percentage of fat. This will ensure that it is digested by the morning.

Eating smaller amounts (grazing) more often is better than eating larger amounts less often. This is especially true at lunch when you have a short break. A large lunch will make you feel sluggish until the

DEHYDRATION

Signs of dehydration: headache, fatigue, dark yellow or orange urine, low urine output, and constipation.

SNACKING

- Consuming a high carbohydrate diet (60–70% carbohydrates) for several days before a trip will double your glycogen stores and can increase your performance.
- It is better to "graze" or snack frequently during the day in addition to having three healthy meals. This will keep your blood sugar levels in balance.
- If the drive to the starting point is long, have a snack a half hour before your arrival to help fuel your body before the adventure begins.

food is digested.

The best time frame to replenish glycogen to the muscles is between 30 minutes to 2 hours after you stop for the day. Once you arrive at camp, have a snack and fluid such as hot soup. The energy surge and morale boast is wonderful. Dinner should include generous quantities of starches (rice, pasta, potatoes, and bread), some protein and fat.

The body can absorb approximately one litre of water an hour. In hot weather or during strenuous exercise the body can lose more than a litre of water per hour. Often water is not readily available during the day. These situations can result in dehydration.

- Sip water continually rather than drinking a large amount at one time. Replenish water at every rest stop.
- Check the colour of your urine for indications of dehydration.
- Once you arrive at camp slowly drink .75 litres of water and then sip continually during the evening to rebalance your fluid level.

Pre-trip Group Considerations

Menu planning is centered on nutrition basics, but it is important to incorporate some group interaction into the process so that everyone is satisfied with the end result. The group should come to consensus on the following:

- Likes/dislikes ask all members of the group what they enjoy and what they dislike. Once the menu is established review it with the group. The individual and group can be put at risk if someone does not eat properly because they dislike the food.
- Allergies Avoid allergic foods. If any one person can have an anaphylactic reaction to a food, make sure the food is not on the trip.
- Vegetarians It is possible to have a great vegetarian menu plan.
 Be considerate and learn more about nutrition.
- Spicy food Camping is not the venue for heavily spiced foods that cause indigestion.
- Gaseous food Avoid foods that cause gas. If you're sharing a tent it will be appreciated.
- Dehydration Beware of alcohol, black tea and coffee they dehydrate you.

COOKING FUEL

- Do as much pre-trip cooking as possible to reduce the amount of fuel needed on trip.
- 75–100mL/person/day is usually plenty of fuel based on one course breakfasts and one pot dinners during the Spring, Summer and Fall seasons.
- 150–200mL/person/day for Winter activities is required to accommodate for increased consumption (e.g. melting snow, warm lunches; colder temperatures require more energy to heat meals/water).

Types of Food

FRESH FOODS

Fresh foods are the tastiest but the drawbacks are weight and spoilage. Check fresh foods daily for spoilage. Most will last 24 hours and some vegetables can last days. Be careful of foods that spoil quickly and can cause gastroenteritis, e.g. chicken, eggs.

Some foods can be frozen and used the next day if kept insulated, e.g.

steak, eggs premixed in a leak proof container.

Dried meats (pepperoni sticks) and hard cheeses last.

Fresh food that travel well:

- Vegetables: snow peas, peppers, mushrooms, cabbage, cucumbers, zucchini, garlic, ginger, carrots and romaine lettuce, beans (black), hummus
- Fruit: oranges, apples, mandarins
- · Breads: bagels, rye, pita, tortillas, any dense bread

Extras; cookies, wheat thins, nuts, candies, jam, nut butter, cream cheese.

In tubes; margarine, peanut butter, mustard, relish, tomato paste.

In small cans: tuna, salmon, herring.

Flavour enhancers:

- Dried Herbs: parsley, savory, dill, cumin.
- Spices: cinnamon, nutmeg, cayenne, lemon, black pepper.
- Extracts: vanilla, almond, banana, coconut, garlic.
- Condiments: mustard, vinegar, soy sauce, onion, curry.

DRIED FOODS

Dried foods are great for weight reduction, last forever, and are easily available.

- Cereal, oatmeal, cream of wheat, pancake mix, bannock.
- Pasta, couscous, bulgur, rice, potatoes, Oriental noodles, refried beans, black beans, Ramen, instant soups.
- Dried fruit apricots, apples, pears, raisins, banana, cranberries, etc.
- Drinks hot chocolate, juice crystals, herbal tea, powdered milk.

DEHYDRATED FOODS

Most foods with water can be dehydrated and is something that you can do but it takes planning and time. They are significantly less costly than freeze—dried. They weigh a bit more and have a shorter shelf life than freeze dried but they are a nice way to add fruits and vegetables to your trip meals.

FREEZE DRIED FOODS

Freeze dried foods reduce your carrying weight to 10% of original weight. They are easy to prepare and most require little or no cooking, saving time and fuel. They retain their original flavour and colour. Freeze dried food are the most expensive alternative.

ESTIMATING FOOD QUANTITIES

- Total daily weight of food per person should be around 700–1250 grams.
- Breakfast should take up about 25% of the total daily weight.
- Lunch and snacks should take up about 25% of the total daily weight.
- Dinner should take up about 50% of the total daily weight.
- Plan on fluid consumption around half a litre at breakfast, 1–2 litres during the day and up to one litre in the evening.

PETER HENBURY'S SUPER BANNOCK

Ingredients: (serves 2 people) 250ml self-rising flour 250ml of dried fruit (apricots & or apples, currant) I tbsp. brown sugar 2 tbsp. powdered milk (optional) Cinnamon to taste Nutmeg to taste Procedures: Mix dry ingredients Store & carry in ziplock bag On the trail add 150+ml of H20 to bag Close bag & knead bag Oil or butter pan Place in pan like a pancake Cook over low heat (cover pan to cook) Flip after bottom is golden brown

BAGGIES

Self sealing plastic bags are a great way to re-pack food and they can be used as a mixing bowl or for boiling bags to heat meals.

Meal Ideas

BREAKFAST

Quick start foods include dry cereals (granola, muesli) with fruit, muffins, fruit breads, bagels with jam, peanut butter, cream cheese, instant hot cereals, hard boiled eggs, sultanas with cream cheese, jam.

Normal start foods include hot cereals (oatmeal, cream of wheat), eggs (scrambled, omelette), pancakes, French toast, bannock with dried fruit, toasted sandwiches (ham, cheese), rice pudding.

LUNCH

Bread or crackers with dried sausage, pate, peanut butter, jelly, honey, cheese, cream cheese, tuna, salmon.

Vegetables: carrots, cucumber, zucchini, peppers, humus.

Fruit: oranges, apples, figs, dried fruit.

Salad: tuna or salmon combined with veggies.

Hot options: dried soup, Oriental noodles, hot drink, toasted sandwiches

SUPPER

Go for one pot with one of the following bases, soup and dessert:

- Soup: starter course.
- Meat/jerky sytroganoff mushroom soup, jerky (hydrate while on the trail) mushrooms and pasta
- Grains rice (instant or boil in a bag) with flavour packages, add veggies, spices and cheese
- Pasta macaroni & cheese, spaghetti & tomato sauce, chicken or tuna pasta.
- Chili vegetarian couscous with veggies.
- Mexican burritos or fajitas with dehydrated refried beans, cheese, veggies, etc.
- Pita Pizza pizza sauce, cheese, pepperoni, veggies.
- Potato with meat/chicken: powdered, dried or shredded potatoes with peppers, onion, peas, dried sauce.

TREATS/SNACKS/DESSERTS

Very important as morale boosters and can include:

Trail mix, veggies, fruit, dried fruit, chocolate, (fondue with fruit), no-bake cheese cake (Royal brand), cookies, energy bars.

DRINKS

Coffee, teas, hot chocolate, hot apple drink, hot jello, tisane, drink crystals, powdered milk, juice concentrates, cup of soups.

Packing Food

Packaging of the food we buy can account for 20% of the weight. The quantity in each package purchased is often more than needed for the trip. A considerable amount of weight can be saved by repackaging food in lighter, reusable containers that contain the exact amount of ingredients needed for the trip.

- Use self sealing freezer (thicker and more durable) bags for powder and dried foods. Carry extra bags in case some become damaged.
 Bags can be shaped to fit in tight or odd spaces.
- Use tiny self sealing plastic bags for spice kit items.
- Refillable plastic squeeze tubes are great for such foods as margarine, mustard, nut butters.
- Use plastic leak proof bottles for any liquids.
- Repackage to reduce packaging garbage on the trip.

Food is a major proportion of the total weight for a trip. Access to items when needed and sharing the weight is critical. Below are a few ideas for organizing the group's food:

- Pack each meal in a separate bag.
- If weight allows, pack three meals per day in one bag or pack all breakfasts in one bag, lunches in another and dinners in a third.
- Colour coding the bags makes them easier to find.
- Each morning place the lunch food bag for that day somewhere it is easy to access.
- Each individual should carry their own snacks for the day.
- Eliminate all glass containers and reduce cans to items that will spoil, e.g. canned tuna.
- Always label with contents and include recipe instructions in the bag to eliminate guess work.
- Plan for a non heated "tent" meal in case of bad weather.
- Eat your heaviest food items first to lighten your load.
- Plan one extra light emergency meal.

Organizing food, repackaging, and packing are the longest tasks in trip preparation. Give yourself plenty of time to assemble your menu!!!

LNT PRINCIPLE #1

PLAN AHEAD AND PREPARE

Repackage food to minimize waste.

How to Use the Menu Plan Worksheet

Use this worksheet to plan your trip menu. List the items for each meal. Try to develop a balanced diet based on the nutrition discussion ealier in the book.

The colums represent each day of your trip. If your schedule includes a meal while traveling indicate so in the appropriate meal section.

	Menu Plan Worksheet			
/ DAY	DAY	Day		
Breakfast	Breakfast	Breakfast		
Lunch	Lunch	Lunch		
Dinner	Dinner	Dinner		
Snacks/Misc.	Snacks/Misc.	Snacks/Misc.		

Include additional worksheets as necessary depending on the length of your trip.

Be sure to bing a copy with you on trip!

Sample Menu Plan Worksheet				
Day 1	Day 2	Breakfast Breakfast Oranges Bannock with maple syrup Hot herbal tea or orange juice crystals		
Breakfast Pre trip Breakfast at home. Boiled eggs 2 Whole wheat toast with almond butter 2 pieces Orange juice 1 glass	Breakfast Breakfast Orange Pre-made scrambled eggs frozen in water bottle Hunter rye bread with honey or jam Hot herbal tea or chocolate			
Lunch Packed at home Tuna & mayo sandwiches on whole wheat Carrot sticks small bag Apple 1 H20 with juice crystals	Lunch Bagel with hard cheddar cheese Carrot & celery sticks Apple H20 with juice crystals	Lunch Lipton cup of soup Tortilla salmon wraps Trail mix		
Dinner Knorr minestrone dried soup Pasta Sun-dried tomato sauce frozen Add zucchini & green pepper Top with grated cheddar cheese Pita bread Herbal tea or hot chocolate	Dinner Knorr leek soup Pita pizza – covered with pesto, onion, green pepper & pepperoni Topped with thin sliced cheddar cheese Hot herbal tea or chocolate	Dinner Post Activity On the way home-snack or what is left over		
Snacks/Misc. Trail Mix –nuts & dried fruit	Snacks/Misc. Energy bars or trail mix	Snacks/Misc. Trail mix or energy bars		

How to Use the Quantity Calculation Worksheet

Use this worksheet to breakdown your menu into specific, individual items. Estimate the total quantity you will need for each item then decided where you will get it from (e.g. purchase at store, already have at home, ect.).

How much of the specific item will you need per person.

Figure out how much you will need for the entire group for the number of times you're planning to serve it.

Describe exactly what you need to make it easier when you shop.

Where you planning to get the item.

How much you think it

will cost.

An item is the specific menu ingredient you'll need to make your planned menu. Keep it as simple as possible. If you're planning pancakes consider choosing a ready made add water mix rather than having to pack all the ingrediaents for pancakes from scratch.

ITEM	QUANTITY	Total QUANTITY	DESCRIPTION	SUPPLIER	Est. Price
	 	 			
		1 1			
		1			
		1			
				-	
				ĺ	
	1	1			
	1	+ +			
	1				
	+	+			
					-
		+			
	1				
		1 1			

ÎTEM	QUANTITY	TOTAL QUANTITY	DESCRIPTION	SUPPLIER	Est. Price
Soup Pkg	1 pkg serves four	1 pkg	Knoor Dried Minestrone	Loblaws	\$2.00
Pasta	85g/person	4 x 85g = 340g	Macaroni - 750g bag	Loblaws	\$3.00
Sauce	175 ml/person	4 x 175 ml = 700g	Classico - 700 ml jar	Loblaws	\$4.50
Veggies	I green pepper I zucchini		2 fresh veggies	Loblaws	\$2.00
Cheese	100g/person	4 x 100g = 400g	Cheddar block 500g	Loblaws	\$7.00
Pita Bread	1/person	4 pieces	Pita Bread (5/pkg)	Loblaws	\$2.00
Hot Chocolate	1 pkg/person/ day	4 x 1 x 3 = 12 packages	One box (20pkg)	Loblaws	\$10.00
Herbal Tea	1 bag/person/ day	$4 \times 1 \times 3 = 12$ bags	Assorted	At Home	\$0.00
Scrambled Eggs	2 eggs/person	4x2 = 8 eggs	Pre-mixed and frozen	Loblaws	\$3.80
Fruit	1/person	4 Oranges	Fresh Fruit	Loblaws	\$3.50
Bread	2 slices/person	4 x 2 = 8 slices	Hunter Rye Bread (1 pkg)	Loblaws	\$3.00
Bagel	1 1/2 per person	4 x 1.5 = 6 bagels	Poppy seed bagels	Real Bagel	\$3.00
Cheese	150g/person	4 x 150 = 600g	Cheddar Block 500g	Loblaws	\$7.00
leggies !	1 Carrot/person 1 Celery/person	4 Carrots 4 Celery stalks	Fresh veggies	Loblaws	\$5.00
ruit	1 Apple/person	4 Apples	Fresh fruit	Loblaws	\$1.00

Stoves

Camping stoves are categorized by the type of fuel and how the fuel is delivered to the burner. One system uses non-pressurized fuel that sits in an open burner similar to a fondue burner. The other system uses fuel stored in a reservoir that is sent under pressure to the burner. Both have their advantages and disadvantages.

STOVE: TYPES & FEATURES

Non-pressurized stoves

Example: Trangia

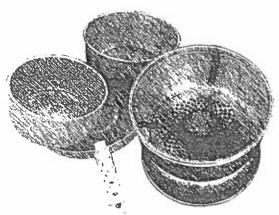
Fuel: alcohol (methyl hydrate)

Advantages:

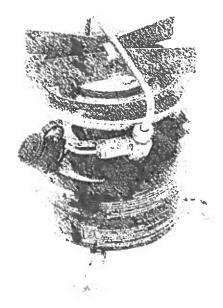
- Simple to use and durable. Nearly impossible to damage
- Stove stores in a nesting pot set with wind screen
- Easy to light
- Safe and quiet operation

Disadvantages:

- Difficult to control temperature
- Burner heat production is low, but good simmer function
- Slow for cold weather cooking



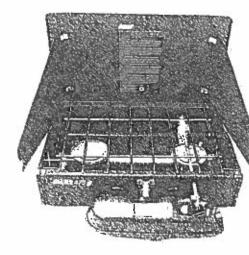
ALCOHOL STOVE
Non-pressurized, lightweight stove
with integrated pots.



PRESSURIZED STOVE Uses white gas, Pressure is created with integrated plunger.

STOVES

- In winter, place the stove on a solid surface, not directly on the snow.
- Trouble with your stove pump? No oil? Use your cooking oil to lubricate the plunger.



TWO BURNER STOVE
This pressurized two burner stove
uses white gas that is carried in a
built-in fuel tank.

Pre-trip check: Before packing your stove make sure all stove and pot components are included in the set and that they are in good condition. Practice setting—up and repacking the stove before the trip.

Pressurized stoves

Examples: MSR, Brunton, Coleman, Primus

Fuel: liquid -white gas, diesel, kerosene

Canister - propane

Advantages:

- Single or multiple burners available
- Compact and light weight
- · Liquid fuel stoves give excellent heat production

Disadvantages:

- More difficult to maintain
- · Potential to flame-up when lighting
- · Some models have difficulty simmering food
- · Some models are more fragile

Pre-trip check: Before packing your stove try running it to make sure it is functioning properly. Regular maintenance includes lubricating the pump and cleaning or replacing fuel jets.

Stove Safety

Refuelling:

- Use fuel specific to stove
- · Use clean new fuel
- Fill the stove or fuel bottle away from any open flame
- Do not the fill stove or fuel bottle above the designated level.
- Make sure the pump is lubricated and working.
- · Check pressurized stoves, fuel lines, and fuel bottles for leaks.
- Avoid spilling fuel on exposed skin. In winter conditions this could result in an immediate case of frost bite.
- Firmly tighten fuel bottle caps and place extra bottles well away from stove and food.
- Allow the stove to cool completely before refilling. Burner unit
 must cool enough to touch before fuel can be added. Be extra
 careful with alcohol stoves because the flame is colourless and difficult to see.

Stove use:

- Set stove on a sheltered and stable base well away from camp trafnc.
- Clear all flammable debris away from the stove before lighting.
- Never cook inside a tent or vestibule. Stoves release carbon monoxide gas and tents are extremely flammable.
- Cover pots to prevent heat loss and reduce cooking time.
- Never cook around tents or leave a stove unattended.
- Empty your stove when storing it.