

Everything You Always Wanted To Know About How To Do RAAM

Edited by Michael Shermer

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After reading about the history and heroes of RAAM (see *The Race Across America* by Michael Shermer, available through the RAAM office) perhaps you have dreams (or nightmares) about doing the race yourself? Do not think of it as a pipe dream that is ultimately unattainable. If there is one thing to learn from the history of this event it is not for the elite athlete alone. Nor is it for the rich rider. The Race Across America has been done by professional and amateur, rich and poor alike. Both have succeeded and both have failed. Ultimately your performance in the race—win, lose, finish or not, depends on what you've got inside, and little else. In addition to reading this short article there are four things you can do to help prepare for RAAM:

1. Read the *Race Across America* book. Although more of a historical narrative in its primary chapters, it is really a how-to do the race in telling the stories of what actually happened on the highways across America. (Book available from RAAM Office)
2. Watch RAAM videos from previous years to SEE how it was done. The following years are available: 1982, 1983, 1984, 1985, 1986 1991, 1993, 1994, 1995, and 1996 (by January, 1997).
3. Join the Ultra-Marathon Cycling Association and subscribe to *ULTRA Cycling* magazine, a quarterly publication that has articles on training, nutrition, equipment, physiology and psychology, UMCA record updates, RAAM updates and results, and much, much more. This is the way to plug into the sport.
4. Talk to previous RAAM riders and pick their brains on how to do it.

Preparation

Preparing for an ultra-marathon ride is more like preparing for an expedition to the top of Mt Everest than it is a bike race. This is because the RAAM is more like an adventure than it is an athletic contest. Although the supplies are different, the "gotta be ready for anything" attitude is of paramount importance. Because it is a nonstop event, you've got to have your supplies with you to deal with the contingencies and vagaries of the race. There is one common element in all of the past RAAM winners—professional and amateur, rich and poor—they all paid meticulous attention to every detail from their training down to the spokes on their bike. The more prepared you are for the unexpected the better you will do.

The objective in RAAM is to pedal your bicycle across America as fast as possible. Although this sounds like a simple concept, the variables involved are extensive. For example, spoke patterns on a wheel might not make a difference on a typical training ride, but magnify the effect of 28 versus 32 spokes over 3,000 miles and the difference is measurable. Add up all the seemingly insignificant advantages and they amount to considerably faster average speeds. This concept was best demonstrated by Pete Penseyres' 1986 RAAM victory that produced the all time fastest average of 15.4 mph. It seemed that every part on his bike, every pedal of the crank, every bite or drink of food was calculated. The scientific approach to ultra-marathon cycling arrived long ago. The days of riding 'til you drop are long gone.

Cost

One of the most common concerns that would-be RAAM racers have is the cost of the event. I once received a letter from a rider in Nebraska who expressed his "feeling that only the elite, high tech person complete with a staff of nutritionist, doctors, 30-person support teams in a \$50,000 support vehicle can hope to compete in RAAM." His opinion is typical, when in fact the truth is just the opposite. Almost no one has ever done RAAM with such an arrangement of equipment, people, and money. As we shall see, most do RAAM on the slimmest of budgets, and do quite well. How do they do it?

What the Rider Needs

Since the answer is not an absolute, but rather a variable depending upon how elaborate you wish to travel, I will attempt to outline the "bare bones" approach. This is also referred to as the "worst case analysis." Once the worst case is known, anything you add becomes a step up. Before delving into budgets and numbers, I must point out some important facts. Riders have often commented (myself included) that their support crews are vital in the preparation process for RAAM. It is true, they are. However, never think for a moment that a crew is more important than physical conditioning. If you don't have the lung, leg, and will power to survive the race, a \$25,000 support crew becomes an expensive white elephant. In observing the past RAAM stars, I get the feeling they would still be leading or close to the front of the race without elaborate support crews or vehicles. They are top finishers because they are top athletes. I have watched Shelby Hayden-Clifton, Franz Spilauer, and Michael Trail turn in top finishing performances with the "bare bones" crew approach. They did not have lavish matching T-shirts or shiny new vehicles. Let's look at what a rider needs during RAAM, in general order of importance:

1. Navigation: Guidance through busy areas.
2. Food and drink: Nourishment while on the bike.
3. Mechanical assistance: Repair skills and quick tire and bike exchanges.
4. Medical assistance: Massage, first aid for saddle sores, blisters, and other ailments, and creativity by the medical person to solve the medical contingencies.
5. Sleeping arrangements: Either in a motorhome, van, hotel room, or the side of the road. Regardless of the location of the sleeping place, the environment should be quiet, comfortable, warm or cool (depending upon the temperature), and roomy enough for typical tossing and turning during normal sleep.
6. A place to wash and a place to respond to Mother Nature's calls. (You can use gas stations and corn fields if you do not have a motorhome. It has been done many times.)
7. Change of clothing during the ride: Gloves for the cold, arm and leg warmers at the top of hills. The rider should not have to carry extra clothing.
8. Information: Rider split times, location of the competition, average speed, and advice to augment the rider's efficiency (though not critical since the rider's own position will not change knowing another rider's position).
9. Motivation: If necessary. This is more common among rookie riders. Veteran riders often have to motivate their crews.

What the Crew Needs

Now that we know what the rider needs, how about the crew's needs? The welfare of the crew is essential or else the rider will not have an efficient crew, which can cause untold problems such

as getting lost, tension and fighting among crew members, not providing a positive environment for the rider, etc. Crew needs include:

1. A place to comfortably sleep during the day or night. Just like the rider, quality sleep for the crew members is essential. The more comfortable the environment, the deeper the sleep, the more rested the person, the more efficient he or she becomes.
2. Food, drink and nourishment throughout the trip. Wash and restroom facilities.
3. A comfortable and safe place to sit while travelling in a vehicle.
4. A place for a bicycle mechanic to make necessary adjustments and repairs.
5. A place to store all the supplies needed during the ride.
6. Communication with crew members in other vehicles.
7. A place to conduct first aid and medical procedures.
8. A place to wash clothes (crew and rider's clothes).

The Bare Bones Budget

Now that we know what everyone needs let's put together a bare bones operation. I will not attempt to attach dollar figures to some of these items because they will vary according to the area of the country and a rider's personal resources. Basic requirements include:

1. Pace vehicle: a mini-van (or full-size van with windows all the way around), stationwagon, or car, acting as the primary pace vehicle during the day and night. It must be in good working order and fully capable of crossing America without any broken hoses, belts, and other mechanical needs. New vans that have gone through a break-in period have proven very reliable. Cost of this van depends upon whether a rider acquires one via personal ownership, friends, sponsors, donations, or rental. Resourceful cyclists can usually get one donated. Rentals can range \$500 to \$1000, depending on the drop off fee or whether you return it.
2. Bike rack for the pace vehicle, usually attainable at no cost from sponsors. The rack should be able to carry three bikes and several wheels.
3. Bicycle equipment: Bikes, wheels, tires, glue for sew-ups, cables, nuts, washers, rings, cogs, bolts, freewheels, water bottles, pumps, spokes, lubricants, cleaners, rags, work stand, tarp, hand soap, tools, chains, and more. Most bike shops have these handy. The best thing to do is get a bike shop sponsorship and have them go along and bring their tools and supplies. Basically, be prepared to deal with any problems with the bike. These supplies must be condensed in as small a tool box as possible, but easily accessible. The mechanic should be clean, organized, and willing to instruct other members of the crew on how to change a wheel and make other minor adjustments. If a mechanic is sleeping during a minor breakdown, the mechanic should not have to be awakened. The bike mechanic selected for the job should be able to provide the tools. If a rider ends up purchasing some equipment, at least try to pay dealer cost prices. The bicycle industry is good about providing equipment to RAAM racers (but not so good about money). The more experienced and proven you are, the more success you will have in acquiring equipment.
4. Bicycle clothing: At least five pairs of shorts and jerseys, socks, extra shoes, jackets, rain gear, warm weather gear. These items should all be acquired free from sponsors or at dealer cost.

5. Storage compartments in the pace van. I have seen some homemade state-of-the-art storage bins in various pace vans that are perfect for RAAM. Each bin is labeled and contains a specific item. When the rider wants arm warmers, anyone on the crew knows exactly where to look. All dirty clothes are appropriately stored, and pails, soaps, clothes pins are available for doing laundry on the move. The key is space conservation. A pace van is like the Space Shuttle. Much thought must go into storage. These are relatively inexpensive items that you can pick up at a Home Depot. Free or \$50.00.
6. Navigation equipment: Pencils, pens, calculators, maps, flash lights, extra batteries, clip boards, and more. The person riding "shot gun" should be the navigator. These costs are minimal. Most people already have these supplies. Free or \$50.00 total.
7. Tools and miscellaneous supplies for the van: Pliers, screw drivers, open and closed-end wrenches, socket tools, oil filter tool, gasoline siphoner, jumper cables, stop-leak for minor tire punctures, a working tire jack and tire iron, spare tire, list of authorized dealers for your vehicle, tarp for working in the rain, extra hoses that could typically break (consult with a dealer), motor oil and other fluids. Since someone on the crew will likely have each of the necessary tools, the only expense would be extra hoses, stop leak, oil and fluids. Allocate \$100.00 for these items.
8. Communication equipment: CB radio, PA system to talk to the rider and perhaps a two-way "walkie talkie" with the rider. If you cannot borrow a radio, or antennae, buy one. Allocate \$200.00 for a communication system.
9. Lighting system for the pace vehicle: Emergency amber-colored lights visible to the rear; rear slow moving triangle; extra headlights; control panel. This setup can be low budget or very elaborate. The extra rear amber lights can be rigged up for about \$20.00. Extra headlights, which are nice but not essential could cost about \$30.00 to \$150.00. For the purpose of this budget, let's allot \$100.00 for lighting. It seems that almost everyone has a friend who is an electrical whiz. Take advantage.
10. Food for the rider: Since the liquid approach seems to be the most efficient way to "eat," the rider's food is pretty cut and dry. Either obtain product at cost from a sponsor or at no cost. If a rider consumes 8,000 calories per day (20 packets of Spiz) for 10 days at \$2.50/pack, the total is \$500.00. If the rider eats normal food, allotting \$500.00 is more than enough.
11. Food for the support crew members. Using six crew members, counting travel time to the start and home from the finish, allotting 16 days for the total RAAM commitment, you can, on an average, feed a person for \$15.00 per day. The grand total is \$1,440.00. Round it up to \$1,500.00. Actually, that's inflated. You could probably cut that cost considerably by shopping at markets and storing food in coolers and eating sandwiches. If you are on a tight budget, the crew should make the culinary sacrifice.
12. Sleeping arrangements for the crew and rider during RAAM: If you can afford it you can rent one motel room per night. There will be nights when a room will not be available due to distance problems or logistics. In these cases, the crew will have to make do with sleeping in a sleeping bag on a mat or simply stretching out in a vehicle. Space must be made in the van if the rider needs to rest or sleep. Many, if not most support teams do without hotel rooms for the entire trip. So here is a good way to save money. You might be interested to know that the Race Director almost never gets a room either.

13. Regarding motorhomes: Some RAAM riders wouldn't use an RV, cost not being the factor. Other riders like using one. It's a matter of personal preference and budget. The pros and cons of an RV are as follows:
 - a. Pros: Immediate and fast service, e.g., cooking, shower, sleep, rest, change of clothes, warm-up from the cold nights, toilet facilities, comfort for crew members.
 - b. Cons: More likely to break down than a car or van, added expense and liability, not easy for everyone to drive, park, turn around in parking lots, etc.
 - c. If you can comfortably afford an RV, they are nice to have. RVs are basically a budget concern. If you have the money and feel as though you need one, use it. If not, don't. If you wish to rent vehicles, consult the yellow pages for car, van, and motorhome rentals. You will soon learn the going price of rentals in your area and you can figure that into your budget. Make sure the vehicles can be driven across the country because some rental companies prohibit removing the vehicle from its state of origin. You can borrow a motorhome but since they usually get trashed during the race make sure you clean it thoroughly after.
14. Extra vehicle: In addition to the van, one other car or van is helpful. This can be any type of vehicle that can hold three people comfortably. It is used for transportation only. If the van breaks down, it can be used as a pace vehicle on a temporary basis until another van is acquired or until the van is fixed. It really is uncommon for a good pace vehicle to break down. The cost of this vehicle is zero. Everyone should have access to a car to use in RAAM.
15. Gasoline for the van and car. Counting the distance to the start, across America, and from the finish line back home, let's allot 6,500 miles per vehicle. Totalling 13,000 miles at an average of 15 miles per gallon equals 867 gallons of gas at \$1.20 per gallon equals \$1,039.00. Let's round this off to \$1,000.00 for gas for two vehicles.
16. Airfares: If you fly, take advantage of discount fares by purchasing your tickets well in advance of the race. Consult with a good travel agent. Use frequent flyer miles if you have them. For the purposes of this budget, I will not allocate any money to airfares because it is impossible to generalize for everyone. It could be several thousand dollars, so you can have your crew drive to the start of the race and home, if necessary or possible.
17. Miscellaneous items: Coolers, Thermoses, water jugs, foam pads, blankets, first aid supplies, tape, signs for sponsor identification. \$200.00 is allocated.
18. Support crew personnel: I propose using six people, but not just anyone.

Good Characteristics of Crew Members

1. Desire to crew with an urge for adventure able to rough it.
2. Able to not shower or put on make-up.
3. Able to get dirty and keep smiling.
4. Sense of humor.
5. Thoughtful to others.
6. Able to avoid arguments by biting their tongue.
7. Smart and inventive.
8. Able to maintain some semblance of hygiene even during the rough parts of the race.
9. Someone who is totally committed to the rider even if the rider does not perform to his or her own expectations.

10. Able to catch short naps and still remain alert.
11. Able to drive safely.
12. Not too verbose (silence is often golden in the support vehicles).

Bad Characteristics of Crew Members

1. Egocentric.
2. Will not wash even when the opportunity arises.
3. Does not clean up after him or herself after preparing food.
4. Lazy.
5. Poor attitude.
6. Lacks enthusiasm because rider is doing poorly in the race.
7. Wants to be in the limelight.
8. Moody, sarcastic, rude, lewd, and crude.
9. Talks too much.

If you want to know if you have what it takes to be on a crew, or if someone you know has what it takes to crew, see the test devised by veteran RAAM crew member Joanne Penseyres below.

The only specific job requirement on a crew is the bicycle mechanic and a medical person or someone with some massage and basic first aid savvy. The rest of the crew members should be good drivers and basically good people with some all around common sense. Family and close friends are typically the best crew members. I believe that first-time RAAM riders or most entrants should be able to recruit a good crew from friends, cycling partners, and family members at no additional costs, except travel expenses.

DO YOU HAVE WHAT IT TAKES TO CREW FOR RAAM?

The following questionnaire was developed by veteran crew member Joanne Penseyres, wife of three-time RAAM winner Pete Penseyres, for deciding whether you have what it takes to crew on RAAM, or (if you are a rider), if someone you know has what it takes to crew for RAAM. As every RAAM rider and experienced crew member knows, people who you think you know intimately and have seen all their sides, when put into a stressful situation, in closed, cramped quarters, for 10 straight days, often exhibit a whole new side of themselves you never saw. It usually is not a pretty sight. As Pete once said, the crew cannot win the race for you, but they can lose it. Thus, Joanne's RAAM Crew Personality Profile is a good way to test for RAAM crew adaptability:

1. You are on the start line for RAAM. Three people mention that your rental RV has four bald tires and probably won't make it 500 miles . . . A) You hope for the best. B) You check out the spare and there is none. C) You find a tire store in Covina, CA, and buy four new tires.
2. Your rider planned to be near the front on day one, now he is sick with heat exhaustion in the California desert and in next-to-last place . . . A) You tell him he's a wimp! B) You say you'll sell his Corvette to pay for the trip. C) You sponge him down and tell him you're all behind him and you're all behind him finishing.

3. It's 3:00 a.m. and your rider has a craving for Crackerjacks. He must have some or he says he can't ride another 10 miles . . . A) You give him potato chips instead. B) You ignore his arms flapping wildly. C) You stop at every convenience market until you get the Crackerjacks.
4. Your crew in the pace car calls on the CB radio. Somehow they have lost your rider. They want to know what to do . . . A) You call them names. B) You ask them how they lost him. C) You suggest they backtrack briefly, then proceed to the next checkpoint.
5. On a routine food pass to the pace car, you are the victim of an unprovoked ice water attack by three of your crew . . . A) You stop speaking to them. B) You dump the food on their heads. C) You pack a water bottle on your next food pass.
6. On night two of the race, your generator gives up the ghost. You have no lights . . . A) You drive by moonlight. B) You push it over a cliff. C) You leave one crew member behind for repairs.
7. Another 28 hours later, you get your van back. Now your transmission won't go into reverse . . . A) You return the car to the place where it was fixed. B) You leave the van in the next state. C) You park where you don't have to back-up.
8. Your bike mechanic is a vegetarian. Over the CB he just requested his 25th grilled cheese sandwich. You could scream . . . A) You suggest a Big Mac. B) You scream and tell him you're out of bread and cheese. C) You go for #25.
9. The toilet is hopelessly plugged in the motomome. The crew chief asks you to fix it. A) You hide in the shower. B) You say you're not feeling well. C) You take the plunge.
10. A police officer pulls you over and wants to cite you for going 15 mph on a major highway . . . A) You tell him to mind his own business. B) You tell him the last cop didn't give you a ticket. C) You smile and explain what you're doing out there.
11. Your motorhome driver makes a sudden U-turn. All the contents of the refrigerator smash out onto the floor, making a total mess . . . A) You scream at him. B) You cry. C) You clean it up and ask him to take it easy on the U-turns.
12. It's 4:00 a.m. and time to call in a checkpoint. You walk to the checkpoint phone booth and pick up the receiver. No dial tone. Looking down, you see the phone wires have been cut . . . A) You wait for a telephone repair person. B) You wake up the people in the little house behind the gas station to use their phone. C) You find a phone farther down the course.
13. You haven't had a shower in three days, washed your hair for four, or brushed your teeth for two days. Here comes Jim Lampley to do an interview with you for ABC . . . A) You lock the doors and don't answer his knock. B) Ask him to wait while you "freshen up." C) Hope this interview winds up on the cutting room floor.
14. Your rider is freaking out. He must have new batteries for his portable cassette player or die. There are no stores for 100 miles . . . A) You tell him he can concentrate better without music to distract him. B) Ignore him. C) Check every flashlight, recorder, appliance on board to find some batteries.
15. Your rider just awoke from one and a half hours of sleep. He doesn't remember who he is, where he is, or what he's doing . . . A) You tell him he's 007 on a mission to ride a bicycle. B) You tell him to go back to sleep. C) You calmly explain what the Race Across AMerica is.
16. Your rider is winning the race. The last official report said the second place rider was 10 hours behind. Now an official tells you the second man is less than one hour back . . . A)

You panic and yell at your rider. B) You wait six hours to see if he passes. C) You call Race Headquarters.

17. Forty miles from the finish, a tree falls across the road and blocks the course . . . A) You get out your chainsaw. B) You pick your own route. C) You ask an official, Race Director, or HQ what to do.

18. Your man has won! Last week he promised to take you to Europe next summer. Now he's weakening about next year's race. At the victory dinner, he leans forward and whispers, "Honey, would you mind very much if I raced next year?" . . . A) You dump your buffet plate on his head. B) Ask for a divorce on the spot. C) Smile and say you'd love to see the RAAM route again.

Believe it or not, says Joanne, these stories are true! They all happened to her on different RAAMs, which proves that a sense of humor is the prime prerequisite for being a RAAM crew member. P.S. All correct answers are "C."

Crew Strategy

Here is one way to arrange your crew. There are many others. The pace van should stay with the rider at all times. The six crew members split into two groups of three each. One crew of three support the rider for any given segment of time, while the other team of three is either driving up the course to check into a motel to sleep, buying supplies, spying on other riders, or simply following along and visiting with Time Stations, which are good places to hang out. When one crew is rested, they change vehicles. The intervals could be every 12 hours, or more or less. Leaving messages at Time Stations or headquarters could be the method for the two crews to communicate with each other. Here's a possible scenario: Crew A begins its 12-hour shift in the pace van. Crew B does some shopping for the van and makes sure the van is gassed up before leaving. Based on terrain and the rider's likely speed (around 15 mph without stops) the two crews set up a probable rendezvous in 12 hours time. Crew B drives for four hours to a motel about 160 miles up the course, calls Race Headquarters to report its location and room telephone number to be passed on to Crew A. Crew B sleeps for six hours, showers and eats. Crew B telephones Race Headquarters to learn the whereabouts of Crew A. Crew B meets up with Crew A and they exchange vehicles. The rider can even use the same hotel room for a short sleep break and a shower. Crew A now is off the clock. Twelve hours is not a long time to crew for someone. You're basically crewing 1,500 miles or half of RAAM. Anyone who has ever crewed a complete RAAM would agree that having a 12-hour daily break would be like a vacation. If the primary pace van breaks down, here are the possible solutions: Get to a phone and call headquarters and Crew B. They can drive back to help; however, some time would be lost. Recruit help at a Time Station, which are 30 to 50 miles apart. Perhaps someone will temporarily lend their vehicle to assist the rider for a one to four hour period. When the spare car arrives, at least the rider can continue with the spare vehicle as a pace car, until the van can be fixed. You have to understand that cutting down on race expenses does have its liabilities. This is why the pace van should be in great mechanical condition.

The Bottom Line: \$5,000

If you add my figures, it totals \$4,500.00, not counting airfares and the other items that are not absolutely necessary or impossible to estimate. Round up to \$5,000.00. That's a far cry from the huge budget many people think you have to have to do RAAM. The fact is, many riders have

done RAAM on \$5,000.00, and done so successfully. Michael Trail is perhaps the best example, when he nearly beat Secret to finish second in the 1987 RAAM. Call him for advice. The bottom line is that if you want to do RAAM bad enough and are willing to make the personal sacrifices, you can do it. TEAMS: You would be safe in doubling this bottom line amount although with four riders you have four times as many contacts and possibilities to get equipment and vehicles and sponsors.

Training for RAAM and a Full Time Job: Are They Compatible?

The following training advice is from Pete Penseyres, who has been racing bicycles for over 25 years, while simultaneously working a full-time job as a nuclear engineer, commuting to and from work by bicycle. How does he do it? More importantly, can you do RAAM and keep your full-time job? Read on.

As an engineer, I like to break problems down to mathematical terms. So, to answer the title question, let's see if it's theoretically possible to train 1,000 miles per week and hold down a full time job.

Total number of hours per week:

168

Less time at work (8 hours/day, 1hr lunch):

45

Less sleep (6 hours/day):

42

Less eating, dressing, showers, etc. (2 hours/day):

14

Time left for training:

67

At an average speed of 16.66 mph (six hours per century), 60 hours of training time will be sufficient to cover 1,000 miles. That even leaves seven hours of "free" time each week! Realistically, what appears to be free time will almost certainly disappear because of numerous miscellaneous demands such as flat-tire repair or phone calls with friends, sponsors, and media.

If you make up a time breakdown of your own, you may choose to include more sleep time and less training time (either by riding faster or fewer miles) or you may need to add commute time. Even so, you should be able to make up a time breakdown table like mine that looks reasonable for you, at least on paper. Productivity is the key to making reality agree with theory, and it must be maximized in a number of ways. Here's how:

1. Use the off-season productively. You only need to hold your maximum mileage for the last six to eight weeks prior to RAAM. Your body won't remember what you've done before that. You need a good base to build from and you need to build gradually from your base to the maximum, but the bottom line is that there are at least six months prior to the intensive RAAM training phase when a comparatively large amount of free time should be available to you. Use that time productively to contact potential sponsors, obtain and prepare your bikes, stock-pile spare tires, tubes, and any other parts which are likely to wear out or fail during the last six to eight weeks. This is also the time to accumulate special equipment you will need for your support vehicles and to catch up on visits with friends and relatives. So, you clear your social calendar for those last six to eight weeks.
2. Use your family productively. I'm going to assume that your family is totally committed to actively supporting you. My family has always given me that support and I can't see how it would be possible without their help. You will need their assistance to prepare your meals, organize the support crew, rent and equip the support vehicles, make sponsor contacts, arrange for delivery of equipment and clothing, sew sponsor patches on your jerseys, and screen your incoming mail and phone calls. You may still need to talk to some media people and occasionally to your sponsors, but you need to have your family handle as much of the demand on your time as possible.
3. Use yourself productively. If you need to go anywhere in those last six to eight weeks, ride your bike. If you have a full time job, you won't have enough spare time to be transporting yourself any other way than by bike. Commute, run errands and attend any essential social functions by bike, and ask your family to help by bringing clothing or other necessary items you can't carry. Sometimes a relatively-long trip can provide the opportunity to break the monotony of your training routine. One month before the 1983 RAAM I had to attend a Monday meeting in San Francisco. Rather than fly, I used the weekend to ride the 450 miles and took two days of vacation to ride home. My family went along and provided sag support. Combine as many non-riding tasks as possible. Family discussions and essential mail reading can be done during breakfast and/or dinner. Use a pay phone or a telephone credit card to make any necessary phone calls to your sponsors, race officials or media people during your lunch period at work.
4. Use your job productively. Your full-time job provides you with a major advantage over professional or full-time RAAM competitors. Throw yourself into your job completely and forget RAAM for 40 hours each week. This will not only promote your career and help you maintain a balanced perspective, but will allow you to concentrate better when you are training.

When all of the above are combined, you will face a typical weekday like the ones I had prior to the 1984 RAAM:

4:45 a.m. - Alarm goes off to mark the end of another night's sleep, which seems too short. Roll out the driveway after a quick breakfast. Arrive at work after about 40 miles of flat-to-rolling terrain. - Begin workday after a shower and clothing change.

4:30 p.m. - Leave work on a 60-70-mile ride over rolling-to-hilly terrain.

8:30 p.m. - Arrive home for a huge home cooked meal, a discussion of the days events and a review of the "essential" mail.

9:30 p.m. - Shower and eat one or two large bowls of ice cream while relaxing with family members. Return any "essential" phone calls which can't be done during lunch the next day. Replace worn out tires or perform bike adjustments or repairs for the next day.

10:45 p.m. - Lights out.

4:45 a.m. - Alarm goes off. Do it all over again!

Surviving in the Heat

Since RAAM always takes place in the middle of the summer, heat is always a problem no matter which route we take. Co-founder John Marino offers the following advice.

To survive in the heat over a long period of time requires two basic strategies: (1) slow down your speed producing less internal heat (2) use external sources to keep cool. Naturally the cooler you can keep your body the faster you can ride. Riding with a support crew is by far the most efficient way to survive. However, utilizing a support crew properly is the key. For example, in the Race Across AMerica this is how each rider should interact with his or her crew through the 110-degree desert heat:

1. The rider and crew should keep a time table of when support (drinks, dousing) should be offered. Sometimes a rider will get into a groove and think support is not needed, then the roof falls in. You stop perspiring, nausea sets in, and your speed drops dramatically, all before you realize what has happened.
2. Drinking water should always be cool not ice-cold and not warm. Many water/liquid exchanges are necessary. You should drink small amounts frequently. It is recommended that all electrolyte drinks contain less than 2.5 percent sugar. Experiment with various brands before entering into competition.
3. Cover your skin with white fabrics that hold the water. You can frequently wet yourself down as needed. The air penetrating through the fabric will cool your skin much like the radiator in a car engine. The key is to squirt yourself with your water bottle. Direct the water to the right spots. Having your crew squirt you down can soak your shorts and shoes in the wrong spots. A soggy chamois can be annoying.
4. Cover your head with a cap or cloth. Keep the fabric wet at all times. It is also beneficial to wear a scarf around your neck that gets soaked with cool water regularly.
5. If you have fair skin wear sun screen before you burn. Don't wait until it is too late.
6. Attach some pouches to the rear of your cap and fill them with ice cubes. Secure a sponge at the base of your neck/upper back to absorb the drips. Keep refilling the pouches as needed.
7. Wear shoes that are a bit large because your feet will expand in the heat. Tight shoes can cause "hot foot." Soak your feet, shoes and all in ice water for one minute as needed. Wear socks because the dye in leather can discolor your skin.
8. Eat foods that are easily digested. If food remains in the stomach too long the internal heat of the body will disrupt the digestive process. Experiment with foods that work best with you. Some riders can exist on diets which will cause others to experience diarrhea. Diarrhea is a typical problem in the heat; it is serious because of the excess water loss.
9. It is better to ride slower keeping your body functioning properly than to ride faster and require revitalization off the bike. The second method is possible but risky.

All ultra-marathon cyclists should train in the heat. The body does become acclimated. Rick Bozeat spent weeks in the desert before winning the 1984 John Marino Open. Haldeman and Shermer do heat training. Secrest and Elliott live in the heat. I will never forget the state of affairs in RAAM 1983 when the field of 12 riders was climbing Baker Grade toward Las Vegas in 110-degree heat. As I drove past the field all I could see were riders off their bikes downed by the heat! We called it Death Alley. Penseyres was stopped for several hours. He was in last place but he eventually placed second. I feel it was a more remarkable effort than winning in 1984. Shermer can recover faster from the heat than anyone I know. He will jump off his bike politely excuse himself to get sick, then catch the pack. It's amazing! Most people stay sick for quite a while.

The symptoms of heat bonk are the following: nausea, dry mouth, can't quench your thirst, no appetite, no more perspiring, dizziness, weakness, and feel just too damn hot! The last is the least medically acceptable but the most reliable for me.

Heat riding will keep your crews on their toes. Ice melts quickly, so frequent runs to the market are necessary. During RAAM the local 7-11s can't understand why all these people are buying ice at the same time! Most of the water will be poured over the rider. Don't depend upon the RV storage water to cool the rider. It may be warm. This is very un-refreshing to a rider.

What to Eat in RAAM

John Marino pioneered nutrition in endurance sports in the late 1970s, running personal experiments on himself trying everything from herb concoctions to fasting feasts. Upon his retirement as a competitor in the sport, he observed all the RAAM racers from the Director's chair, and has noted the changes over the years in the various nutritional habits of the cyclists. Here are his observations.

In order to put nutrition into context let us recap just what ultra-marathon cycling involves. A rider in an unpaced/solo event will ride between 250 and 350 miles per day for as long as 24 days (for a double transcontinental). The physical output is between 6,000 and 10,000 calories a day. This means that in a transcontinental record ride or race the cyclist will eat enough to feed the average person for over seven weeks. Others have computed that a transcontinental bicycle ride in twelve days or less is the equivalent of swimming the English Channel 18 straight times, running 56 consecutive marathons, or doing over one million pushups in a row. The recovery time of two to three hours in a 24-hour period does not replenish the body.

Food is a very important element which can determine the success or failure of a rider. The tantalizing taste of delicious cuisine becomes your dream and your nightmare. In the 1985 Race Across AMerica Jonathan Boyer pointed out that eating foods simply because they taste good is not the important factor. He advocates only eating that which will make the rider more efficient. Jonathan existed on an 80 percent liquid diet eliminating all sugar and processed foods. His liquid mixture consisted of complex-carbohydrate drinks and some pureed foods. Michael Secrest has used the liquid nutritional approach in all RAAM competitions. In fact, he is really the first rider to prove the validity of liquid foods in RAAM which he started in 1983. Pete Penseyres, Elaine Mariolle, and Casey Patterson all rode to RAAM victories using the liquid approach. Penseyres and Patterson used Ultra Energy and Mariolle used Uni Pro products. Lon

Haldeman and Penseyres cycled across America on a tandem in 7 days 14 hours existing totally on Ultra Energy. So with these impressive credentials it seems rather pointless to discuss diet. However not everyone is interested in riding with the intensity of these cyclists, plus some people might not adapt to all liquid food, so we will discuss what we learned prior to the liquid nutritional discoveries. We'll call this the pre-liquid days.

Since this is our section on nutrition, we shall discuss what we have learned to be true and not - a big issue of contention among experts.

1. Thousands of training miles should tell you which foods are best for you. Make each ride an experiment in nutrition. If your training is not progressing at the rate or level you expect, consider nutrition. There are many books on the market dealing with endurance sports and nutrition. Study the basics about carbohydrates, proteins, and fats.
2. In a long ultra-marathon event it's not uncommon to get tired of eating. Your jaws hurt and nothing tastes good. You know you want something to eat, but can't think of what it should be. Many of these problems can be prevented by experimentation during training rides well in advance of the event in question.
3. Eat sparingly during break periods. Do not gorge yourself or else extra blood in your system will go to your stomach for digestion, resulting in depleted energy and abrupt sleepiness. This is especially important during the late night and early morning hours of a long ride when staying awake is of paramount importance.
4. Eat from a cup attached to your handlebars. This frees the hands for riding and allows you to eat slowly.
5. Try liquifying food in a blender. Liquified food is easier to eat and very efficient for your digestive system. Vitamins can be blended into the food. However, it may dramatically alter the taste for the worst.
6. Eat a well-balanced diet. Do not neglect getting all the necessary vitamins and minerals. Chew your foods thoroughly.
7. The motorhome should have cooking facilities with a microwave oven. This speeds up meal preparation and is cleaner. It also makes cooking on-the-move a lot easier.
8. The motorhome should be equipped with 110 volts for kitchen appliances such as blenders, juicers, and toasters. The new cordless blenders are a good idea to take along on any ride. They are great if you don't have a motorhome.
9. The refrigerator is usually too small to hold all the food during a RAAM type competition, basically because of the support crew needs. Bring at least two coolers, one for cold foods and another for ice. In the desert you will use lots of ice. Any vehicle that is accompanying the rider should have an ice chest with plenty of food drink and ice- especially if the RV is off the course.
10. It should be the crew's responsibility to come up with ways to provide the rider with anything he or she needs. There are plenty of markets across America. The crew should plan ahead.
11. Storage is a problem in the motorhome. Put some thought into how to pack the most into the least space.
12. There should be an understanding among crew and rider as to how feeding shall be accomplished. The person who passes the rider food should use a uniform method. This makes life easier for the rider. Every unnecessary movement becomes a drain on the

rider. For example, pass the water bottle to the rider smoothly so he/she doesn't have to fumble with it before drinking or storing it in the cage.

13. Use the same bottles for water each time and do not use juice bottles for water. Juice bottles leave an after taste in the water. Color-coded bottles help.
14. Bring at least 15-20 water bottles. Plan on losing a few due to fumbles. Paper plates and plastic spoons have proven to be very convenient. The cook will be more efficient with fewer chores . . . and washing dishes is definitely a chore in a motorhome. Important point: Do not cook while the motorhome is moving. It is extremely dangerous should an abrupt stop be necessary. Use the leap frog method, i.e. drive ahead of the rider, park, drive ahead, park, drive ahead, and so on.
15. Make food stops as fast as possible. Prepare a list ahead of time. Assign certain items on the list to different crew members. Try to group the items according to location in the store. Several people should run into the market find the items and meet at the checkout counter as quickly as possible. If there are long lines put one person in each line and give the food to the one who reaches the cash register first. If you tell the market employees what you are doing you will generally get first-rate treatment. The crew should look official when being seen by the public. Matching T-shirts or hats with the crew team name gives unity to the crew.

As stated at the beginning of this appendix, this is only an outline of how to prepare for RAAM. Join the UMCA, subscribe to ULTRA Cycling magazine, and ride your bike with other UMCA and RAAM riders in the many UMCA associated events. Best of all, come out to see the RAAM, as a spectator, Time Station official, crew member, and eventually rider. We will see you on the highway!

10 Things That Can Go Wrong With Your Body And What You Can Do About Them

1. Rear. The single biggest problem for all RAAM riders is saddle sores. There are three types: (1) General redness, treated by time, ointments, or wearing two pair of shorts to allow for less friction against the skin. (2) A specific pimple or boil, treated by building up a "donut" of Second Skin and Adhesive Knit around it so it attenuates the pressure. (3) Deep tenderness of muscle tissue, treated by using a gel saddle or saddle pad.
2. Hands. Carpal tunnel syndrome, caused by pressure from the handlebars on the palms of the hand, makes the outer fingers go numb. This can be treated by using gel gloves and/or handlebar wraps. Early ultra-marathon riders put sponges underneath their gloves or wrapped their bars with foam rubber.
3. Feet. Foot pain is caused by constant pressure for days on end, resulting in "hot foot." The solution is an insole for padding, and/or changing shoes. Some riders get pain in the little toe, which can be immediately relieved by cutting a half inch slit in the shoe where the toe is pressing.
4. Neck. What has now become known as the "Shermer-neck" due to my forced abandonment of the 1983 race in Ohio due to a collapsed neck (the rider can no longer hold up his head to see forward), the solution is lighter helmets, neck exercises before the race, and if necessary, bungee cords from the helmet to the back of the cycling shorts to hold the head up! Massage and chiropractic adjustments can sometimes help.

5. Knees. Sore, tender, and achey knees are caused by millions of pedal revolutions with no recovery period. The solution is massage, and/or anti-inflammatory drugs, such as Feldene, used by Pete Penseyres, myself, and others with considerable success. Sometimes you can just "ride through" the pain and it eventually goes away for no apparent reason.
6. Upper Body Fatigue. Upper body fatigue has been primarily solved with the platform/aerobars that support the rider while maintaining a more aerodynamic position. Pushups and upper body exercises before the race are important for strength.
7. Fatigue. General fatigue can only be treated before the race with proper training, and during the race with sound nutrition and enough rest.
8. Nutrition. Most of the RAAM riders currently use liquid diets, such as Ultra Energy and UniPro, which digest much more efficiently and quickly than whole foods. The first riders used the "see-food" diet - if you saw it you ate it. The top riders credit a good deal of their faster times to better nutrition.
9. Sleep deprivation. Hallucinations and severe sensory distortions cause by endless periods of sleeplessness in the early races has given way to almost all riders sleeping virtually every night, including the first night of the race. The key is to find the right balance between riding and resting so that you can ride fast and not lose too much time to your competitors while sleeping.
10. Emotions. Emotional instability during the race is caused by extreme stress and sleep deprivation. The solution is rest, good nutrition, and enough sleep. Some still cannot cope, but they may be whiners by birth!