

Energizing Our Energy Systems— Maximizing Energy/Minimizing Fatigue ([Provided by: HighCountryExplorations.com](http://HighCountryExplorations.com))

Central Issues Addressed in This Article

How best ramp up my energy production to higher levels? What new behaviors are needed to minimize my fatigue and maximize energy while traveling on foot in the wilderness? What are the most important elements or fundamentals to focus on while achieving this goal? What about energy bars and drinks? Electrolyte replacements?

Introduction/Starting Assumptions

Most experienced wilderness travelers have developed a number of strategies for minimizing fatigue and maximizing energy, whether conscious of them or not. No matter what strategies are used, they can always be refined and improved. There are no magic bullets; only an ongoing challenge to refine the system we use as new information becomes available. This challenge only increases as we age.

This article is organized to view this topic systematically. Viewing it systematically means taking into account the many different factors (strategies, elements) that play a role in our energy and fatigue experiences, and looking at them as a whole. The section immediately below covers the most significant factors—thirteen in all. The reader is expected to supply additional factors that have been missed or that play a unique role in their own physical makeup.

Hikers having serious medical conditions affecting levels of energy and fatigue (e.g., diabetes, Lyme disease, chronic fatigue syndrome, cancer, AIDS) will still benefit from taking the systems approach proposed in this article. Some modifications will likely be needed to accommodate specific medical conditions.

One final starting assumption is about authority and expertise. I do not claim to be an expert or authority on this subject. I have developed considerable expertise, however, which is shared in this article. Much of the information presented is readily available. It is also relatively easy to find authoritative sources on most of the topics covered. Any errors found in this article and my expertise are not critical to the systems approach that is the heart of this article.

Energy/Fatigue Strategies: Thumbnail Sketches

For each set of strategies described in this section, I first review what I perceive as traditional wisdom (*basic*) and then move to more *advanced* and controversial perspectives. The goal of the *basic* information is to bring to consciousness what most readers already know (i.e., traditional wisdom if you are an experienced hiker) and to use it as a stepping stone to present more *advanced* principles and strategies. The goal of the “advanced” offerings is to assist you in considering potentially new behaviors for minimizing fatigue and maximizing energy.

Even though you are likely to agree with most of the *basics*, agreement is not critical. The *advanced* strategies presented are often more controversial and agreement will be less likely. Sometimes the *advanced* strategies will conflict with the *basics*. Let’s now examine these *basic* and *advanced* strategies of energy production and fatigue reduction grouped into thirteen different categories.

Solid Food (Basic): On the trail, carry solid food that is easy to get to. Regularly eat small snacks rather than big feasts; do not allow yourself to get hungry. To avoid dipping into your reserves, begin eating and drinking your carbs no later than one hour into a long hike. Higher energy output means a higher caloric intake is needed. Even though lots of carbohydrates are needed for energy, eat a balance of macronutrients (protein, fats, carbohydrates), especially if you are going to be out for a while. Eat breakfast to help you in the afternoon, lunch to help you in the evening, and dinner (especially protein) to help you recuperate and get started the next day. A meal of carbohydrates plus some protein is needed to maximize the glycogen stored in the body.

Solid Food (More Advanced): To avoid a roller coaster effect, eat plenty of complex carbohydrates (i.e., food with a low glycemic index) whose sugars are absorbed more slowly. Since simple and complex carbohydrates are absorbed at different rates, eat and drink them in different forms at different times of the day to maintain a steady flow of energy during heavy exercise. For example, oatmeal, candy bars, dried fruit and sports drinks all have different absorption rates. In the same vein, do not overconsume on one type of sugar. Since it is easy to max out on the amount of glucose your body can absorb, eat carbohydrate-rich foods that contain other kinds of sugar (e.g., fructose, maltose, sucrose). One study showed that the ideal ratio of glucose to fructose for endurance athletes is 2:1 (Asker Jeukendrup, professor of exercise metabolism, University of Birmingham, England). When out on the trail for

any length of time, eat as many fruits and vegetables as you can using powdered, candied and dehydrated forms when fresh are not available. The name of the solid food game: variety, variety, variety!

Hydration (Basic): Fatigue is one sign of being short of fluids. (Exception: highly trained athletes can perform at high levels even when dehydrated.) Carry water where it is easy to get to; drink regularly in all weather conditions (especially cold weather) even if not feel thirsty. By then, you are already dehydrated. Pee color is the best indicator of adequate hydration. *Warning!* Our body shuts off its thirst response after it gets dehydrated to a certain point.

Hydration (More Advanced): Since the digestive system can only absorb about a quart of liquid an hour and we often expend more than that, hikers should hydrate before, during and after exercise. During hard exercise, drinking every fifteen or twenty minutes is ideal. To accomplish this, consider using a hydration bladder with a hose. *Warning!* Do not hydrate to excess (hyponatremia); this can leach the electrolytes out of your body.

Electrolytes (Basic): Avoid electrolyte deficiencies. When sweating a lot over a period of several hours, replace them with salty food, sports drinks or electrolyte pills accompanied by water.

Electrolytes (More Advanced): If using energy (performance, sports) drinks during moderate levels of exercise (for their caloric and electrolyte content), balance them with solid food and plain water. During heavy exercise and hot weather, greatly increase sodium intake (either from salty food or crushed salt tablets in water). In these conditions, drink an adequate amount of water, but avoid electrolyte deficiencies¹ caused by drinking too much water without sufficient electrolyte replacement. For much more detailed information on this subject, see a later section in this article or go to this website article:

[Relationship of Electrolytes and Heavy Exercise.](#)

Weight (Basic): Decrease pack weight as much as possible while at the same time balancing needs for safety, comfort and functionality. Be aware that all of

¹ Electrolyte deficiencies: *hyponatremia* = excessive loss of sodium; *hypokalemia* = excessive loss of potassium.

the small items, while weighing very little individually, can add up to a significant amount of carried weight. Know the individual weights of all items or kits carried. The measured weights will sometimes surprise you.

Weight (More Advanced): Move out of your comfort zone with increasingly less and lighter weight gear. Review the article: "[The Challenge of the Lightweight Backpacking Movement](#)" for detailed information on this process. Carry a water treatment method(s) you have confidence in to decrease the amount of water carried. In addition to reducing pack weight, decrease the weight of items worn (especially on the feet). The type of footwear used will have a considerable impact on the energy used while walking. See the article on "[Boots, Shoes, Sandals or Bare Feet?](#)" for detailed information on this decision. If it fits your body type, significantly decrease the percentage of body fat (unless going on a long distance hike with limited resupply). This form of weight reduction is at least as important as other forms. Higher intensity hiking (speed, duration and weight carried) is a good way to reduce body fat; it can produce a "caloric afterburn" lasting as long as 14 hours.

Gear (Basic): Besides using gear that is relatively light in weight, use gear that is comfortable and fits properly (especially your footwear and pack). Nothing saps energy like ill-fitting gear.

Gear (More Advanced): Obtain professional help in obtaining gear fitted for your specific body and your specific activities. If necessary, consider being fitted with custom made items (e.g., pack, footwear, orthotics).

Stride and Walking Style (Basic): Shorten your stride going up and down hill. Zigzag up and down steep hills, especially when off-trail.

Stride and Walking Style (More Advanced): Analyze your walking and hiking style(s); refine if necessary to obtain a more efficient stride. For several articles on walking and hiking styles plus suggestions for more efficient walking, see the section of this website titled "Walking and Hiking Styles." If you use trekking poles, develop more effective and efficient poling techniques. In this regard, consider reviewing this article: [Maximizing the Effectiveness of Trekking Poles](#).

Speed and Pace (Basic): Start slowly until you get warmed up. Travel at a natural and relaxed pace. Travel at a consistent pace; get into a rhythm. Take heed of the parable of the tortoise and the hare. Slow down somewhat going up hills.

Speed and Pace (More Advanced): Match speed to your fitness levels. Vary your pace and walking style during the day to use slightly different muscles. There is an inverse ratio between speed and energy expended over the same distance. For example, it is claimed that 25% fewer total calories are expended at a two miles per hour pace than at three miles per hour, covering the same distance.²

Breath Awareness (Basic): Become aware of your own breathing rate and depth. Breathe more deeply, especially at altitude. If necessary, move into a “rest-step” mode of hiking.

Breath Awareness (More Advanced): Expand the abdomen on each inhale and pull in the diaphragm on each exhale. While inhaling, mentally visualize taking in energy; visualize expelling tiredness and fatigue on the exhale. During hard exercise, use the pursed-lip “back pressure breathing” technique on the exhale phase to allow the lungs to absorb more oxygen for each cycle.

Rest and Relaxation (Basic): Take regular rest breaks every hour or two. Take your boots or shoes off once or twice a day and massage your feet. Use a thicker sleeping mat at night.

Rest and Relaxation (More Advanced): When stopping to rest, prop your legs up at least as high as your head. Take a short power nap during the middle of day (no more than one half-hour or so in duration). If you are in good shape and wish to make many trail miles, short stops are not recommended: long hauls equal long halts. Tune in to your body while hiking. Sense sources of stress and tension that are present. Since tension is a common source of fatigue, eliminate tensions when possible (e.g., adjust your pack, shorten your trip, resolve party differences). Since sleep is so important to energy levels,

² See Fletcher and Rawlins, *The Complete Walker IV*, pages 194-196 for a detailed discussion of this subject.

consider clicking on this link for numerous suggestions: [A Good Night's Sleep in the Backcountry](#).

Thermoregulation (Basic): Both getting cold and getting overheated rob the body of energy. Stop as necessary to adjust clothing layers in order to regulate body temperature. Have adequate wind and storm shell clothing to protect against the elements. Several articles on this website deal directly or indirectly with this subject, but especially important is "[The Fine Art of Layering](#)."

Thermoregulation (More Advanced on Cold Side): Because it is easy to get overheated, practice layering on the cool side. Start out a little chilled rather than stopping to remove clothes. Keep the internal fires stoked by taking on extra rich food and plenty of water. Drink hot liquids. Read the following article on this website: [Preventing Hypothermia](#).

Thermoregulation (More Advanced on Hot Side): Stop at water sources to swim or immerse extremities. Wear cold towels around head and neck. Drink extra cold liquids (bring pre-frozen water containers from home). Travel in the cool of the day (or night); rest during the hottest part of the day.

Conditioning (Basic): Prior to hiking, do a combination of aerobic, strength, balance and stretching exercises on a regular basis. Focus on exercises specifically recommended for hiking, backpacking and climbing. Walk, jog or run on a regular basis.

Conditioning (More Advanced): Do as much actual hiking as possible focusing on shorter and less intense hikes before longer and more strenuous ones. If this is not possible, do as much "activity specific" conditioning as possible (e.g., carry a slightly heavier than normal pack up stairs and around the neighborhood). Strong abdominals (core strength) will significantly add to endurance and stamina. Regarding aerobic conditioning, use interval or "speed-burst" training (i.e., exercise to a relatively high percentage of your maximum heart rate and then reduce to a slower pace; repeat).

Stimulants (Basic): Avoid nicotine, prescription stimulants and illegal drugs. Drink caffeinated beverages in moderation at the beginning of the day, if it is

part of your normal routine.

Stimulants (More Advanced): Research shows that caffeine mostly delays fatigue rather than increasing energy levels. Drink caffeinated green or black tea for its antioxidant content (good to reduce the free radicals that build up with strenuous exercise). If caffeine is used regularly in the frontcountry, substantially reduce caffeine intake a week or more before the trip so that a maximum impact is experienced when upping the dosages during wilderness travel. Use caffeine as a pick-me-up later in the day when energy levels are seriously lagging. Carry caffeine in a quick-to-use form for an emergencies (e.g., caffeine-laden candies or energy bars). Since individuals greatly differ their reaction to caffeine, monitor the impacts of usage carefully.

Motivation (Basic): Take on new challenges to increase the amount of excitement and motivation. Do this gradually to keep from getting in over your head. Keep positive goals clearly in mind; don't get sidetracked. [Note: actors know that excitement and even nervousness usually improves performance.]

Motivation (More Advanced): Expand your personal motivations for going into the wilderness. A good way to do this is to review this article "[Why go into the wilderness?—A Cacophony of Voices Merge into a Grand Symphony.](#)" On longer hikes, make sure your nutritional needs are being taken care of. Nutritional deficiencies can quickly lead to loss of enthusiasm and even depression.

The specific strategies shared in the thirteen categories above are presented with little detail or supporting evidence. Most of it will make sense as presented. If it doesn't, either do further research or simply ignore it. The purpose of this bare-bones approach is to offer a "big picture" perspective or "systems" approach to this subject: too much detail makes it hard to see the forest for all the trees. I avoid making qualifying statements and getting caught up in controversies for the same reason. This "big picture" perspective should provide a catalyst for hikers

and backpackers to develop their unique energy systems through continued reading, discussion and experimentation. The information presented above should not be viewed as the last word, but as a resource for stimulating experimentation. When experimenting, it is so important to listen to one's own body and not get caught up in someone else's energy boosting/fatigue fighting program.

Reader Participation: Behavior Changes and Experiments

What critical factors of human energy and fatigue did I miss? How well did I succeed in answering the question posed at the beginning about potential “new behaviors for minimizing fatigue and maximizing energy?” *First*, add any specific suggestions that were missed (especially those that might be critical to your own energy/fatigue system). *Second*, circle the specific categories that are most problematic for you. *Third*, circle any specific suggestions in both the basic and advanced categories above that you would like to experiment with on the next few hikes.

Energy Production as an Integrated System

Elsewhere on this website, I emphasize taking a systems approach to gear selection (e.g., sleeping system, navigation system, packing system). Consider that a systems approach could also be highly effective when applied to the topic of energy and fatigue. It might turn out that the sum of the whole will be greater than the sum of the individual parts. Consider also that a systematic approach might not only produce significant energy gains, but also provide increased personal satisfaction—which might result in an increase in motivational energy.

Author's Energy/Fatigue System Analysis

The following categories are most important when analyzing my own energy/fatigue system: *Solid Food, Walking Style, Weight, Conditioning, Stimulants*. All categories are important but these five seem to have the most impact when neglected. Regarding *Solid Food*, it is not easy for me to get the right balance of simple and complex carbohydrates. When considering *Walking Styles*, I need to stay focused to maintain my most efficient styles. If my mind wanders or I get too tired, style goes out the window. Small increases in both pack and body fat *Weight* seem to have big impacts on my energy levels, unless I am in top shape, *Conditioning* wise. Staying in top shape year around is hard for me. It is easy to

maintain that strong core muscles is important, but actually doing this is another matter. *Stimulants?* Since I am quite sensitive to caffeine, I am continually surprised at the effectiveness of the strategy related earlier of going without caffeine for several days and then imbibing in the morning before hiking. Using caffeine in this way seems to avoid the common roller-coaster effect, especially when combined with the right balance of carbohydrates. I continue to experiment with both intake of caffeine and carbohydrates. I also keep caffeinated food items available for emergencies.

Individual Differences and Exceptions

Even though individuals differ greatly in their energy production systems (especially regarding strength, stamina and metabolism), the strategies presented earlier should be fairly universal for all hikers. Having said that, some will point to examples of super-strong and highly conditioned individuals who seem to violate or ignore many of the strategies. I grant that there will always be exceptional people who appear to have unlimited energy. Taking a closer look, however, will likely show the following:

- These exceptional people are not violating a majority of the principles suggested in this article.
- Even if Mr. or Ms. "Super Hiker" outpaces everyone while violating most of the principles, they would have even more energy (at the end of the day) if they followed most of them.
- Advanced age will force the super hiker to adopt more of the above strategies, if they want to continue to perform at high levels.

What is important in this context is to not focus too much on individual differences and individual energy strategies, but to see the big picture of how many different factors are involved in maximizing energy and minimizing fatigue. It is important to see them as a total system. Having said that, two obvious exceptions must be acknowledged: *Conditioning* and *Weight*. No matter how much attention is paid to the other categories, being out of shape and overweight is a killer for everyone.

The Truth About “Energy” Bars

There are several types of bars of interest to hikers that go by different labels: energy, snack, candy and meal replacement bars. No further attempt will be made to further delineate or define these different types other than to observe that “energy” bars are commonly high in carbohydrates, low in protein and fat.

Here is the basic truth about energy bars and related products:

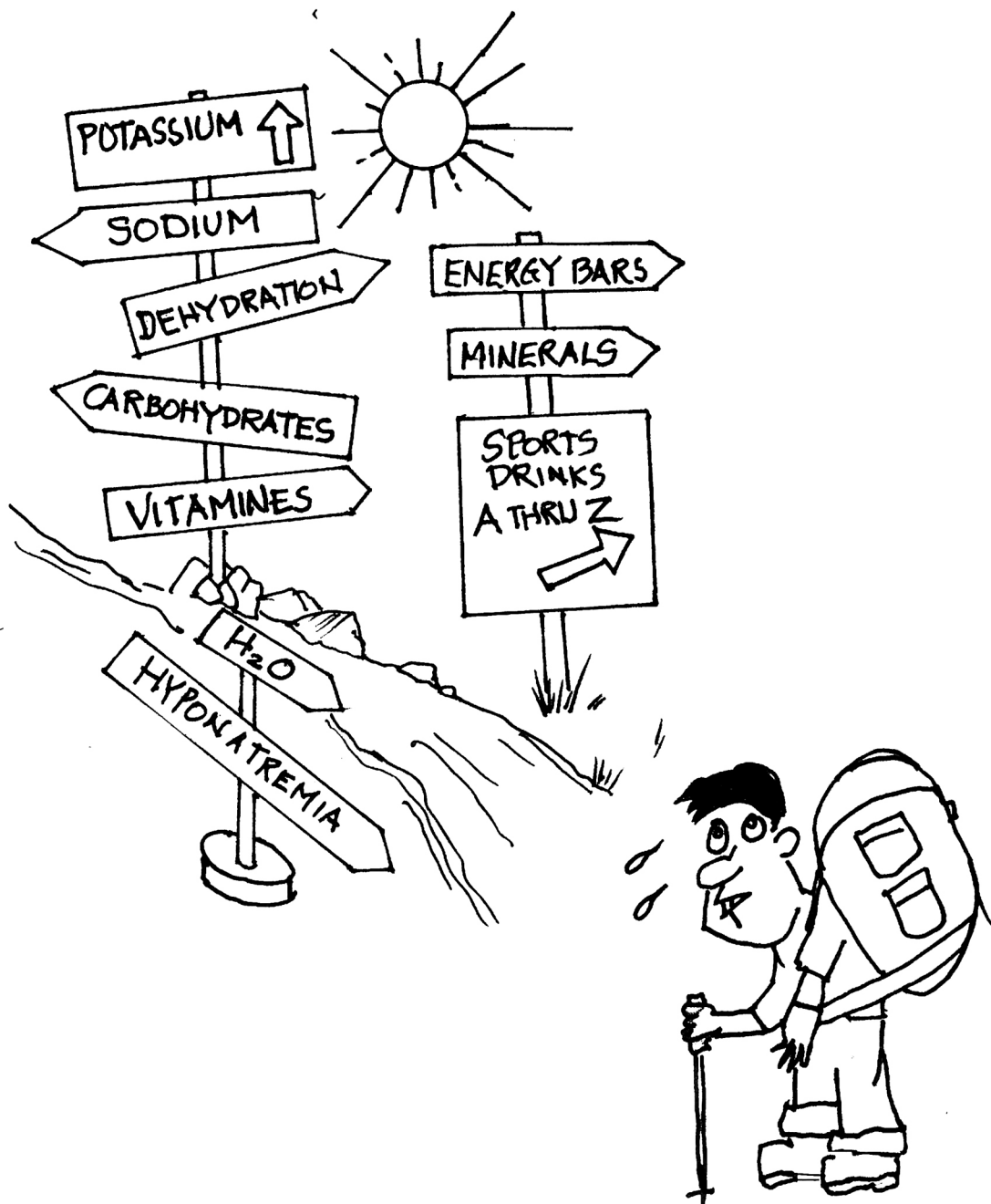
Imbibing “energy” bars, drinks or concoctions by themselves do not make one more energetic!

Despite the labels (power, energy, etc.) and the hype by manufacturers, don’t buy into the implied claims that “energy” bars are significantly better on the trail than a balanced diet of regular food. [Qualification: if you are not stopping regularly to rest and to eat regular food, anything with carbohydrates will give you some quick energy.]

The crux of the matter is whether or not there is reliable evidence that the unique blends of nutrients/ingredients in various “energy” bars, drinks or concoctions provide increased energy and stamina. To my knowledge, such evidence *from independent sources* is not available. I will allow that nutrition science might someday bless some form of specialized “energy” food and drink. I will also grant that better quality energy bars (e.g., containing organic fruits and nuts and balanced in their proportion of fat, carbs and protein) are generally more nutritious than eating a regular candy bar. Also, if one is not stopping regularly to eat high quality, regular food (e.g., when adventure racing or ultrarunning), energy or meal replacement bars can provide relatively balanced nutrition for the short term.

Any of the four types (candy bars, energy bars, snack bars, meal replacement bars) are useful for day hikes and shorter backpacking trips. I generally toss in a couple for the sake of variety and for emergency rations. For longer backpacking trips, I include some meal replacement bars, especially bars that taste good and are rich in antioxidant fruits, nuts, electrolytes and complex carbohydrates.

This is my take on this controversial subject. What is yours?



JIM MORRISON

Relationship of Electrolytes and Heavy Exercise

Electrolytes are minerals like sodium, potassium, chloride, calcium, magnesium, bicarbonate, phosphate and sulfate. Hikers can replenish their electrolytes from the solid food they eat, from specially formulated sports/energy drinks or from solid pill supplements. Even though I am not a recognized expert, I have developed some expertise on this subject. Here is a synthesis of research

done to date on this subject, relative to heavy exercise.

1. Priorities for heavy exercisers: replace water first, carbohydrates second and electrolytes last. Replacing water and carbs in a timely manner will usually prevent extreme fatigue (“bonking”).
2. If exercising hard for more than an hour and if not stopping to drink and eat on a regular basis, use balanced sports drinks or fruit juices to accomplish all three of the priorities listed in #1.
3. If eating regularly during heavy exercise, you only need water; most tolerated foods contain adequate carbs and electrolytes.
4. Even though eating regular food is sometimes difficult during heavy exercise, at least try to eat salty foods as this will encourage more drinking.
5. There are many factors regarding the need for timely electrolyte replacement during heavy exercise: duration, temperature, acclimatization to heat, conditioning, sweat rate, individual differences regarding loss of electrolytes, age. Because of these factors, there is no one answer for all individuals participating in heavy exercise regarding the best concentration of water and electrolyte replacement; it is individual and situational.
6. Given the current state of knowledge, one generalization that can be made with confidence for heavy exercisers is that electrolytes need to be replaced in some form at some time for optimal performance; a good approximation is to plan on electrolyte replacement if exercising at least 3-5 hours.
7. Regardless of individual differences and the current state of knowledge, there is complete agreement on the need for special attention to mineral and electrolyte replacement when one works up drenching sweats for several consecutive days. In these extreme situations, it is hard to eat enough of the right kinds of food for normal replacement of electrolytes.
8. It is generally agreed that lack of electrolyte/mineral replacement for heavy exercisers can eventually result in medical problems (e.g., heart irregularities,

cramps, weakness, nausea).

9. Drinking *too much water* without replacing the salts will result in a serious medical problem called “hyponatremia” (low blood sodium concentration; water intoxication).
10. One only needs to replace electrolyte salts that are lost; imbibing extra will not enhance performance and will likely reduce it. At the least, too much salt will result in the necessity for increased effort to carry the extra water the body will desire.
11. Assuming all of the above is true, the American College Of Sports Medicine and years of human experience suggest that if you are pushing hard for many hours, or you're hiking through hot and dry conditions, you should pay close attention to both water and electrolyte intake. Sports drinks are only one way to accomplish this.

Additional Issues for Reflection

1. Scientific and Other Evidence: Which scientifically oriented experts should we trust regarding this topic? How much should we trust manufacturers' research data, assuming that other scientific data is lacking? Assuming scientific evidence is problematic in many areas, how much should anecdotal evidence (i.e., testimonials) from top performers in high-energy sports influence our decisions?
2. Priority Energy Production Categories: Assuming most of the basic and advanced energy categories presented in this article are important, are some of higher priority for backpackers than others? Which need special attention from you to maximize energy and minimize fatigue?
3. Weight Reduction: Assuming funds are limited, where should the focus be on reducing gear weight? Which of the following categories of weight reduction should be given first priority: pack weight, weight of footwear, body fat? What about becoming a “gram-weenie” to reduce hiking weight?
4. Glycogen Replacement: Glycogen is manufactured in the liver and muscles

and stored in various parts of the body for relatively short term energy needs. How soon should the well-conditioned hiker begin replacing glycogen stores during any hiking day? Is there an ideal replacement strategy?

5. Energy Bars and Drinks: Assuming energy bars and drinks are more convenient than regular food and drink, are they any better, on the whole, for nutrition and energy production? Does the type of sugars contained in these products make a difference? Does the specific blend or balance on ingredients make a difference? Are most energy bars essentially high priced candy bars?
6. Caffeine as Energy Enhancement: Does the stimulant aspect of caffeine override the claimed negative health components, especially for athletes? What are the best sources of caffeine in the wilderness? What about caffeine as an ingredient in energy bars and drinks? Is caffeine really a performance enhancing *drug*?
7. Drug-Enhanced Performance: Is there anything wrong with “drug enhanced performances” in the wilderness? Is this okay as long as one is not involved in a competitive race? What is wrong, if anything, with indulging in a wide range of energy enhancers, including drugs of various kinds? Would you take an “antifatigue” drug if guaranteed to increase by 10-20% the length of time you could continue to exercise heavily over several days?
8. Electrolytes: Is the proportion of water to the amount of sugar and electrolytes a critical element in absorption as some sports/energy drink manufacturers claim? Should some sports/energy drinks be diluted because of too much sugar? What is best balance of sodium and potassium? Should they be balanced as close to what is contained in normal human blood (i.e., potassium is present in healthy cells at levels 20 times those of sodium)? Should electrolytes/minerals be replaced in their elemental and water-soluble form and not in the compounds normally found in sugary energy drink mixes? [Note: any mineral that has a *name* after it is a compound (e.g., potassium chloride or potassium bromate).] Does age affect the ability to absorb electrolytes?

9. Supplements: Is there scientific evidence to substantiate claims ginseng, guarana, ginkgo and chromium picolinate actually work as energy boosters and fatigue fighters? What about hormone supplements like epinephrine and dehydroepiandrosterone (DHEA)? What about amino acid supplements creatine and beta-alanine? Others?
10. Vitamins and Minerals: Does Vitamin C play a special role in energy production as some claim? What about the flavonoid quercetin? Are vitamin and mineral supplements important on longer distance backpacks? Does the body have a good reserve capacity of minerals and vitamins to buffer against short-term deficiencies or fluctuations in diet? If so, in what quantities and in what form?
11. Balanced Nutrition: What is the best balance of the three types of food (carbohydrates, fat, protein) for usual hiking? For high-energy, long-distance hiking? At what times of a hiking day is it best to ingest the three types?
12. Importance of Fat: How important is fat for backpackers? For metabolizing carbohydrates? If important, in what form? What is the best way for longer distance hikers to get needed fat? Is it a good strategy to be a bit “soft-around-the-edges” before leaving on a long hike (i.e., carrying fat on the body rather than in the pack)?
13. Fruits and Vegetables: What is the best way to take fruits and vegetables into the wilderness? Is it wise to pack light in order to carry more fresh fruits and veggies? Is the weight from the high water content in fresh produce a big issue since water is ordinarily carried? Are dehydrated or powdered forms reasonably nutritious?
14. Vegetarians and Energy: Should hikers take notice of the fact that some well-known “ultra” runners and hikers are vegetarians? Do vegetarians have to pay more or less attention to the energy/fatigue strategies presented in this article? If more attention, what specifically is important for vegetarians?
15. Ignoring This Topic: Who can afford to ignore this topic? Should a super-

strong and well-conditioned young person concern him or herself with this topic?

16. Age and Energy: Will paying close attention to this topic make a significant difference for most older hikers?
17. Emergency Energy: Is it important for backpackers to carry the types of energy supplements ultra-runners and adventure racers use to keep them from “hitting the wall”? What wilderness emergencies might require continued travel even when exhausted?
18. Seeking Medical Help: Assuming one is utilizing most of the strategies presented in this article, but is still feeling low-energy (lethargic, exhausted), what kind of medical help should be sought? Traditional or alternative (complementary) medicine? Are those trained in sports medicine a good starting point? Nutritionists? What about psychologists for help with depression?
19. Taking a Systems Approach: How important is it to think in terms of a whole “system” of energy production behaviors and habits working together, synergistically? Is the whole greater than the sum of the individual parts in this case?