



30th ANNIVERSARY
Kiehl's
BADWATER
ULTRAMARATHON
The Challenge of the Champions
1977 - 2007

Badwater
Ultramarathon
The Challenge of the Champions

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SINCE 1851

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2007 Race Magazine



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The Coleman® Ultimate® Xtreme® Wheeled Cooler keeps ice cold for up to six days in extreme heat, which is why it's the official cooler of the 2007 Badwater Ultramarathon. It's the ultimate cooler for the ultimate test of athletic performance. If this cooler can exceed expectations in 120° heat, you know it can more than handle picnics, camping, tailgating or camping trips. www.coleman.com



All 90 participants of the Badwater Ultramarathon will receive a free 82 qt. Coleman® Ultimate® Xtreme® cooler. Every runner, including **Martin Franklin, CEO of the Jarden Corporation, parent company of Coleman**, will be relying on this incredible cooler to store cold water and keep food fresh during the race, despite the punishing heat of Death Valley.

LET'S GO OUTSIDE



The Outdoor Company™

adventureCORPS™

"We're Out There"



Chris Kostman

AdventureCORPS, an event production firm specializing in ultra-endurance and extreme sports events, is pleased to host the 30th anniversary Kiehl's Badwater Ultramarathon on July 23-25, 2007. A true "challenge of the champions," this legendary race pits up to 90 of the world's toughest athletes – runners, triathletes, adventure racers, and mountaineers – against one another and the elements. Covering 135 miles (217km) non-stop from Death Valley to Mt. Whitney, CA in temperatures up to 130F (55 centigrade), it is the most demanding and extreme running race offered anywhere on the planet.

The start line is at Badwater, Death Valley, which marks the lowest elevation in the Western Hemisphere at 280' (85m) below sea level. The race finishes at Mt. Whitney Portal at 8,360' (2533m). The Badwater course covers three mountain ranges for a total of 13,000' (3962m) of cumulative vertical ascent and 4,700' (1433m) of cumulative descent. The Portal is the trailhead to the Mt. Whitney summit, the highest point in the contiguous United States.

Now in our eighth year producing this race, AdventureCORPS is pleased to welcome the return of our title sponsor for the fifth year, Kiehl's Since 1851, the hair and skin care company founded in New York City in 1851. Kiehl's unique and extensive background represents a blend of cosmetic, pharmaceutical, herbal, and medicinal knowledge developed and passed on through generations. For more than 150 years, Kiehl's has served its customers skin and hair care products formulated with the finest ingredients.

AdventureCORPS is also pleased to welcome The Coleman Co. as a new sponsor of the Kiehl's Badwater Ultramarathon. Coleman, "The Greatest Name in Camping Gear," produces the Official Race Cooler of the Badwater Ultramarathon and will provide an Ultimate® Xtreme® Cooler to all race entrants and staff this July.

We also welcome the continuing support of Hammer Nutrition, Injinji Performance Toesocks, and ZombieRunner.com. We also appreciate the ongoing support of the Furnace Creek Inn and Ranch Resort, Panamint Springs Resort, Whitney Portal Store, Caring House Foundation, and Lone Pine's Dow Villa, Seasons Restaurant, Pizza Factory, and Lo-Inyo Elementary School. Additionally, we salute the National Park Service, U.S. Forest Service, Inyo County, California Department of Transportation, and California Highway Patrol, whose staff - and permits - oversee this event.

Special thanks go to all the people behind the scenes who help to make this race happen. An incomplete list of these generous folks includes Keith and Poosa Kostman, Anna Boldon, Dan Dominy, Lana Corless, Mike Angelos, Dave and Margaret Nelson, Elizabeth Jefferson, Cathy Cramer, Paul Skilbeck, Jack and Mags Denness, John Wiley, Phil Marchant, Joe Garza Jr., Eric Wilson, Don Meyer, Mike Henebry, Scott and GERALYN Wall, Mike Schafer, Kai Norwood, Rachel Schmitt, Christopher Ragsdale, Ron Jones, Bruce Gungle, Carolyn Campbell, Randy Klassen, Jay Hodde, Cory Linkel, Greg Minter, Steven Matsuda, Steve and Linda Gray, Jeff Martin, Jo Carmichael, Lissette Baker, Wendy Barth, Marlis Schmidt, Sasha Edge, Maxwell Lucas, Ruben Cantu, the medical team - Dr. Kent Wang, Shayne Garvey, Dr. Jeff Lynn, Anthony "Woofie" Humpage, Dr. Andy Jacobson, Dr. Scott Snyder, Kate Felix, Dr. Megan Dell, John Vonhof - and many others. We also extend special thanks to Dr. Lisa Bliss for organizing the Medical Team and to Kevin Fung for the design and layout of this Race Magazine.

Sincerely,

Chris Kostman

Race Director and Chief Adventure Officer

We'll help you take the bad out of Badwater



Photo: Chris Koppman

What you fuel your body with can make the difference between a DNF and a successful ultramarathon. In an environment as harsh as Death Valley, how you fuel is even more crucial. Candy-like gels, bars and glow-in-the-dark sugary drinks don't cut it for Badwater. Instead, give your body the healthy fuel it craves.

More ultra runners use the Hammer Nutrition products and fueling strategy because we use only healthy, natural ingredients. This allows you to enjoy consistent energy and endurance no matter how long you run.

Try any of our superior fuels today and see for yourself what it means to Fuel Right and Feel Great!



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Real Athletes : Real Results!



"Years of stomach cramps during key long workouts and races had left me frustrated... that is, until I discovered Perpetuum. Simply put, the product works like magic, giving me just the right combination of nutrients and pleasant taste to get me through the toughest conditions. I've used it successfully in multi-day stage races and during solo, unsupported journey runs. Steal my shoes or rip the shirt off my back...but don't take away my Perpetuum."

Greg P.
Marathon de Sables finisher, 2007 Badwater competitor

Official Sponsor of the 2007
Kiehl's Badwater Ultramarathon



ENDURANCE FUELS

Hammer Nutrition Fuels and Supplements are sold at retailers across the nation. Check out our dealer locator to find one near you.

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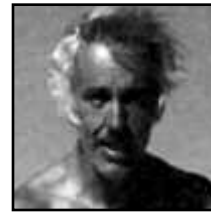
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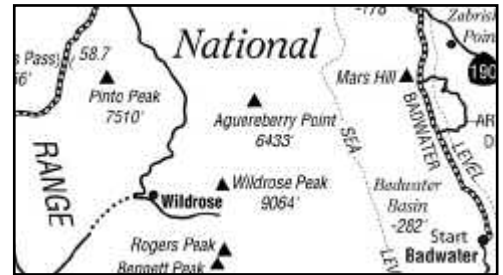
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 "We're Out There"
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www.badwater.com • www.adventurecorps.com

Front Cover: Two rookies celebrate at the 2006 finish line: David Goggins, left, and Akos Konya, right. Photo by Chris Kostman.
 Internal photos by Dave Nelson, Chris Kostman, Anna Boldon, and race staff.

Design and Layout by Kevin Fung, yukitopia@mac.com

GENERAL INFORMATION**2007 SCHEDULE OF EVENTS:**

Tuesday, January 2, 2007	2007 Application becomes available on the website
Wednesday, January 24, 2007	2007 Application taken off-line
Wednesday, January 31, 2007	Last day for application paperwork and fees to arrive at the race office
Tuesday, February 13, 2007 or later	2007 Entry Confirmations sent to up to 90 applicants
Tuesday, February 20, 2007 or later	2007 Entrant Roster posted online. Additional entrants may be posted later
Tuesday, May 1, 2007	Starting Groups and Bib Numbers assigned
Sunday, July 22, 1200-200pm	Runner Check-In and Registration, Furnace Creek Visitors Center Auditorium
Sunday, July 22, 330-500pm	Pre-Race Meeting, Furnace Creek Visitors Center Auditorium
Sunday, July 22, 500-530pm	Media Meeting: All journalists must attend after the Pre-Race Meeting in the Auditorium
Monday, July 23, 600am	First Wave Starts at Badwater (runners must check in 30 minutes prior to their start)
Monday, July 23, 800am	Second Wave Starts at Badwater (runners must check in 30 minutes prior to their start)
Monday, July 23, 1000am	Third Wave Starts at Badwater (runners must check in 30 minutes prior to their start)
Wednesday, July 25, 600pm	Course Closes for First Wave Runners
Wednesday, July 25, 600pm	Awards Ceremony, Lo-Inyo Elementary School, Multipurpose Room, Locust St., Lone Pine
Wednesday, July 25, 800pm	Course Closes for Second Wave Runners
Wednesday, July 25, 1000pm	Course Closes for Third Wave Runners
Thursday, July 26, 800am	Breakfast Get-Together, Seasons Restaurant, 206 South Main St., Lone Pine

RACE DATE: Monday-Wednesday, July 23-25, 2007.

DISTANCE: 135 miles.

WHO: An international, invitational field of up to ninety endurance athletes representing fifteen countries and twenty-two American states. See the race roster on pages 46-47 for full details.

MANDATORY RUNNER CHECK-IN: 12:00-2:00PM, July 22, 2007, Visitors Center Auditorium, Furnace Creek, CA. Every runner must personally attend at some point during the two hour timeframe. Photo identification is required for all runners. Please bring the completed Runner Check-In Form and signed waivers for all crew members and the runner. All paperwork must be complete before walking in the door.

MANDATORY PRE-RACE MEETING: 3:30-5:00PM, July 22, 2007, Visitors' Center Auditorium, Furnace Creek, CA. Every runner and at least one crew member per runner must attend the entire meeting. We highly recommend that all crew members attend.

MEDIA MEETING: There will be a brief meeting of all journalists after the Pre-Race Meeting in the auditorium.

STARTING LOCATION: Badwater, Death Valley, CA, 282 feet below sea level.

STARTING TIMES: 6:00AM, 8:00AM, and 10:00AM, July 23, 2007. Up to 30 runners per group, as assigned by the Race Director. Runners may attend only their assigned start time. Runners must check in, ready to race, 30 minutes prior to their start.

ENDING LOCATION: The end of Whitney Portals Road, above Lone Pine, CA, on Mt. Whitney, elevation 8360 feet. The race does not continue up the Whitney Trail further onto the mountain.

ENDING TIME: The event is officially over 60 hours after each starting group, so either 6:00PM, 8:00PM, or 10:00PM, July 25, 2007.

POST-RACE GET-TOGETHER: 6:00PM, Wednesday, July 25, 2007, Lo-Inyo Elementary School, Multi-Purpose Room, Lone Pine, CA. All racers are encouraged to complete the race in time for this event! 2007 Official Finisher T-Shirts and 2007 Sub-48-Hour Buckles will be awarded to all who attend who earned them in 2007. Pizza and drinks will be served. No charge for all staff, racers, and up to six crew members with each racer.

POST RACE BREAKFAST: 8:00AM to 10:00AM, Thursday, July 26, 2007, Seasons Restaurant, 206 South Main Street, Lone Pine, CA. This will be an informal get-together, planned to provide one last opportunity for Badwater runners and crew to get together and share stories. Juice, coffee,

muffins, yogurt, and the like will be provided. Room for 75 people total! First come, first served. No charge.

AWARDS: All racers who begin the event will receive up to five Kiehl's Badwater Ultramarathon race t-shirts, a hat, a Race Magazine, and a goodie bag. All racers who officially complete the event within 60 hours will receive a commemorative certificate, a finisher's medal, and a finisher's t-shirt. All racers who officially complete the course within 48 hours will also receive a commemorative Badwater Ultramarathon buckle. (Certificates will be sent in the mail after the race. Everything else will be awarded in Lone Pine.)

COURSE RECORDS: Men's: Scott Jurek, 2005, USA: 24:36:08. Women's: Pam Reed, 2002, USA, 27:56:47.

WEBCAST: Spread the word that we will post time splits, commentary, and images on a continual basis for the duration of the 60 hour race. We will be "live" throughout July 23-25, 2007, plus will keep the entire webcast archived forever. We will post time splits, images, and much more, beginning a few hours after the start of the race. As for time splits, keep in mind that the first time station is 17 miles into the race and it will take people several hours to get there. And remember, this is a webcast, not television. You have to be patient and keep in mind that you are not "viewing" the race in "real time." That said, it's going to be great! (Please do not email us or ask us to pass along any information to any runner during the race. We don't even check email during the race.) Enjoy the show, everyone! The webcast team and Race HQ will be set up in a hotel room in Furnace Creek on Monday, then in Lone Pine at the Dow Villa for the rest of the race.

DONATE YOUR LEFT-OVER GEAR: After the race, when you're staring at folding chairs, umbrellas, and things you can't get on the plane with you, please donate them to a good cause, such as the Lone Pine Chamber of Commerce, Good Will of Santa Monica, and the Las Vegas Rescue Mission.

PERMITS: This event is held under permits from the Inyo National Forest, Death Valley National Park, California Department of Transportation, and Inyo County. (If one of them won't issue us a permit, this race is history. So don't screw up!)

DRIVING DISTANCES

- Las Vegas Airport to Furnace Creek: 140 miles
- Los Angeles Airport to Furnace Creek: 250 miles
- Lone Pine to Las Vegas Airport: 240 miles
- Lone Pine to Los Angeles Airport: 210 miles

DIRECTIONS TO FURNACE CREEK FROM SOUTHERN CALIFORNIA: Here is the most direct route from Los Angeles (or anywhere that passes through Mojave on the way to Death Valley): Reset odometer to zero in Mojave and take Hwy 14 north. At mile 20, veer right onto Randsburg Road. At mile 32.2, stay straight (not right). Go left at the t-intersection junction with Hwy 395 at mile 40.5. At mile 43.6, turn right on Searles Station towards Trona (easy to miss). At mile 50, a t-intersection, turn left to Trona. At mile 58.4, another t-intersection, turn right on Hwy 178 towards Trona. Pass through Trona, including its gas station and mini mart, at mile 71.0.

At mile 104, you have two options. If it's nighttime or you don't like a little adventure, turn left towards Death Valley via Hwy 190. At mile 117.5, turn right at the t-intersection on Hwy 190 towards Death Valley. You will go over Townes Pass (elev. 4965'), pass through Stove Pipe Wells (gas, mini mart, hotel, and restaurant), then arrive at Furnace Creek at mile 170.

Your second option back at mile 104 is infinitely more fun and interesting, as well as even quieter. It's truly epic and feels like going back in time a few zillion years. So, at mile 104, if it's daylight and you have a working spare tire in your car, stay straight towards "Death Valley via Wildrose" instead of veering left as in option one. You will ascend over Emigrant Pass (elev 5318'). But first you'll go over three very short gravel stretches. They are only a few tenths of mile each and are easily passable in a normal car, unless there's a storm dumping on you. Be sure to check out the neat little oasis-like canyon you'll pass through. At mile 113.5, go left at the t-intersection towards Stove Pipe Wells and Furnace Creek. At mile 121 you'll summit Emigrant Pass. At mile 134.3, turn right at the t-intersection with Hwy 190 towards Furnace Creek. You'll pass through Stove Pipe Wells at mile 143.5 on your way to Furnace Creek, which you'll reach at mile 168. Voila!

DIRECTIONS TO FURNACE CREEK FROM LAS VEGAS AIRPORT: From Airport take I-15 south several miles to exit for Nevada Rt. 160 and go west toward Pahrump 55.8 miles. There, make a left on Bell Vista Rd. and go to dead end (Amargosa Opera) House and make a right. Then go 1/10 mile and make a left of Stateline Rd. (becomes CA 190 once you enter CA) and continue straight to Furnace Creek.



WHAT TO BRING

By Don Lundell and Gillian Robinson, Badwater finishers and Zombierunner.com proprietors

Plans for the Kiehl's Badwater Ultramarathon typically include long lists of items for the runner. What people may overlook is that the crew needs to be outfitted, too. Everyone will be out there in the same heat, needing fuel, hydration, cooling and some rest. Planning your gear list makes all the difference to your race. Take time to think through scenarios and have backup items in case other items fail or things don't go as expected.

GEAR

- Multiple coolers and large fluid containers. New for 2007, The Coleman Company is giving one 82 Quart Ultimate Xtreme Wheeled Cooler to every entrant at racer check-in. Dedicate one cooler to contain only ice and only touch that ice with a clean scoop - never your hands and never by scooping ice with a dirty water bottle. A cylindrical cooler filled with ice is great for refilling water bottles.
- Jugs for mixing sports drink and refilling water bottles.
- Folding chairs.
- Cot, sleeping pad or air mattress.
- Bucket or basin. You may want to soak your feet for cooling. One trick is to cool your shoes without having to take them off. Put plastic bags around the shoes and place them in ice and water in a basin. A cat litter box works well for this. Keep in mind that wet feet are prone to blistering.
- Mechanical (non-electric) scale for weighing the runner during the race. This is to detect over- or under-hydration.
- Thermometers for body and outside air temperatures.
- Water sprayer.
- Umbrella, tarp, and/or canopy to provide shade for the crew and for the runner when taking a break.
- Handheld flashlights and headlamps for the runner and the pacers.
- Tactical lighting for crew members, such a small headlamp to see for cooking, fixing runner feet and other tasks.
- Extra batteries.
- Garbage bags, plastic bags, baggies.
- Utensils, plates, cups, etc. Can opener.

- Clipboard, pens, pencils, notepaper. The crew should try to record runner activities, so there's something to look at if the runner gets into trouble (how much fluids, food, electrolytes consumed; pace between time stations).
- Race plan and crew schedule.
- Duct tape, rope, cord, string.
- Towels of various sizes.
- Paper towels and toilet paper.
- Camera.
- Cellular phone (often won't work).
- Satellite phone (recommended).
- Small stove for boiling water.

FOOD AND DRINKS

- Water and ice (lots and lots).
- For food, plan to have a variety available, because it's difficult for a runner in extreme conditions to eat any one thing over a long period of time. Certain products that taste fine in cool conditions can become nauseating in the heat.
- Electrolytes: It's easier to monitor electrolyte intake when using an electrolyte capsule, such as Hammer Nutrition Endurolytes. You also get sodium and other electrolytes from sports drinks, energy gels, salty snacks and regular food.
- Fluids: carbohydrate/electrolyte drink such as HEED from Hammer.
- Energy gel such as Hammer Gel which provided easy to digest calories.
- Carbohydrate drink with added protein and supplements such as Hammer Nutrition Sustained Energy and/or Perpetuem. This is another way to get balanced calories. Be sure to keep protein drinks on ice, as they can go bad after extended periods in the heat.
- Salty snacks to help with electrolyte management such as pretzels, peanuts, corn-nuts, potato chips, salt
- Sweet snacks for additional carbohydrate: fig newtons, pop tarts, fruit, such as watermelon, cantaloupe, and oranges.
- Caffeine: Soda, coffee, tea, cocoa, etc. Be aware of the pros and cons of caffeine. While it is great to help you stay alert through the night, it is also a diuretic.
- Real food: Think of your favorite foods to eat that are easy to prepare and eat on the run. For example, peanut butter and jelly, tuna salad, ham and cheese sandwiches, oatmeal packets, and jerky. Take advantage of the restaurants at Stovepipe Wells, Panamint and Lone Pine.

- Soups work well at night, such as chicken noodle soup, cream of potato soup, tomato soup, or any Cup-of-Soup. If you bring cans, remember the can opener!
- Other liquids for protein: chocolate milk, nutrition drinks, soy milk.

MEDICAL AND COMFORT ITEMS

- Protective products for your skin including sun screen, lip balm, and moisturizer. (provided by Kiehl’s in your goodie bag!)
- First aid kit: medications for upset stomach, headache. If the runner is on any medication, be sure these are included.
- Gauze, band-aids, anti-biotic ointment, alcohol wipes
- Anti-chafing product such as Bodyglide, Sportslick, Sportshield.

FOOT CARE

Hope for the best but prepare for the worst. People who never get blisters can end up with serious foot issues during Badwater. Keep foot care items in a cool place. If possible, dedicate a small cooler to these types of items. Tapes can melt and become useless quickly if they get too warm. Most items listed here are available from ZombieRunner.com.

- ZombieRunner.com Foot Care Kit included in your goodie bag.
- Dressings such as Compeed, Elastogel, Duoderm, Engo Pads, Blist-O-Ban, 2nd Skin QuikStik, 2nd Skin Blister Pads for pressure areas and blisters. You should have small sized ones for toes and large ones for heels and the balls of the feet.
- Swabs, needles, razor blades, tweezers, scissors, etc.
- Heavy duty scissors for cutting shoes if necessary.
- Specialty tapes for pre-taping and repairs during the race: Elastikon, Kinesio, Medipore, Micropore. Tape should be breathable and applied in single layers.
- Foot Lubricant: Hydropel, Bodyglide, Sportslick.
- Foot Powder: BlisterShield, Zeasorb, Gold Bond powder.
- Cooling foot spray.
- Blister patches.

RUNNING GEAR

Toe socks (Tsoks) by Injinji. Injinji Performance socks work great for most Badwater runners. Bring several pairs of socks so you can change whenever you like. You might want socks a size bigger to go with your bigger sized shoes.

- Full coverage solar-protective clothing (white or light from head to toe). Look for clothing with SPF or UPF in the fabric and vents for cooling. Legs can burn just from the heat rising from the road. Covering your skin with protective fabrics and using sun screen gives you the protection you need. Remember that the crew needs protective clothing also! An example is the clothing from Sun Precautions.
- Shorts and singlet or short sleeved tops, to change into after the sun goes down. It’s still hot at night, and you may be cooler in fewer clothes.
- Race number, worn unmodified and unfolded at all times (not on head).
- Light-colored running shoes that you’ve tested over long distances on paved surfaces. Bring several pairs, including pairs one and two sizes larger. Remember to size up your socks, too, if you need to size up your shoes.
- Footbeds, orthotics, arch supports or heel lifts, as necessary. These should all be tested before the race.
- Hat with long-bill or wide brim plus shroud, such as those by Sun Precautions and Injinji.
- Dark sunglasses. Polarized lenses are a good idea if you’re concerned about glare.
- Summit goggles and or shields (for side-glare, but be aware of peripheral vision obstruction).
- Cool Off Bandana or regular bandana to put ice on your neck and head. Have at least two for the runner and more for the crew also.
- Wicking undergarments.
- Reflective gear (mandatory, see the race rules), strobe light, flashers, etc., for dusk till dawn. We highly recommend the amazing little strobe lights from RoadID.com, as well as their reflective gear and personal identification products.

Finally, bring along any other items that might make your journey more comfortable and enjoyable! Just remember to stay within the rules and be considerate of other people who are out there.



THE OFFICIAL CHARITIES OF ADVENTURECORPS

AdventureCORPS is pleased to celebrate and support these three charitable organizations.



Challenge Athletes Foundation

The Challenged Athletes Foundation was created on the belief that people of all abilities should have the opportunity to pursue a life full of physical activity and of sports. Be they recreational or in pursuit of a gold medal at the Paralympic Games, people with a physical disability are limited only by their access to funding. Since 1994, CAF has raised more than \$10 million—allowing the Foundation to satisfy thousands of funding requests from challenged athletes in all 50 states and 10 countries.

Eighty-nine cents of every dollar raised by CAF provides funding and programs that get challenged athletes into the game. Whether it's a \$2,000 handcycle, helping underwrite a \$15,000 running prosthetic or arranging enthusiastic encouragement from a mentor who has triumphed over a similar injury, CAF's mission is clear: give those with the desire to live active, competitive lifestyles every opportunity to compete in the sports they love.

At the 2004 Paralympic Games in Athens, Greece 45 of the 235 participating U.S. athletes (almost 20 percent) were supported by CAF. More recently at the 2006 Winter Paralympic Games in Torino, Italy, CAF supported 23 of the 56 (41 percent) participating U.S. athletes.

We are pleased to recognize CAF as the Official Charity of AdventureCORPS.

More info at www.challengedathletes.org and www.adventurecorps.com/caf/



Major Taylor Association

The Major Taylor Association was formed by residents of Worcester, Mass., who became intrigued with the story of the 1899 world champion bicycle racer from Worcester who overcame racial prejudice to become the first internationally acclaimed African-American sports star.

The organization's mission is to memorialize Major Taylor with a statue on public land in Worcester, in recognition of his athletic achievements and strength of character -- his sportsmanship, concern for those less fortunate, devotion to God, and personal struggle for equality. Further, the Major Taylor Association aims to create a living memorial to Taylor by conducting good works in his name and educating people about his life and legacy.

MTA hosts the annual George Street Bike Challenge for Major Taylor, a short, steep uphill time trial on a downtown Worcester street where Major Taylor used to train. Additionally, Major Taylor Association offers a free curriculum guide for schools, for grades 3 through 8, featuring lessons about the trailblazing black athlete Marshall W. "Major" Taylor. The materials are designed to be used at any time -- such as Black History Month (February) or National Sportsmanship Day (first Tuesday in March) -- in conjunction with an optional readathon to benefit the Major Taylor Association.

At AdventureCORPS, we are pleased to sponsor MTA each year.

More info at www.majoraylorassociation.org



Juvenile Diabetes Research Foundation

Founded by parents of children with type 1 juvenile diabetes, Juvenile Diabetes Research Foundation has always focused on a single goal—accelerating research progress to cure diabetes and its complications. To that end, their research management process is unique—they're organized as a diabetes cure enterprise. They take informed risks, continuously monitor the global diabetes research landscape, and make research investments strategically, to ensure that resources are effectively directed to research with the greatest impact leading to a cure as soon as possible.

This unwavering dedication has led JDRF to award more money for diabetes research than any other charitable organization—more than \$900 million since our founding in 1970, including over \$98 million in FY 2005 alone. More than 80 percent of JDRF's expenditures directly support research and research-related education. In FY2005, JDRF funded 500 centers, grants, and fellowships in 19 countries. In addition, their advocacy has spurred government, especially the National Institutes of Health, to increase its investment in type 1 diabetes research to unprecedented levels.

At AdventureCORPS, we are pleased to produce the biannual Death Valley Ride to Cure Diabetes on behalf of JDRF.

More info at www.jdrf.org and www.adventurecorps.com/jdrf/

Furnace Creek 508

October 6-8, 2007

www.the508.com

Should you do it?

"You can study the nutritional requirements for this event. The formula for success is well documented. If you think you have the physical and mental fortitude to complete this event you owe it to yourself to give it a shot. I can promise you it will be one of the most rewarding experiences of your life. This event grabs you in a very deep way. I have a spiritual connection with this event that is very hard to explain. I'm not a touchy feely kind of guy but I left a part of my soul on that race course and I don't think I'll ever be able to completely walk away from this race. It is dangerously painful, but the feeling you get when you roll through that 'toilet paper' finish is worth every ounce of pain you absorbed out on the road. My brother sent me an email before the race: 'Remember, the pride lasts longer than the pain.' So true!"

—Greg "Silly Goose" Matherly,
rookie 2006 solo finisher



Welcome to BADWATER

By Al Arnold, 1977 pioneer

Hello fellow Ultras. Welcome to the 2007 Kiehl's Badwater Ultramarathon.

Time Range Calculation:

24 hrs - (10:39.96/mile)
30 hrs - (13:19.8/mile)
36 hrs - (16:00.00/mile)
42 hrs - (18:39.96/mile)
48 hrs - (21:19.8/mile)
54 hrs - (24:00.00/mile)
60 hrs - (26:39.96/mile)

These calculations are the choreography of the annual Badwater 135 Mile ULTRA Marathon. It's all there, from the mythical sub-24-hour finisher to the 60-hour official finishers. From start to finish, it's a "Grand Parade" of the best and toughest distance runners in the world—from around the vast stretches of our Planet Earth, they merge for the Death Valley Challenge.

It's hype and glory of human endurance against this unpredictable sanctuary of Mother Nature. Will She be kind and forgiving or will She unleash Her power of vengeance upon those mortals who dare enter this domain of pain, agony, and sometimes more? Let it be understood, by all, veteran or novice: tread lightly and ALWAYS with respect. Each athlete and crew member must never



forget that, as a guest of Death Valley National Park, you must obey the Park's and the Race Organizers' rules and regulations at ALL times.

The purpose and goal of every team member is the ultimate conclusion of a safe and gratifying performance. Any participant's failure to honor these guidelines may result in the disqualification from all future Badwater Ultramarathons. Honor and respect is a unique consideration in these types of events, in that there are many miles and hours of which to gain a life-long appreciation of the course and its participants. Fair and courteous involvement is the rule.

This is the "Main Event" - don't spoil it by doing any of those things that erode the value and beauty of this once-in-a-lifetime experience. Be encouraged by, and absorb, the energy of thousands of footsteps past. Let your quest, be it seemingly slow, remain steady as you trod patiently, while enduring the tremendous and unrelenting heat, through the bowels of Hell.

It is normal, especially as Ultramarathoners, to possess, and exercise, that natural competitive desire to excel. But, in Death Valley, this "drive" does not guarantee the best result. To ultra is to venture into the unknown. Caution should be exercised as we enter within this "Cave of the Unknown."

I urge all of you, especially the crew members, to recognize what is natural and within your "limits". Many miles and hours stretch out before you... before ALL of you. There is NO reason why any athlete or crew member should fail, IF you abide by reason and common sense!

One of the most serious miscalculations of marathon running is dehydration. In the desert, at ALL times, stay covered. It is the retained moisture on your body surface that keeps you cool. Bare skin is a direct path to failure and injury. Do not become over-hydrated with salt or sugar: either will promote being hypotonic, a sure invitation of "problems."

Don't be "cute" as this event is serious business: your life will depend on it. If, as you train for this 135 mile "trek," you can: (1) walk 50 miles each day, for three days while being mindful of proper foot-care, (2) tolerate high temperatures by exercising respect, caution, and proven techniques, then you have no excuse for failing to finish this torturous trek safely and as an Official Badwater Ultramarathon Finisher :) Good Luck!

Finally, enjoy your every step by "gliding" the 135 miles as an adventure rather than as combat. You will never beat this race course; you can only traverse it smoothly or "uncomfortably." The choice is yours. Look at my calculations above and select a reasonable and safe "time-range" BEFORE the race. Stay comfortable and enjoy your adventure. Your elapsed time will be better than you predicted and so will your experience.



DEATH VALLEY

-A Sojourner's View

By Jay Birmingham, 1981 and 2004 finisher



Jay in 1981, en route to a new course record.



Jay in 2004.

At Arnold, Ben and Denise Jones, Marshall Ulrich, and Rich Benyo—these are names well-known to hundreds of athletes who have challenged Death Valley over the past 25 years. I believe I have a unique perspective, having run Badwater to Whitney Summit in 1981, then returning for a successful Badwater to Whitney Portal race in 2004. The 23-year span between efforts is the greatest so far.

My perspective is unusual for another reason. The vast majority of Repeaters are Californians, or, more accurately, Southern Californians. For many, including honorary Death Valley citizen Ulrich (who lives in Colorado), covering the route is an avocation. My first run was my first look at Death Valley. I arrived in '81 from the hothouse humidity of Florida to the desiccated desert of 20-mule-team borax miners. My crew was an equally inexperienced woman and three teenage children. Two decades later, now coming from prairie state Nebraska, I revisited my old acquaintance. Much had changed—much remained the same.

Death Valley was a modest-size National Monument in 1981, the western boundary of the park just halfway up the west-bound climb to Townes Pass. Now a massive National Park, it spans more than 100 miles, east-to-west. The roads are the same (hot and hard), the grades are the same (steep). German tourists still visit in amazingly large numbers and automobile prototypes still threaten the safety of runners and lizards.

Death Valley wields its threats with the same randomness and power: Sandstorms, temperatures of 130 degrees, mudslides born of far-distant flash floods, UV radiation that burns and blinds. Insidious powers in the sagebrush



Jay in 1981.

1981



and in the asphalt still nauseate the fit, suck water from constantly-hydrating athletes, blister tough feet, and thwart meticulously planned challenges.

Badwater, the start, has not changed. Tiny arthropods still troll its brackish waters. But in 1981, I debated whether to even walk to the water's edge as it was several dozen meters from a rude dirt parking lot. Now, one parks on asphalt, complete with white stripes. You can pad across a boardwalk and lie on your belly to watch the little critters swimming.

While we solo adventurers of the late 1970s and early 1980s had the road to Furnace Creek Ranch to ourselves, runners now see dozens of their fellows stretched to the horizon, their support vans leaping past them like frogs. Support crews are bound by rules, just like the racers. Many current runner-crew combos are smoothly efficient, their routines honed from simulations and previous races, like astronauts and crews from Cape Canaveral. Packed with state-of-the-art medical gear and enough food and drink to start a roadside business, the support vehicles are a far cry from the simple ice chest and picnic basket of the pioneers.

A proud, protective attitude has been a constant among those charged with preserving Death Valley, the National Park Service staff. Every man and woman is helpful and vigilant, watching the valley and each visitor. Their roles

are now supplemented by Chris Kostman, proficient and fiercely protective of the race. He has assembled an amazing staff to preserve the safety and purity of the event.

The facilities at Furnace Creek have grown nearly as much as Las Vegas, the gateway to Death Valley for those of us from the east. The simple restaurant with a postcard rack has evolved into a village. Yet Furnace Creek remains a luxuriant early oasis on the long trek to the mountains.

Stovepipe Wells has enjoyed an even greater transfiguration in two decades. When my family and I stopped there in 1981, we were the only guests at the inn. Now Badwater racers pack the greatly expanded lodgings to overflowing. With another miniature village over Townes Pass at Panamint Springs, I felt in 2003 and 2004 like I was trekking from one town to another. The scarce amenities in 1981 made the run feel far more desolate.

The Dow Villa Motel in Lone Pine is still there—we old guys like returning to a place to find that some things have not changed. Lone Pine seems much the same as it did. The forest service office still doles out permits to climb Mt. Whitney, but there was no difficulty in the 1980s to gain access to the trail.

My approach to the route in 1981 was vastly different from my race in 2004. With only the specter of Al Arnold before



2004

Elapsed Time Comparison: 1981 vs 2004

Furnace Creek: 1981: 3:00 / 2004: 3:50
 Stove Pipe Wells: 1981: 15:50 / 2004: 9:38
 Panamint Springs: 1981: 31:59 / 2004: 24:02
 Darwin: 1981: 37:20 / 2004: 30:33
 Lone Pine: 1981: 55:09 / 2004: 46:07
 Whitney Portal: 1981: 59:54 / 2004: 50:10

me, I focused on beating 84 hours to the Whitney summit. Since I had no night running experience (and a real fear of stepping on a rattlesnake in the dark), I chose to run only in the daylight. Fit enough then to complete several marathons in the low 2:40s, I was able to push the pace each day for 45 miles, three consecutive days. The downside, of course, was dealing with the intense sun and temperature for the entire run. The upside was plenty of rest. Stopping for good at Whitney Portal was not a 1981 option.

How do my two successful performances compare? The 1981 trek was an adventure into the unknown. My crew was my inexperienced family (read details in my book, *The Longest Hill*, or in Tamara Dickey's story, "I Was There When Hell Froze Over" on the race website.) I ran more than 80 percent of the entire route, much at a brisk 8 min-

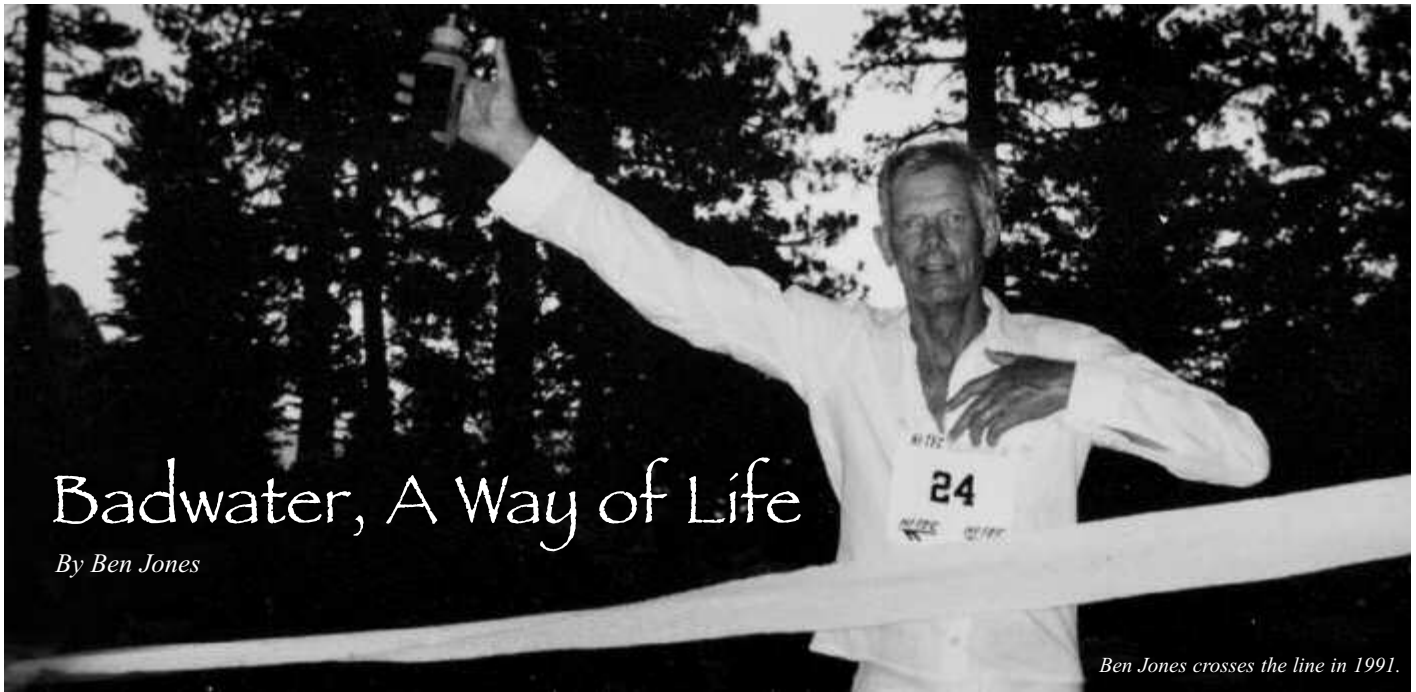
utes per mile pace. Even through the Alabama Hills, ascending the final miles to the Portal, I was able to run. Ah, the joy of being young!

In 2004, I was a racer. Tentative at first because in 2003 I had dropped out at 75 miles (due to a sick crew and bruised feet), I kept momentum from start to finish. Still possessing an aversion to sleep deprivation, I left the road for more than 10 of my 50 hours from Badwater to Whitney Portal. Despite the breaks, I bettered my 1981 time for the 135 miles by nearly ten hours.

Running from Badwater to Whitney Summit as a 36-year-old was a solo triumph, shared with only my family. Nobody paid it much attention, but the satisfaction it brought was deep. Sharing my 2004 success with a crew of five and 70 other runners and crews was profoundly different. Although fear of the unknown is gone, I felt reverence for the unrelenting challenges of Death Valley. I especially enjoyed the mutual respect for, and from, my fellow competitors.

Being a pioneer in Death Valley is special once. Being a finisher in *The World's Toughest Footrace* will be special forever.





Badwater, A Way of Life

By Ben Jones

Ben Jones crosses the line in 1991.

My introduction to Death Valley was in talking to several great aunts who first went to Death Valley in the '20's via a Los Angeles-to-Baker train line. Along the way were the Harvey Houses. Then there was the Tonopah-Tidewater Line to Death Valley Junction. From there a spur-line took them to Ryan and then a coach to Greenwater (Furnace Creek). They used to tell me of the adventure which took about a week each way in those days.

My folks first took me to Death Valley in the late '30's. There is a picture of me at Mushroom Rock (which appeared larger then). In 1963, I moved to Lone Pine (mile 122 on the race course) to practice medicine, where I have been ever since. In 1965, I was offered office space across from Furnace Creek Inn. I went there on my "days off" during the Harvey Company's tourist season (October to May) for over twenty five years. At the time I had an airplane (Cessna 205) making the trip easier and more fun. During those years, after seeing patients at the clinic, I would train in and around the area.

In the decade from 1977 to 1987, I had (later) heard that there were about 10 individuals (with documented records) who did a solo crossing from Badwater to the top of Whitney (146 miles) as well as about ten others who are on record. About this time, Hi-Tec Sports, USA, created a race on the Badwater to Mt. Whitney route in order to promote the "Badwater 146" running shoe. In 1989, seven finished.

In 1990, there were seventeen finishers and I knew two runners who had been "invited." I went out on the course to try to find them but couldn't as they were doing the "bed

and breakfast" version. The first runner I saw was "Marshall." and, at the time, I thought that was his last name. Later I met other faster frontrunners, followed by those runners "reduced to walking." My thoughts were, if I just walked, I could do it also.

In 1991, I asked to be "invited" and was accepted about three weeks before the event. Over the Fourth of July Holiday, I was "walking" along near Keeler when a vehicle pulled over to see what was happening. It turned out to be Tom Crawford, Rich Benyo, Rhonda Provost, and Drew Benyo on their way to their annual training camp at Panamint Springs Resort. I was already familiar with their article, "From Fire to Ice to Fire" in *UltraRunning Magazine* and Richard's book, "Death Valley 300." I asked to be "invited" to train with them so, on the next day; we did a practice run from Badwater to Furnace Creek. (Editor's note: Crawford, R. Benyo, and Provost are all Badwater Ultramarathon Hall of Fame members.)

Later, after my first successful "race" in 1991 they were even more impressed that I had taken time out during the race to do an autopsy. It was on a fallen trekker who was not successful in navigating the saltpan of Lake Manley (Death Valley). They also liked the idea that one of my cooling devices was a water-filled casket in a U-Haul truck. These happenings lead to the concept of "Mayor" and "First Lady" of Badwater. After that I had two more successful crossings, in 1992 and 1993. My wife, Denise, also subsequently had three successful crossings, in 1994, 1996, and 1999.

Denise and I got married in 1990. In the early '90's, we began to bump into other runners training for Badwater. We began organizing heat-training clinics to help the athletes prepare for the races. We held them on Memorial weekend and Fourth of July weekend each year. Over the years we got to really know the folks who attended and their crew members, pacers, family members, as well as some interesting newbies and wannabes. It made it much more interesting and fun when the race finally happened each year. We were able to provide useful information about replacement of fluids, electrolytes and calories as well as heat adaptation. This has translated into a success rate of about 85% for the attendees. In addition, we have crewed (and paced) runners during some of the races as well as some on their own solo adventures.

Denise and I were in the 1994 race as the "Mayor" and "First Lady" of Badwater. She was successful in getting to the Portals and to the top of Whitney. I had renal failure and dropped at 41 miles. We both entered in 1996, but as two separate teams. Again, she was successful in making it to the Portals. A storm kept her from making the top that year. I dropped due to exhaustion from overwork and issues of depression (not race related). She was again successful in 1999.

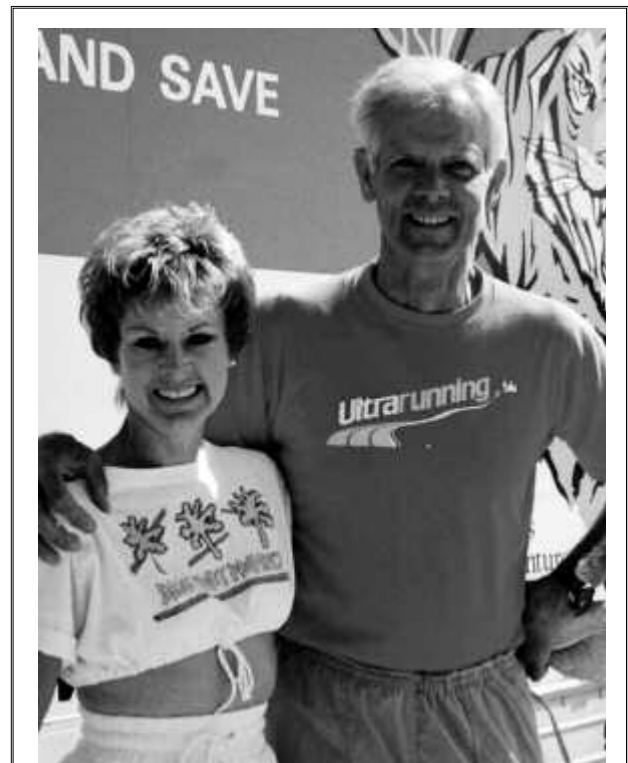
1999 was a big year for media coverage. Kirk Johnson, sports editor for the New York Times, came to our clinic and did the race that year. Following his performance he wrote a book entitled "To the Edge." Also, "Running on the Sun" was directed by Mel Stuart and produced by Leland Hammerschmitt in 1999. Kirk Johnson, Marshall Ulrich, Lisa Smith, and many others are featured in this production, along with me.

I turned 70 at the end of 2002 and decided to try it as the first ever 70-year old in 2003. This time I suffered from the 139 degree temperatures and my own 101 degree internal temperature. I decided, being the only one on call for the Inyo and Mono Coroner's Offices that I didn't want to have to do an autopsy on myself. Besides that, I was having hallucinations about being in the Garden of Eden and seeing Mary Magdalene as well as being wrapped in a shroud (of Turin).

Other athletic experiences in the area have included the annual Death Valley-Whitney bike race, which I did eight times in a row. In 1991, I ran the first Titus Canyon/Death Valley Marathon (and the four after that). Actually, I had practiced on that course on my own before that.

Our further involvement in Death Valley included supporting the following: (1) Marshall Ulrich's South-to-North

Crossing of Death Valley National Monument; (2) Marshall's Death Valley Solo, Unsupported Crossing (we were present with the camera); (3) Scott Weber in his Oasis-to-Oasis Triple/Quad; (4) Denise helped Rhonda Provost by pacing her up and down Mt. Whitney as the first woman to do the Double Crossing in 1995; (5) Denise crewed Shannon Farar-Griener as the first woman to do the Double Crossing within the race context; (6) Denise crewed for Adam Bookspan in the South-to-North Crossing in 2002; (7) Denise crewed for Lisa Smith-Batchen with Double Crossing in 2006. 8) Last summer, I had the pleasure of helping Scott Jurek, along with his wife, Leah, with a day of desert training as well as filming his workout performance. I then crewed for Pam Reed during the 2006 race.



**Ben and Denise Jonse
Badwater Ultramarathon Race Finishes**

Ben: 1991, age 58, 49:50:05

Ben: 1992, age 59, 51:04

Ben: 1993, age 60, 50:14:32

Denise, age 48: 1994, 55:32:15

Denise, age 50, 1996, 52:04

Denise, age 53, 1999, 45:54

Denise has crewed for the race and in solo crossings a total of 15 times, which includes 3 double crossings. This led to her to join with Theresa Daus-Weber in writing a book about crewing. "Death Valley Ultras: The Complete Crewing Guide" was published in May 2006. It is a technical guide with a comprehensive collection of information to plan and crew a successful Death Valley ultra with instructions, tips, a list of the known Death Valley crossings, and a photo gallery of views from the Badwater Ultramarathon course.

There were two nice publications during 2006. The first was an article featuring me in Best Life (Men's Health), by Rodale Publications in the March 2006 issue. The title of the article is, "A Prescription for Lifelong Health." A photographer visited me and took 20 rolls of 12 shots each with his Hasselblad camera using IMAX film; one was used in the article. Then I was interviewed by the executive editor for three hours for the two-page article. The second was a DVD

produced by PBS/Nature entitled, "Life in Death Valley." While they were there on a half-dozen trips, not only did they film the wildlife, but they were also involved in flash floods, a once-in-a-lifetime wildflower display, and the Badwater Ultramarathon. I was pleased to be a part of the feature.

All in all, we have seen this Race from a complete perspective: participant, camp host, volunteer, crew member, "Race Ambassadors," as well as "Mayor" and "First Lady."

Badwater/Whitney has become a way of life for us. Doing the race is not necessarily "good for the body," but is offset by being good for the mind, soul, and spirit. The concept of adventure racing and extreme sports is here to stay. We enjoy keeping up with our friends and meeting more people who share the same types of adventures.



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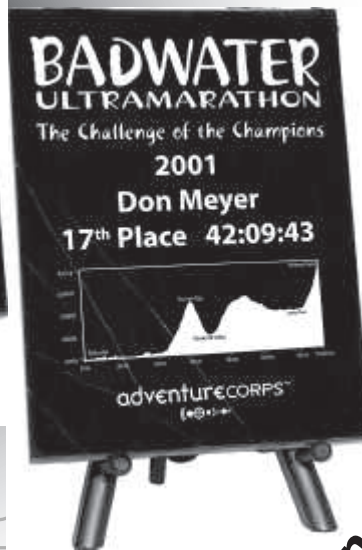
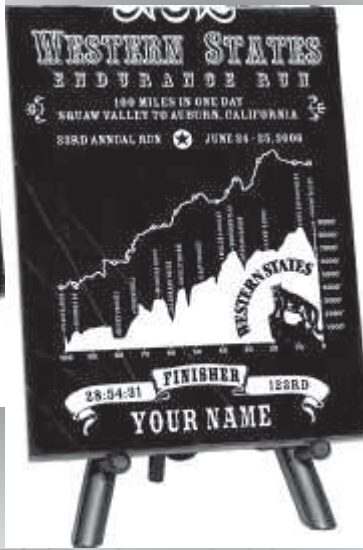
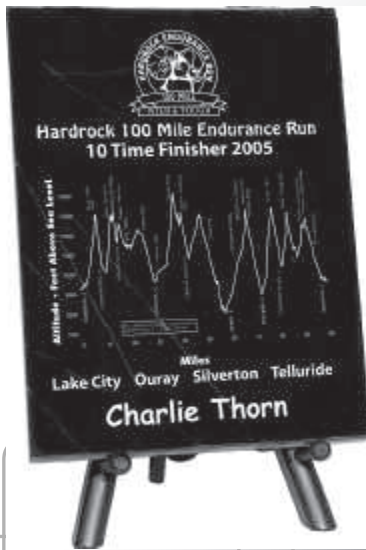
Finland has produced so many brilliant distance runners because back home it costs \$2.50 a gallon for gas.

Esa Tikkanen, 1979



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Badwater



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THE DANGERS OF RUNNING IN THE HEAT

By Jason Hodde, MS, ATC/L

Running in hot weather can pose many dangers to ultrarunners. Although most runners are aware of the dangers of running for prolonged distances in hot and humid weather, many are also inadequately prepared for the intense stress placed on the body during these hot weather runs.

Scott Jeruk takes one of many ice baths in 2006.

In July 2002, I participated in the 25th anniversary of the Badwater Ultramarathon, a 135-mile trek from the lowest place in the continental United States (Badwater Basin), through Death Valley National Park, and to the foot of Mount Whitney, the Whitney Portals, at an altitude of 8,360 feet (2,548 meters). The run was held in the middle of one of the most severe heat waves southern California has ever seen. In preparation for the run, I made sure my crew was aware of the signs and symptoms of heat illness, as well as how to treat me should problems occur. Here are some of the dangers of ultrarunning in the heat, and preventative measures that can be taken to avoid potential problems.

The Heat Index

The heat index is the apparent temperature felt by the body due to the combined effects of actual temperature and humidity. Most people understand that as the air temperature goes up, so does the heat index, but humidity also plays a role. As the humidity rises, the body is unable to efficiently evaporate the sweat it produces. Therefore, the perceived temperature is much higher than the actual air temperature. The loss of cooling efficiency thus makes exercise extremely dangerous.

Although it is convenient to use a single number to describe the apparent temperature your body feels, keep in mind that heat and humidity affect everybody differently.

	Air Temperature (Degrees F)										
	70	75	80	85	90	95	100	105	110	115	120
Relative Humidity	Heat Index										
0%	64	69	73	78	83	87	91	95	99	103	107
10%	65	70	75	80	85	90	95	100	105	111	116
20%	66	72	77	82	87	93	99	105	112	120	130
30%	67	73	78	84	90	96	104	113	123	135	148
40%	68	74	79	86	93	101	110	123	137	151	
50%	69	75	81	88	96	107	120	135	150		
60%	70	76	82	90	100	114	132	149			
70%	70	77	85	93	106	124	144				
80%	71	78	86	97	113	136	157				
90%	71	79	88	102	122	150	170				
100%	72	80	91	108	133	166					

Data from the US National Weather Service

Several assumptions are made to calculate the heat index measurements in the table below. Specifically, the heat index assumes the body to be:

- 5' 7" (170 cm) in height
- 147 pounds (67 kg) in weight
- Caucasian
- At 98.6° F (37° C) body temperature
- Clothed in long pants and a short-sleeved shirt
- In shade
- Walking at a speed of 3.1 mph (5 kph)
- In a breeze of 6 mph (10 kph)
- Not dripping with sweat

Changing any of these factors can either increase or decrease the heat index from those shown in the table. Be aware that heat index values of over 100 significantly increase your risk of heat-related illness.

Heat Illnesses

There are three major heat illnesses—and all of them can be exacerbated by ultra distance running and prematurely end an ultrarunner's race. In all cases, the main reason that runners experience heat illness is dehydration. If you replace lost fluids and electrolytes and are able to train your body to process a high volume of fluid in a short period of time, you significantly decrease the risk of experiencing these race-ending medical emergencies.

Heat cramps: Exercising in hot weather can lead to muscle cramps, especially in the legs. This is usually caused by imbalances or deficiencies in your body's electrolyte stores. A cramp is characterized by sharp, stabbing pain in the muscle and rarely works itself out on its own. On a training run earlier this year in Death Valley, many runners complained of cramps in their legs; I suffered from cramps in my diaphragm and had difficulty breathing for more than an hour! Cramps become less frequent with heat training, but for those of us unaccustomed to such extreme conditions, maintaining adequate hydration and electrolyte balance is critical to avoiding them. To eradicate cramps, you should stop running, drink fluids containing electrolytes, cool your body with wet towels, and immediately get out of the sun.

Heat exhaustion: Losing fluid and electrolytes through sweat leads to dizziness and weakness if the lost fluids are not replaced. Heat exhaustion is characterized by a moderate rise in body temperature, dizziness, nausea and vomiting, and a headache. You might also experience weakness, lack of coordination, heat cramps, heavier than usual sweating accompanied by moist and cold skin, and "goose bumps." Your heart rate may rise and you won't be able to run as fast due to fatigue. Many runners—even those who are well trained—will suffer from mild heat exhaustion after running for several hours in hot and humid conditions. If you experience the signs of heat exhaustion, stop running immediately and drink fluids containing electrolytes, cool your body with wet towels, lie down and elevate your feet a few inches above your heart, and immediately get out of the sun. Since heat exhaustion can lead to the most severe form of heat-related illness, heat stroke, seeking prompt medical attention for heat exhaustion is also highly recommended.

Heatstroke: In extreme cases heat can upset the body's thermostat, causing body temperature to rise to 105 degrees F or higher. This is a life-threatening situation that requires



Dr. Lisa Bliss tends to Jody Lynn-Reicher during the 03 race.

immediate medical attention. While it is common for untreated heat exhaustion to rapidly progress to heatstroke, heatstroke can (and does) occur without the signs of heat exhaustion being apparent. Symptoms of heatstroke include lethargy and extreme weakness, confusion and odd or bizarre behavior, disorientation and unconsciousness. Because heatstroke is a complete failure of the body's temperature regulation system, sweating ceases and the skin becomes hot and dry. Convulsions or seizures can occur as the brain begins to shut down. Coma and death are also possible in extreme cases. Heatstroke is a medical emergency that requires immediate medical attention. Call the emergency response system immediately! Get the runner out of the sun, remove all clothing, and immediately rub their body with ice or immerse the runner in cold water.

By staying properly hydrated and recognizing the early warning signs of heat illness, as a runner you can prevent a heat-related problem from becoming a life-threatening situation. As a volunteer, recognizing these heat-related dangers may one day help you save the life of a runner who has underestimated the intensity of the surroundings.



About the Author:

Jay is a nationally Certified Athletic Trainer (ATC) licensed to practice in Indiana. He holds Master's degrees in Exercise Physiology and the Basic Medical Sciences, both from Purdue, with an emphasis on tissue repair and healing. He is currently pursuing a Ph.D. in Pathology, where his emphasis is on the immunopathologic response to soft tissue implants. Jay also works full-time as a scientist for Cook Biotech Incorporated, a medical device company in Indiana. He has completed over 60 ultramarathons, including the Grand Slam of Ultrarunning and the 2006 Kiehl's Badwater Ultramarathon.



Joe Prusaitis is tended to by his crew in 03.

THE DANGERS OF HOT WEATHER RUNNING

DEHYDRATION, HEAT CRAMPS, HEAT EXHAUSTION, HEATSTROKE & HYPONATREMIA

By Claudio Piepenburg (Originally published by Road Runner Sports)

Running in hot weather can pose dangers to runners. Particularly dangerous is racing in hot, humid summer conditions. Here's how to protect yourself from these five serious (and potentially fatal) conditions.

Dehydration

Dehydration is not limited only to the summer months, although it's probably more likely to occur during that time. Many physicians believe that most people are in a constant state of dehydration. Since coffee, tea, soda and alcohol act as a diuretic, anyone who drinks these fluids on a daily basis, and doesn't drink at least an equal amount of water, will probably be dehydrated. If the person is physically active, the potential for dehydration is even greater.

Working out in hot, humid conditions promotes sweating, which in turn can cause dehydration. Sweating is good for you because it cools your body, but when you lose too much water you become dehydrated. If you're already slightly dehydrated, sweating will only make it worse. It's important to maintain an adequate fluid intake all the time. Don't expect that you can make up for several days of not drinking enough by downing two cups of sports drink before your next long run or race. It's important to keep hydrated all the time. Once you start to feel thirsty, it's too late.

The average (sedentary) person needs a minimum of eight 8-ounce glasses of fluid a day. Runners need more: anywhere from four to eight quarts of fluid. That translates to at least sixteen 8-ounce glasses daily. Remember that diuretics don't count! Drink water and sports drinks, and if you don't have to worry about calories, fruit drinks or juice.

Two hours before your daily summer workout or a race, you should drink 16 ounces of fluid. Then ten minutes or so before you start to run, drink another one or two cups of water or sports drink. Drinking early and drinking often is the key. During a race you should drink six to twelve ounces of fluid every 15-20 minutes. If the weather is very hot, you may need to drink even more. Training in warm weather, you should drink at least every 35 to 40 minutes. (Remember you will have already had two 8-ounce glasses before you started.) If you're running a race shorter than 30 minutes, you probably won't need any water other than what you drank before the start. The same goes for the last few miles of a longer race. If you're racing or training for longer than an hour, drink sports drinks as opposed to strictly water.

Start drinking immediately after finishing a run, no matter if it was a race or a workout. Minimum is 16 ounces for every

30 minutes you ran. If you tend to sweat a lot, you'll need more. Weigh yourself after you've run. Drink at least 16 ounces of fluid for every pound you lose through sweating.

By monitoring the color of your urine you can tell if you're hydrated. It should be pale yellow or even clear. If it isn't, you need to drink more fluids. It's important that you retain the fluid, so be careful if you're urinating every fifteen or twenty minutes. To restore your fluid balance, eat something salty (a bag of pretzels, salted nuts, crackers or potato chips), then drink a sports drink. The salt will make you thirstier, so you'll take in even more fluid and urine production will decrease.

Heat Cramps

Have you ever seen a runner bent over at the side of the road massaging their calves during a race? Chances are that he or she had heat cramps. Heat cramps are very painful (envision someone stabbing a knife deep into your muscles!) and rarely "work themselves out". The cramps occur because you've lost minerals through sweating and dehydration. Once you've reached the point of heat cramps, it's too late to try to replace fluids on the run. To make the cramps go away you should:

- Stop running
- Drink fluids immediately. The fluids should include sports drinks as well as water
- Massage the muscles once the pain begins to subside
- Cool your body with wet towels
- Get out of the sun

Heat Exhaustion

Heat exhaustion is a very serious condition that can lead to heatstroke. The symptoms of heat exhaustion are:

- Dizziness
- "Goose bumps" (particularly on the torso and arms)
- Nausea (sometimes accompanied by vomiting)
- Moderate to severe headache
- Weak legs
- Lack of coordination
- Rapid pulse
- Heavy sweating often accompanied by moist and cold skin
- Muscle cramping

If you experience any of these symptoms you must:

- Stop running immediately
- Get medical attention

- Drink large amounts of fluids, including sports drinks
- Get out of the sun
- Lie down and elevate your feet above your heart
- Loosen your clothing

Heatstroke

Heatstroke can be fatal. Unfortunately runners will sometimes ignore the symptoms of heat exhaustion (particularly in races longer than 10K) and will continue to push themselves until they're nearing a total thermoregulatory breakdown. The symptoms of heatstroke are very similar to those of heat exhaustion, but rapidly progress to:

- Disorientation
- Weakness in the legs to the point that the runner may fall
- Strange behavior (including flailing with the arms and shoving)
- "Fuzzy" thinking
- Rapid pulse
- Cessation of sweating and hot/dry skin
- Body temperature that may reach 104 degrees or higher
- Lack of consciousness
- Convulsions or seizures
- Coma

Someone suffering from heatstroke needs immediate medical attention. They should be moved out of the sun, cooled by either rubbing their body with ice or immersing them in cold water and given fluids intravenously.

Hyponatremia

Within the last few years the condition known as hyponatremia has begun to attract the attention of sports medicine physicians, exercise physiologists, and the medical direc-



Scott Weber gets the squirt that refreshes in 02.

tors at some of the larger marathons around the country. Hyponatremia has been called water intoxication because of the symptoms it produces. According to Dr. Tim Noakes, Professor of Exercise & Sports Science Director at the University of Cape Town, "...a person with hyponatremia looks like he or she is mildly drunk. They can't concentrate normally...they forget what you were talking about and start to concentrate elsewhere."

Hyponatremia occurs when the body becomes dangerously low in sodium. It's caused when you literally take in too much water. Although scientists have known about it for a long time, it has only been in the last few years as more runners have been competing in marathons that it has become a concern. According to Dr. Noakes, fluid has to be ingested at high levels for several hours for hyponatremia to occur. He suggests that a runner would have to be drinking water regularly for at least four to six hours to develop the condition. So runners taking four to six hours or more to run a marathon are at particular risk.

Unfortunately, symptoms of hyponatremia tend to mimic those of severe dehydration and/or heat exhaustion. By giving the athlete more water to drink the hyponatremia becomes worse, as more and more sodium is flushed out of the system. If a runner with hyponatremia is given fluids intravenously, they can suffer a fatal reaction. Dr. Noakes

and other sports medicine professionals recommend that physicians and other medical personnel at road races be alert for the signs of hyponatremia. One of the earliest symptoms is a craving for salty food.

Although hyponatremia is rare, it's wise to be aware that it can occur, particularly if you're running a marathon in unusually hot weather. Hyponatremia serves as a reminder that water is good, but don't forget sports drinks, which replenish your body with the sodium, potassium and other trace minerals you lose through sweat. It's worth repeating: if you're going to be running (or racing) for longer than an hour, you should be drinking a sports drink as well as water.



About the author:

Claudia Piepenburg has been running for 21 years and is the current editor for Peak Run Performance. She holds or has held state age-group records in Michigan, North Carolina, Florida, Tennessee and Virginia. In 1990, she was ranked 18th fastest masters woman in the world and 8th fastest masters woman in the U.S. in 1990 and 1991. She competed in the 1988 Olympic Marathon Trials, was 20th woman overall in the 1987 Boston Marathon and women's winner of the 1986 Virginia Beach Marathon. If you have questions or comments for Claudia, she can be reached at cpiepe@roadrunnersports.com.

Medical Risks in the Badwater Ultramarathon

This 135 mile race is probably the most physically taxing competitive event in the world. It also has considerable medical risks. All runners and crews must appreciate these two facts both before and during the race.

Heat illness and heat stroke are serious risks. These can cause death, renal shutdown, and brain damage. It is important that runners and crews be aware of the symptoms of impending heat illness. These include: nausea, vomiting, headache, dizziness, faintness, irritability, lassitude, weakness, and rapid heart rate. Impending heat stroke may be signaled by a decrease in sweating and goose bumps, especially over the chest.

Heat stroke may progress from minimal symptoms to complete collapse in a very short period of time. Deaths and renal shutdown (kidney failure) have been reported in other ultra-marathons. Adequate conditioning is mandatory.

Adequate fluid and electrolyte intake is the most important preventative for heat illness. Runners may well require dozens of gallons of fluid during this race. Proper pace is crucial.

The high altitude plus exertion can also produce various degrees of altitude sickness. This can lead to severe lung and brain swelling, and even death. The main treatment is rest, and especially to get to a lower altitude.

Blisters are also a problem on this course, with pavement temperatures perhaps reaching 200 degrees. Proper foot care & preparation are essential for having a successful race.

Remember, you are responsible for your well-being while participating in this race. There are no aid stations. Know where your limits are and know your body. Your acceptance of invitation to this race declares that you are aware of the risks & potential health problems.



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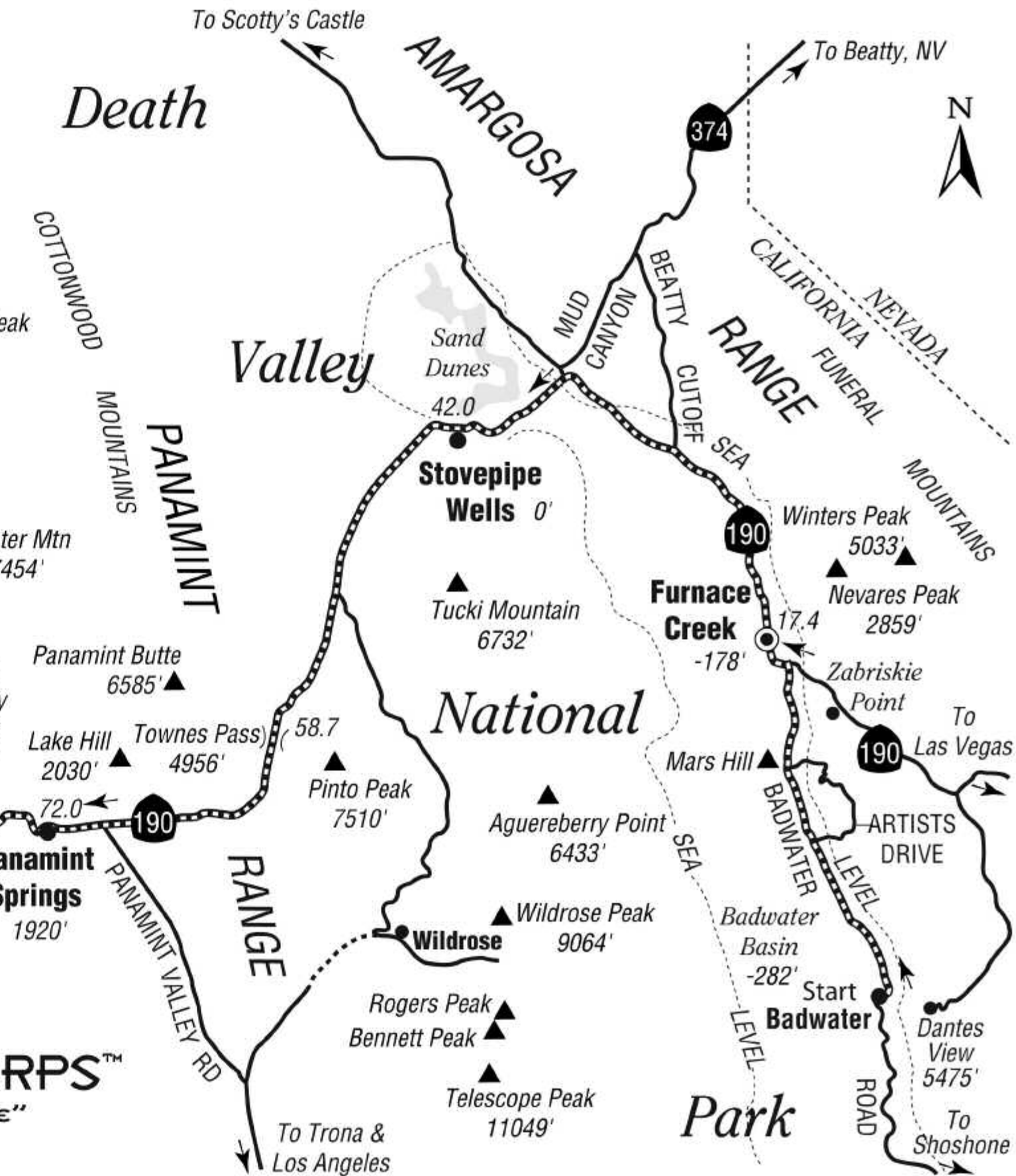


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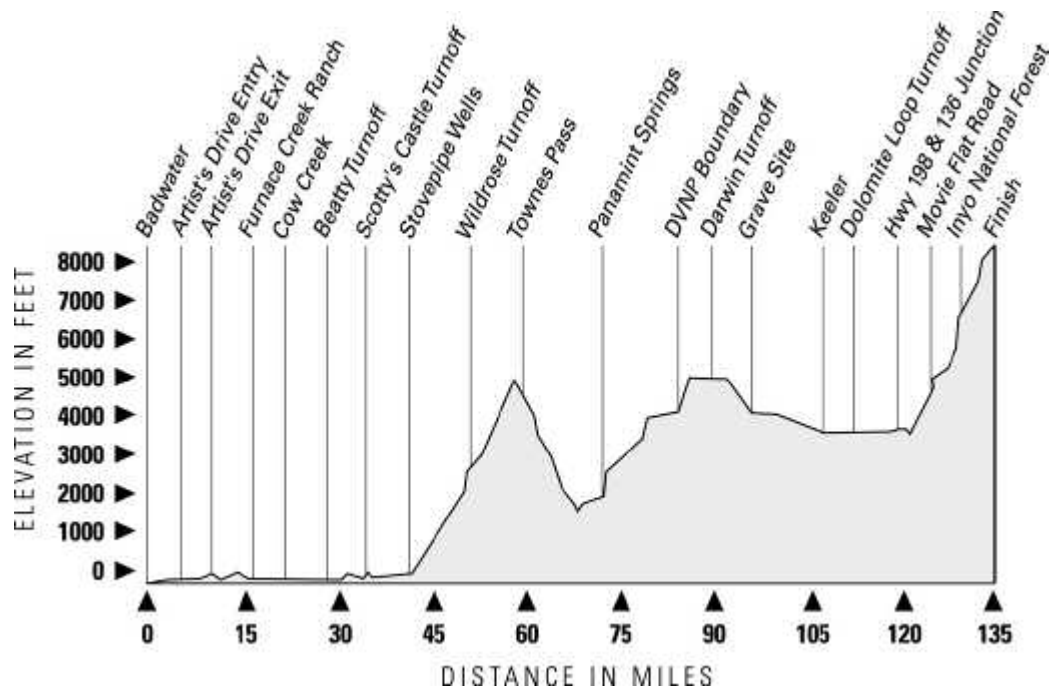
OFFICIAL RACE ROUTE

<i>Landmark</i>	<i>Distance (mi.)</i>	<i>Elevation (ft.)</i>	
Badwater	0	-282	
Telescope Peak Sign on L.	1.8	-200	
Wide Shoulder on R.	3.1	-200	
Natural Bridge on R.	3.5	-170	
Devil's Golf Course on L.	5.5	-165	
Artist's Drive entry on R.	7.9	-165	
West Side Road on L.	10.5		
Artist's Drive exit on R.	11.6	-70	
Mushroom Rock on R.	12.9	-170	
Golden Canyon on R.	14.4	-165	
Hwy 190 & 178 – Go Left	16.4	0	
Furnace Creek Ranch on L.	17.4	-165	-First Time Station on Left after entrance
Chevron Gas and ice on L.	17.6	-165	
Visitor's Center on L.	17.7	-170	
Harmony Borax Works on L.	19.0	-170	
Cow Creek on R.	20.7	-170	
1st Marathon	26.2	-170	
Beatty, NV turnoff on R.	28.3	-165	
Salt Creek turnoff on L.	30.7	-165	
Sea Level Sign on L.	31.9	0	
Scotty's Castle turnoff on R.	34.7	-130	
Sea Level Sign on L.	35.2	0	
Sand Dunes turnoff on R.	35.8	0	
Devil's Cornfield sign on R.	36.1	-80	
Sand Dunes on R.	39.9	0	
Stovepipe Wells Village	41.9	0	-Second Time Station on Right before Store
Mosaic Canyon turnoff on L.	42.1	5	
1000' elevation sign	46.6	1000	
2000' elevation sign	50.5	2000	
Wild Rose turnoff on L.	51.0	2500	
2nd Marathon	52.4	2800	
3000' elevation sign on L	53.3	3000	
4000' elevation sign on L.	55.7	4000	
2nd Radiator Water Tank on R.	58.5	4900	
Townes Pass summit	58.7	4965	
4000' elevation sign on R.	61.5	4000	
Vista Point (view of Whitney)	62.2	3500	
3000' elevation sign on L.	63.8	3000	
2000' elevation sign on L.	66.1	2000	
Adopt-a-Highway sign on R	67.7	1800	
Panamint lake bed, east edge	68.1	1640	
Panamint lake bed, west edge	69.1	1640	
Trona turnoff on L.	69.8	1750	
Panamint Springs Resort	72.3	1970	-Third Time Station on Left at Resort

2000' elevation sign on L.	72.9	2000	
Darwin Falls turnoff	73.3	2500	-Dangerous, narrow area! - miles 74 to 81*
3000' elevation sign on L.	75.8	3000	
3rd Marathon	78.6	3400	
4000' elevation sign on L.	80.2	4000	
Father Crowley's Point on R.	80.2	4000	
DVNP Park Boundary	84.9	4200	
Saline Valley turnoff on R.	86.0	4800	
5000' elevation sign	87.0	5000	
Darwin turnoff on L	90.1	5050	-Fourth Time Station on Left at turnoff
5000' elevation sign on L.	92.4	5000	
Grave Site on R.	96.3	4100	
27.5 mile post marker	100.0	4050	
4000' elevation sign on L.	101.6	4000	
Hwy 136 & 190 – go straight	102.9	3935	
4th Marathon	104.8	3800	
Keeler	107.8	3610	
Adopt-a-Highway sign on R.	108.5	3605	
Dolomite loop turnoff on R.	112.6	3600	
Dolomite loop turnoff on R.	116.9	3610	
Owen's River	117.7	3610	
Junction Hwy 136 & Hwy 395 - Go Right	120.3	3695	
Dow Villa Hotel on Right	122.3	3610	-Fifth Time Station on Right at Dow Villa
Portal Road light – go Left	122.4	3610	
Tuttle Creek turnoff on L.	122.9	3770	
LA Aqueduct	123.0	3855	
Lone Pine Creek	124.1	4200	
Movie Flat Road on R.	125.1	4590	
Lone Pine Creek	125.3	4800	
Horseshoe Meadow on L.	125.5	5000	
Cuffe Ranch turnoff on R.	126.7	5100	
Olivas Ranch turnoff on L.	128.0	5300	
Lone Pine Campground on L.	129.0	5700	-Dangerous, narrow area! - miles 129 -135*
Lone Pine Creek	129.2	6000	
Inyo Nat. Forest sign on R.	129.5	6400	
Large pullout on R.	130.8	6890	
5th Marathon	131.0	7000	
Switchback to left	131.7	7215	
Vista Point	132.4	7400	
"Campsites 39-44" sign on R	133.3	7700	
Meysan Lakes trailhead on L.	133.5	8035	
Family Campsites	133.7	8100	
Overflow Parking	134.3	8200	
Finish	134.4	8360	

Official distance is 135.0 miles. Remember all car odometers have error. Distances above are accurate in a relative sense, but you may find variation in the overall distance, as we did when creating the above routesheet.

COURSE DESCRIPTION



Badwater, Death Valley

The race begins here adjacent to a pool of saltwater located at the lowest place in the Western Hemisphere.

Furnace Creek Ranch, Mile 17.4

The first oasis in our journey. A gas station, small general store, hotel, restaurant, camping, and ice machine are available.

Stove Pipe Wells, Mile 41.9

A small market, gas station, restaurant and motel. This is not open 24 hours.

Townes Pass (4956'), Mile 58.7

Long ascent, then long descent, followed by approx. 12 long straight miles. It's a steep and narrow road with limited opportunities to park. Support vehicles, crews, and runners must be cautious and extra aware of the traffic.

Panamint Springs Resort, Mile 72.3

Restaurant, gas station, and motel with limited hours. A long, steep climb follows on a steep and narrow road with limited opportunities to park. Support vehicles, crews, and runners must be cautious and extra aware of the traffic.

Father Crowley's Turnout, Mile 80.2

This isn't the top. The road continues to rise to 5000' over rolling hills, then eventually descends into the Owen's Valley.

Keeler, Mile 107.8

A small mining town with no facilities.

Lone Pine, Whitney Portal Road, Mile 122.2

Lone Pine offers the weary runner and crew all the amenities of a real town: fast food, pizza, restaurants, motels, gas stations, grocery stores, and more, not to mention our Webcast Headquarters. Restock here for the climb to the portals. Turn left onto the Whitney Portal Road to begin the final leg, the longest and steepest climb of the race. Temperatures will steadily decrease. Be prepared with extra layers of clothing and rain gear the final few miles. Be sure your support vehicle is completely off of the road and that you do not block traffic.

Mt. Whitney Trailhead, (8360'), Mile 135

Congratulations! You have finished the most extreme running race in the world! A small diner/shop are open daylight hours. There is also a stocked fishing pond and a campground.



The Death Valley Cup recognizes those athletes who complete both the Badwater Ultramarathon 135 Mile Running Race and the Furnace Creek 508 Mile Bicycle Race in the same calendar year. This is a form of recognition for those athletes who complete both races in the same year, and also an actual plaque that is awarded each time an athlete breaks the current overall record for either the men's or women's divisions. Thus, there are, at any given moment, two Death Valley Cup Record Holders, as well as an ongoing, slowly increasing list of Death Valley Cup Finishers. To earn this recognition is a very significant achievement in endurance sports and especially for those athletes who have come to know and love Death Valley and its environs.

Current Death Valley Cup Record Holders



Kaname Sea Lion Sakurai, 36,
Nagoya, Japan

- 2000 Badwater, 27:52:14, 3rd place
- 2000 Furnace Creek, 32:31:56, 2nd place

 =60:24:10 total time*



Monica Scarlett Fairy Cup Scholz,
39, Jerseyville, Ontario, Canada

- 2006 Badwater, 32:07:01, 1st female, 8th overall
- 2006 Furnace Creek, 40:00:02, 2nd female, 27th overall

 =71:07:02 total time*

- 2004 Badwater, 29:22:29, 1st female, 3rd overall
- 2004 Furnace Creek, 44:29:15, 2nd female, 27th overall

 =73:51:44 total time

(*To receive the Death Valley Cup plaque, these combined record times must be broken.)

**For information on Furnace Creek 508, visit:
www.the508.com**

Death Valley Cup Finishers

Patrick Golden Eagle Candé, Tahiti, French Polynesia, 48
 2005 Badwater, 34:13:21, 7th place
 2005 Furnace Creek, 36:52:12, 37th place
 =71:05:33 total time

Marshall Unicorn Ulrich, Ft. Morgan, CO, 43
 1996 Badwater, 33:01, 1st place
 1996 Furnace Creek, 38:32:45, 16th place
 =71:33:45 total time

Jean Michel Manta Ray Monot, Tahiti, French Polynesia, 45
 2005 Badwater, 36:51:12, 11th place
 2005 Furnace Creek, 36:53:48, 31st place
 =72:45:00 total time

Steve Desert Duck Teal, Phelan, CA, 40
 2005 Badwater, 43:56:20, 34th place
 2005 Furnace Creek, 35:39:52, 29th place
 =79:46:12 total time

Angelika Cat Castaneda, San Diego, CA, 56
 1999 Badwater, 36:58, 1st place
 1999 Furnace Creek, 43:46:40, 3rd place
 =80:44:40 total time

Steve Desert Duck Teal, Phelan, CA, 41
 2006 Badwater, 42:29:16, 32nd place
 2006 Furnace Creek, 41:24:06, 29th place
 =83:53:22 total time

David Jackass Jackson, Lexington, KY, 43
 2002 Badwater, 47:12:30, 25th place
 2002 Furnace Creek, 38:56:12, 15th place
 =86:08:42 total time

Del Spider Scharffenberg, Portland, OR, 52
 1997 Badwater, 48:16, 13th place
 1997 Furnace Creek, 42:15:26, 10th place
 =90:31:26 total time

Charlie Lizard Liskey, Somis, CA, 40
 1996 Badwater, 58:26, 14th place
 1996 Furnace Creek, 39:32:08, 17th place
 =97:58:08 total time

GETTING YOUR FEET TO THE STARTING LINE

By Gillian Robinson and Don Lundell, [ZombieRunner.com](#)

While extreme endurance events, such as the Kiehl's 2006 Badwater Ultramarathon, are tough, it's the training that can really beat you up. And one body part that particularly suffers is your feet. Runners do all kinds of great things in training, focusing on distance, hills, speed, nutrition, but often forget their feet. By the time you reach the starting line, it's too late to fix the mistakes you made in training. But if you spend some time taking care of your feet before the event, it can make a huge difference between finishing feeling good and a DNF.

When I worked on feet at the Western States 100 Mile Endurance Run, I became very aware of how badly runners had treated their feet BEFORE the run. The damage I saw wasn't a result of running the race through rugged canyons, it was typically the result of months of foot abuse, that then turned into a debilitating injury on race day. For example, a common problem is thick callus build-up on the ball of the foot. Under extreme conditions of technical trails, heat, and dehydration or electrolyte imbalance, the skin can easily become separated from the bottom of the foot, with large blisters forming under the callus. Treatment on the spot is practically impossible for this type of injury. Blisters can't be drained through calluses, so the best that can be done is to tape over the foot to basically hold the skin on. It's a painful way to finish, and even more painful if you can't finish.

Here are some key focus areas of foot care during training.

Finding the Right Shoes (and Socks)

Poor shoe fit is the number one cause of blisters. Work on this well in advance of your event. Shoes need to have a roomy toebox, arches that line up with your arches and are not intrusive or cause pressure points, heels that fit securely and don't rub, and laces that you can tie without them digging into your feet. Also check for the collar of the shoe hitting against your ankle bone. Small problems with fit will be magnified in endurance events. The heat will make your feet swell, so you'll want to start in shoes that are slightly large. You may want an extra pair that's even larger. Many Badwater entrants have extra shoes that are one or even two sizes bigger in their support van. The other entrants usually wish they'd done the same. An important part of wearing oversized shoes is that you use an insole that matches your feet. Going up a shoe size changes the alignment of the shoe

with your arch, and can cause blister problems. Check for any rough patches in your shoes or insoles. One product you can use to fix this is Enjo patches. They adhere to your shoe to reduce friction BY covering up rough or lumpy spots.

Test the shoes for the distance and race surface. If you use after-market or custom insoles, make sure the combination works well together. In addition, you must find the right socks. For Badwater, you need materials with the best wicking capabilities possible. Your feet will sweat, so anything you can do to reduce moisture will help. Avoid cotton socks. Although some runners like wool, it's a poor choice for these conditions. Socks made of synthetic fabrics tend to have more technical features built into them. Many Badwater runners use Injinji five-toe performance socks because they are comfortable and practically eliminate the chafing between toes that causes blisters. They allow your toes to work with the rest of your feet, like the difference between mittens and gloves for your hands.

Getting Rid of Calluses

As you keep pounding pavement over weeks and months of training, your feet naturally toughen up. Places that originally got blisters will no longer get them, and the skin will get rough. While the general effect is good, there is a component of this that is not so good—calluses. Callused skin is too rough and should be removed. Calluses in the heat can separate from your foot and blister underneath or even come off completely, leaving the foot raw underneath. The ball of the foot, heel, and toes, especially small toes, are all problem areas. For small toes, calluses can get so bad that the skin of the whole toe comes right off! Taking care of this problem requires perseverance, but the work will pay off. First, on dry feet, use a pumice stone or a callus reducer (kind of like a rasp) to file down the rough skin. This should be done in stages—do it too aggressively and your skin will be raw. Afterwards, moisturize the foot with a heavy duty cream. The Badwater title sponsor, Kiehl's, makes an excellent product for this purpose, called Klaus Heidegger's All-Sport Foot Cream. Apply the cream after you take a shower also. Work on getting rid of calluses every day that are already built up, then once a week to maintain your foot health. You can apply lotion as often as you like.

Trimming and Filing Toenails

Another mistake runners make is letting their toenails get too long. Use a toenail clipper regularly to keep the nails trimmed, and also use a nail file to keep the edges smooth.

This will help avoid black toenails and blisters under nails, which can be caused by a shoe that's too small in the toe-box, toes that keep bumping against the end of the shoe, or toenails that catch on the top of the toebox. Toenails should be cut straight across to avoid irregular growth, such as ingrown toenails.

If you have previously lost toenails and new ones are growing back, or you have black toenails that are bumpy and ugly, you can fix them up by filing across the top of the nail. Do this when the nails are dry (not after a shower or bath). Your goal is to gradually file down the layers of the nail, so that it's not raised up against your shoe. File the nail before your shower, and then after the shower you can apply tea tree oil. This helps keep the nail healthy.

Learning Your Taping Techniques

Many runners never need to tape their feet for regular distance runs, or even for 100 milers. But Badwater is different. The heat of the road for 135 miles means you need more protection for your feet. For most people, it's tough to simulate race conditions to test various tapes and techniques. But you can still get a good idea of how a tape holds up just by wearing it for a short run and throughout a normal work day. A key feature of any tape used for Badwater

is that it must be breathable. Duct tape is an absolute no-no. Some tapes to consider are Elastikon, Medipore, and Kinesio. All three are stretchable, breathable and durable. They stick well, but in extreme heat will need an adherent to make sure they really hold. Tincture of benzoin comes in bottles and easy-to-apply swabs. Protective taping can be applied in a single layer over potential problem areas. Runners may want to tape the entire foot, covering the heel, all the way through the mid-foot to the ball of the foot. Wider width tapes work best for this, in 3-inch or 4-inch. For toes, it's important to tape in a single layer and not too tightly. Your toes are guaranteed to swell during the run. Tape that doesn't have enough give will constrict the toes and cause blisters. Practice as much as you can with these tapes so that you are prepared for race day.

Taking care of your feet involves dedication and thought, but it will pay off in the long run. Some people spend months and even years finding the solutions that work for them. Every person is different so this is something you need to work on for yourself. With preparation you can avoid race day troubles and finish the race with healthy feet, ready to run another day.



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Are You Giving Your Skin Enough Love?

By Jordan D. Metz, MD



Gracia Walker of Kiehl's poses with some of the many fine skin care products given to the Badwater entrants and staff. Put them to good use!

An interesting thought struck me while lecturing to a group of hard-core triathletes recently. Yes, they are fit, yes they are intense, and yes, they are amazingly motivated people, I thought. But gosh, the ones who have been doing this for a while look a bit weather-beaten.

I kept this thought in mind when I was at a local road race in New York. Again, many of the runners who had been out doing their thing for a number of years looked a bit leathery.

Following this realization, I began an informal survey in my office. "How do you take care of your skin?", I began asking. Much to my surprise, many of my patients did little more than apply sunscreen once on their face briefly at the start of their exercise regimen. (This was, in fact, so interesting to me that I am currently doing a study on this issue.)

The facts on skin-related injury are staggering. It is now estimated that one in 50 Caucasians will develop a form of skin cancer in their lifetime. Rates among people with pigmented skin are increasing as well. This is a substantial increase, especially in the past 15 years. According to Dr. Barney Kennet, a dermatologist based in New York, "the numbers of people coming into my office with sun damaged skin and sun-related cancers has grown tremendously in the past ten years."

What are the factors that lead to sun-damaged skin and skin cancers? With a thinning ozone layer, increased time in the sun leads to increased skin damage.

Who is at greatest risk? Genetics play a role and skin pigmentation and a family history of skin cancer are both important. But even more important is a history of deep sunburn. Repeated, deep, painful sun damage has been strongly linked to pre-cancerous skin lesions.

The key to prevention is avoiding these repeated burns. As Dr. Amy Knopper, a dermatologist from Kansas City told me, "You can't pick your skin pigment, but you can sure pick what you do to with what you've got. Take good care!"

Ok – so that sounds good, but let's get real, triathlons and other endurance events are run during the middle of the day. Personally, I can recall the sun beating down on my back in Kona during the Ironman Triathlon, thinking to myself, "I'm sorry skin, I'm sorry." Much to my dismay, by the way, there is a residual burn on my back from that day, despite my efforts at sunblock use.

Are triathletes and other endurance athletes taking skin protection seriously enough? The hydration message seems to have gotten through, as has the threat of hyponatremia

and the benefits of stretching and weight training. But is the sunburn prevention message resonating? Unfortunately, I'd say, not yet. Yes, there are some aid stations along the course of some races that have sunblock, but often, these are few and far between.

Until we arrive at the day when skin care and sunburn prevention are taken as seriously as they should be, the onus, my friends, is on you. If you are involved in outdoor endurance sports, you must protect your skin. This means consistent use of waterproof sun block. SPF (sun protection factor) means the relative time it will take for you to burn your skin. For example, if you might burn in 10 minutes normally, then an SPF of 15 enables you stay in the sun for 150 minutes without burning. Of course, these numbers have different ramifications for everyone, so being vigilant is key. For me, I try to find a product that stays on when wet and is at least a SPF 30.

Throughout race day, take the extra time to apply a bit more sunblock, even if it "costs you" a few minutes. Likewise, when you are training, load up on skin protection. Slop it on, all over yourself, and make sure to bring some for later. Also, make sure to use adequate head protection to prevent burns to your face, ears, and the top of your head.

And what about getting a tan? As many members (especially female ones) of my triathlon team tell me during our long bike rides, "It's OK to fake it; we all do!" Meaning, if you want to be darker and it's important to you, use fake tan. Even if it doesn't offer sun protection, it's much safer than a real suntan.

And lastly, if there are any new or funny looking moles or patches on your skin, speak to your doctor or dermatologist. (They can be very small, by the way.) All types of skin cancer are treated more easily when they are caught early.

As we spend hours making ourselves faster, fitter, and healthier, let's be sure to remember that our skin needs love. Protect it – unless you are a lizard or a snake, you only get one coat!



Jordan D. Metzl, MD, is a nationally recognized sports medicine specialist at Hospital for Special Surgery in New York City. In addition to his medical practice, Dr. Metzl is a 25-time marathon runner and four-time Ironman finisher.

WHO DRESSED FOR SUCCESS? AND SKIN HEALTH?

From left to right (placing 1st, 2nd, 3rd place in 2005)
Did their clothing choice affect their finishing position?



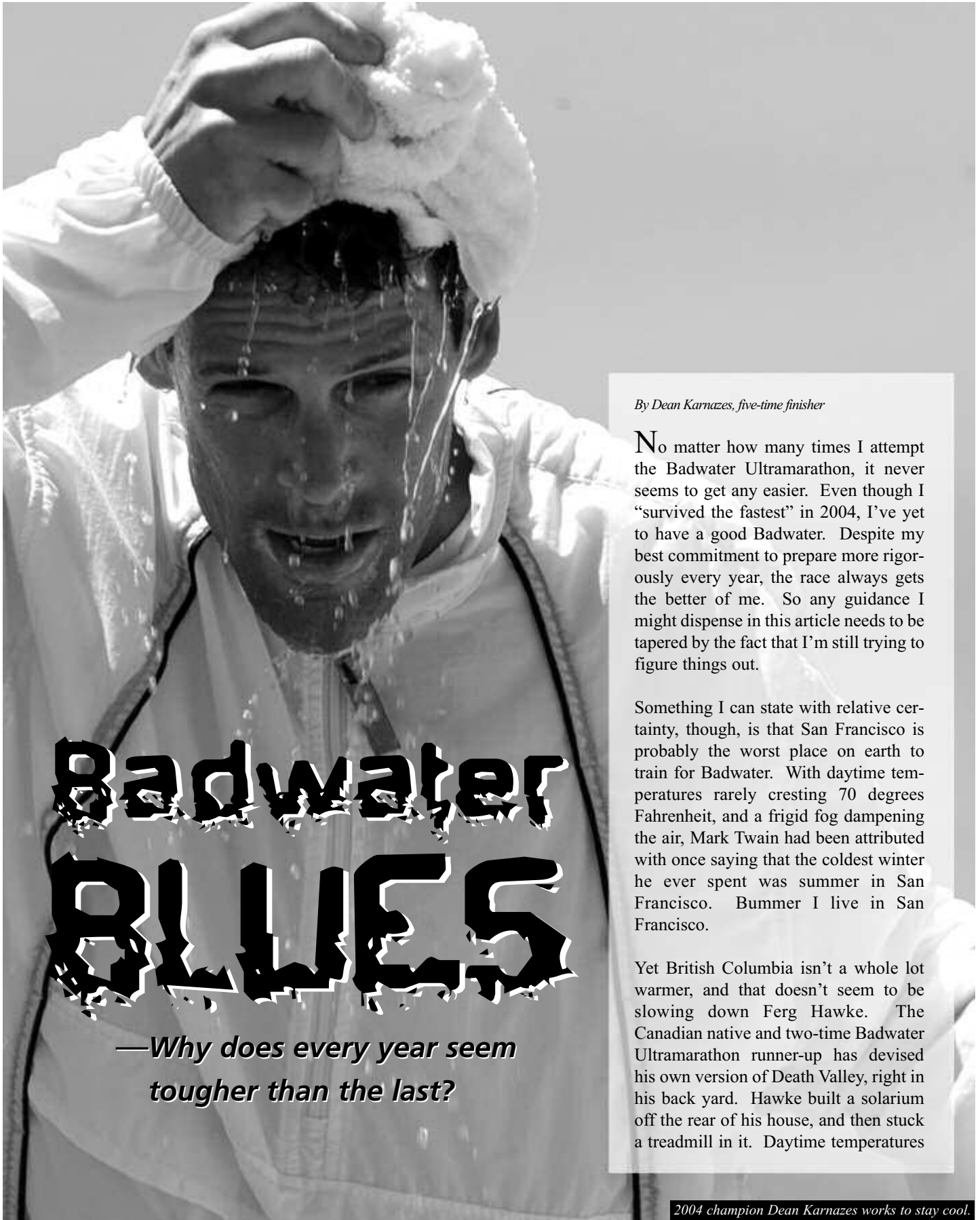
Scott Jurek in loose all white pants, white long-sleeve, white hat, and white shoes.



Ferg Hawke in grey t-shirt, loose black shorts, white hat, and grey shoes.



Charlie Engle in blue t-shirt, tight black shorts, white hat, and dark blue shoes.



By Dean Karnazes, five-time finisher

No matter how many times I attempt the Badwater Ultramarathon, it never seems to get any easier. Even though I “survived the fastest” in 2004, I’ve yet to have a good Badwater. Despite my best commitment to prepare more rigorously every year, the race always gets the better of me. So any guidance I might dispense in this article needs to be tapered by the fact that I’m still trying to figure things out.

Something I can state with relative certainty, though, is that San Francisco is probably the worst place on earth to train for Badwater. With daytime temperatures rarely cresting 70 degrees Fahrenheit, and a frigid fog dampening the air, Mark Twain had been attributed with once saying that the coldest winter he ever spent was summer in San Francisco. Bummer I live in San Francisco.

Yet British Columbia isn’t a whole lot warmer, and that doesn’t seem to be slowing down Ferg Hawke. The Canadian native and two-time Badwater Ultramarathon runner-up has devised his own version of Death Valley, right in his back yard. Hawke built a solarium off the rear of his house, and then stuck a treadmill in it. Daytime temperatures

Badwater BLUES

*—Why does every year seem
tougher than the last?*

2004 champion Dean Karnazes works to stay cool.

inside can reach 130 degrees Fahrenheit, which simulate race day conditions quite nicely. The enterprising ultramarathoner spends three to four days a week inside training leading up to the race.

Still, Hawke realizes the importance of being on the actual course, and also spends time training in Death Valley prior to the event. There isn't anything, really, that can emulate the real deal, not even a 130 degree solarium. They don't call it "The World's Toughest Footrace" for nothing.

When it's 120 degrees outside and there's a 25 mph headwind, having spent time in such elements prior to the race is invaluable. Nothing can prepare you for the arduous climb up Townes Pass like spending time training on Townes Pass. Hawke realizes this, and being the consummate pro that he is, gets out to Death Valley a few times before the event.

There are no "tricks" for running 135-miles across Death Valley in July, but something I've found useful in coping with the "blow dryer in your face" effect is using saline spray to help moisten your nasal passage. As a surfer, I've learned that having saltwater shot up your nose actually helps prevent your sinuses from drying out. Thus I've been bringing a tube of saline spray to Badwater and misting liberally along the run.

I've also found that much of the high-tech running gear I typically wear seems to be the wrong fabric for Badwater temperatures. Having a garment that wicks away moisture is great up to a point, but when temperatures crest 100 degrees, the evaporative cooling effect of such material is disappointingly transient. What I've found to remain coolest longest is thick canvas or terrycloth. These fabrics soak up water and retain dampness for greater periods. The tradeoff is that they're heavy.

The added weight, however, isn't as frustrating as my inability to stay on pace. What I've discovered over the years is something every Badwater veteran already knows: you can't compare conditions one year verses the next. Differences in temperatures, humidity, wind speeds and wind direction, sandstorms, flashfloods, etc...all coalesce to create entirely distinct conditions each year. Trying to compare split times one year against a previous year can be like chasing a mirage.

So how, then, do you best prepare for a race that can throw just about anything your way? "I try really hard not to think about the heat. I just run and drink as much as I pos-

sibly can," says Pam Reed. Staying in the present, and drinking as much as you can, sounds like a prudent strategy. Reed ought to know; not only is she the women's record holder, she's won the thing outright twice, handily disposing of yours truly on one such occasion.

Reed's training secret really isn't much of a secret at all. She lives in Arizona and trains harder than anyone I know: "I run 4 times a day about 45 minutes to 1 hour. This is when it is about 105 or so out." Beyond her natural ability, she's committed to the core, unwilling to accept anything less than total devotion. Her phenomenal results are a testament to her dedication and drive. Train hard, get results. Don't bonk.

And even if you train hard, you still can bonk. Just ask Scott Jurek, who was dehydrated and vomiting after Panamint Springs. "I got behind on fluids," he says, "and paid for it."

But Badwater is about overcoming low points and persevering. Jurek regrouped and went on not only to win the race, but to smash the course record in the process. How did he do it? "The key to turning it around was listening to my body, finding out what was wrong, and then correcting it. It's impossible to fight the body."

So there you have some advice from the best at Badwater on how to make your experience a positive one. My suggestion is to listen to everyone, yet follow no one. What works for others might not work for you. The only "certainty" with this race is that anything less than 100% commitment won't get you across the finish line. Experiment with what works best for you, train like crazy, and hope for cooler temperatures and a tailwind...just don't plan on it.



2004 Badwater champ Dean Karnazes is author of the bestseller, Ultramarathon Man: Confessions of an All-Night Runner. www.ultramarathonman.com



Art Webb, age 61, during the 03 race.

HEAT TRAINING IN A SAUNA

By Arthur Webb, eight-time finisher

The heat in Death Valley in July is extreme. The official weather station is located at Furnace Creek where it can reach 130-degrees. But, in micro-climates, like the Stovepipe Wells area, it is always hotter. Since running in suffocating heat on 200-degree pavement presents health and safety issues, I strongly recommend that all runners take heed and do some type of heat training. I rate its importance in the race survival equation equal to, and possibly greater than race pacing, food or fluid intake.

There are a number of ways to train for the repressive heat that one encounters during the Badwater Ultramarathon. One effective method is to train in the desert as presented by Dr Ben Jones. Another is to simulate the heat conditions by running in layers of clothing as suggested by Stephen Simmons. Articles by these two gentlemen are posted on the Badwater.com website. Either method or a combination of both will help you acclimate and contribute to a successful trek across Death Valley.

When desert heat is not available and one has problems running in lots of clothing, there is the Tom Crawford/Richard Benyo's bake in the sauna option. I have

used their method and firmly believe that it has been a key factor for my eight Badwater finishes.

1. The sauna serves two extremely important functions: First, it prepares the body to deal with the blistering heat in Death Valley. Secondly, but equally important, it gets the body used to drinking and processing the large volume of liquids you are going to need to survive and finish this incredible race.

2. Train every day: Although you may have to take a day off to hydrate or rest, a daily blast works best. Dry saunas simulate Death Valley conditions, but if a steam sauna is available use it at least one day a week. Sometimes storms lash the Badwater area and it becomes extremely hot and humid. Fortunately, I have rotated between dry and steam saunas and have been ready for anything. It has made a difference.

3. The goal is to stay in the heat of the sauna for as long as possible: When I rigorously workout in the sauna I have to leave it too soon, which defeats the purpose (Remember, at Badwater, you are in sauna-like heat all day with no doors to escape). I have better results sitting on the

planks doing a light abdominal workout. I save my harder workout for the daily run, which I do first and then use the hot box. Running after a sauna session is extremely difficult. Save this time for hydrating.

- Some athletes have favorable results using treadmills and stationary bikes inside the sauna. (The extremely elevated heart rate is a concern and may stress the body too much).
- Dr Lisa Stranc-Bliss has had success (37-hour Badwater) using an infrared sauna, which she says “the lower temperatures penetrates deeper and heats the body from the inside just as the sun does.” She is able to stay in much longer in the 130-145 degree range.

4. Be patient: Most saunas top out at the 160-180 degree range. The first few days are the hardest and hottest. After fifteen minutes it becomes overbearing and its time to leave. But, as time goes by you will be able to stay in longer. By the fourth week, you should be able to handle 30-minutes or more at 180-degrees. I use the sauna at a more relaxed level throughout the year, which helps me ease into the extensive four-week regimen listed below.

5. Drink, drink, drink: It is important to hydrate while inside the sauna to replace all the liquids you copiously sweat out. This simulates race conditions and after three weeks the body has been trained to process all the liquids it is going to need.

- I usually take in three 2-liter bottles of ice water. Two bottles are for drinking and the third is for rinsing the body; it acts as a coolant for a minute or so, which helps you stay in the sauna longer.

6. Endurolytes: I take a few Endurolytes while in the sauna. They restore the potassium, magnesium and sodium that I sweat out. I would not run Badwater without them. They work.

7. Time element: You may be pressed for time because of all the training. Everyone has run more than enough mileage, so skip a run or two and just bake in the box. Besides, heat training is much more important.

8. Recovery: After the sauna I lay on a bench for about ten minutes as the body continues to sweat. After the elevated heart rate returns to normal levels, its time for a cool shower and an evening of hydrating. Liquid intake is essential. It enables you to properly train each day.

9. Heat training in the sauna should take no more than four weeks and usually three are sufficient: When you get unexpected goose bumps at work/home or when it's 100-

degrees but feels like eighty, you are acclimated. It is best to stop sauna training at least three days before the race. Don't worry; it takes weeks to loose the saunas heat benefits. It's now time to hydrate.

10. Race Day: Pace yourself, lather up with Kiehl's sun protecting skin products and wear a Sun Precautions or similar type suit and hat (long sleeve Capsilene shirts work well) during the heat of the day. It makes a big difference if you keep the jacket and hat wet. We use a super-soaker (large squirt gun) and I get sprayed with cold water every mile. If the suit dries out it may keep out the ultra violent rays, but it tends to retain the heat and you start baking.

11. Sample four- week sauna training:

Day	Minutes	Temperature
1	15	160
2	15	160
3	15	160
4	15	160
5	20	160
6	20	160
7	20	110 (steam)
8	25	160
9	25	160
10	25	110 (steam)
11	25	160
12	30	160
13	30	160
14	30	160
15	35	160
16	35	160
17	40	160
18	40	160
19	40	160
20	30	110 (steam)
21	45	160
22	30	170
23	40	170
24	45	170
25	30	180
26	35	110 (steam)
27	40	180
28	45	180

That's it. Regardless of the schedule or method you select, any heat training will make running Badwater more tolerable.

Hopefully everyone will complete this incredible race, because crossing the finish line at Badwater is as good as it gets.

Good Luck.





HEAT TRAINING ANALYZED

By Stephen Simmons, 1999 Finisher

After over a month of heat training preparation, I was fortunate to have had a successful run from Badwater to the summit of Mt. Whitney in the July 99 Hi-Tec Badwater race. I had no real knowledge of heat training before I began heat training, but I posted questions about it to the ultra list and got responses from others who had experience

with, or were at least knowledgeable about, heat training.

Many of the ideas expressed were scientific; I did my best to interpret them. Some were more simplified, and out of all of them, I tailored a regimen to suit me personally, as anyone should do. Regardless of the different approaches there are some ideas and beliefs about training for and performing in extreme heat that are common, and as a conclusion to my experience with heat, I will write some of the more basic and simple ideas that I think are sound advice and good knowledge for dealing with it. These are only my

opinions, and this is what worked for me.

1. Your body is a machine.

Your body is a machine that cannot be thrown into a very foreign and hostile environment such as extreme heat and be expected to perform at its usual high caliber. No matter how tough you perceive yourself to be, simply dealing with heat and accepting it won't be enough; you must physically adapt to the rigors of heat beforehand.

2. Simplified, sources of heat are:

A. External, from the environment, real (sun, humidity, air

Rainer Losch and Shannon Farar-Griefer battle the heat in 2005.

temps,) or simulated (heavy layers of clothes that trap heat, blankets, ect...).

B. Internal, generated from physical exertion and output.

C. Both

3. When enduring extreme heat it is most important to stay cool internally.

A. By adding coolant. Drinking lots and lots of cold water and ice, the colder the better.

B. By keeping physical effort to a minimum.

4. External cooling.

People naturally sweat to cool off. In extreme heat however, your body might not sweat enough to cool you off, or, the outside environment might be so hot and dry that any perspiration evaporates off your body before it can have any cooling effect on it. Either way, sweat can be simulated by wearing very lightweight or cotton material clothing, long sleeve and preferably covering the legs also, and soaking, spraying or saturating the clothing with cold water. The wet clothes against the skin will have the same cooling effect as sweat

5. The combination of keeping cool internally by:

A. drinking lots of cold water,

B. generating as little internal heat as possible by keeping physically exertion to a minimum,

C. and cooling externally by producing outside coolant in the form of artificial sweat should keep most people cool in the hottest environments if a person has these resources available.

6. Humidity.

When considering the temperature performing in, take humidity into consideration. From experience I know humidity is a silent killer. It is rare in the West, common in the East. Humidity zaps strength, dehydrates a person very quickly, and does these things suddenly without warning. A warm humid day is probably more dangerous than a very hot dry day.

In my opinion, the best way to deal with humidity is respect it. Even if it doesn't feel that hot, prepare for it by taking it easy and drinking lots and lots. Basically the same as for dry heat; that's why I say, above all else, respect it.

7. Learn to Adapt

Regardless, to perform in a hot environment at a race like Badwater some heat must be generated internally, and heat must be endured. To do so you must teach your body to adapt to the heat by teaching your body to sweat more, and locate a tolerable medium between physically pushing yourself and yet not overheating internally.

8. Over-dressed heat training.

A. Can be dangerous. Use good judgment and train in a safe environment, particularly one that is safe from traffic.

B. In the heat of the day, either go the whole nine yards and train in many heavy layers right from the start and run very limited mileage to understand how you will personally react to it, or, start with more routine mileage with perhaps just a sweatshirt and cold weather cap and add more layers and increase mileage as you adapt.

C. Drink lots and lots of water. Drive to pre-determined spots along your route and put cold water and ice out, or always be close to a source of cold water.

D. Pace yourself. It's easy to feel just as strong at the start, aside from feeling heavy, than normal. It "won't" last. Remember to generate as little internal heat as possible and plan on lots of walking.

E. Be prepared for nausea. In my opinion this results from the large amount of water in your stomach. Consider salt, rock salt, and E-Caps supplements to assist with this.

F. Keep up your energy. Just like in normal training, if you run for x amount of time, energy is needed, and even though you might not feel like eating, you must. You might require less energy intake than normal however. Liquid energy is one of the better or "easier" ways to supplement energy in the heat.

G. Keep your wits. The heat is something that can be very overwhelming mentally. If you start to panic or get the slightest bit confused or dizzy, slow down, sit in the shade, recover and cool down. You won't be able to escape the heat in the actual environment, however, so if at all possible, cool down by resting and minimizing your effort rather than by taking off any clothing. Tolerating the overwhelming heat can be a big moral victory, but when it comes down to it, safety is your main concern.



Dean Karnazes keeps cool in 2006.

H. Make sure others know what you're doing, where you're training, when to expect you.

I. Know the symptoms of heat exhaustion and heat stroke. Prevention is easier than treatment.

J. The frequency of over-dressed training sessions is up to an individual. For me, I opted for about 2 extreme heat sessions a week, and then added one lesser element of heat to each regular training session, by running normally but in the heat of the day, or in the evening wearing a sweatshirt and hat, just always enduring a little more heat than I normally would in order to build an overall tolerance and

acceptance for heat. My most extreme heat sessions consisted of wearing a Coolmax t shirt, a sweatshirt, a thick, insulated navy working jacket topped with a rubber, non-breathable, dark green raincoat and cold weather hat. Plus sweatpants off and on, and towards the end of my preparation gloves as well.

K. Run / Walks with climb from 1-2 hours average. Maximum heat endured dressed like so, 90 degrees + 100 % humidity for 4 hours, 9 miles with climb. Overall 10-11 "extreme overdressed sessions" over 5-6 week period before Badwater.

Important advice.

Have a good crew who has knowledge of what it takes to keep you going in the heat. My crew was very experienced and kept handing me another water bottle of ice water even before I could finish the one I already had. I probably wouldn't have drunk quite as much had it not been handed to me so often. Have your crew think for you and keep you hydrated.

Personal race notes.

Temps at Badwater were lower than normal in 1999 but humidity was high. I stayed well hydrated throughout the race, wore Solar Eclipse sun hat, long sleeved Sun Precautions shirt, shorts. Wore cotton pajama pants some. Very dependable crew misted me down often and I stayed cool and never once suffered with the heat. Successful finish.

Heat-wise, I suffered much more enduring the heat during my over-dressed training than I did during the actual race. In my opinion I was able to perform well because I had physically adapted to heat and had mentally learned to accept heat, in addition to the cooling methods we used during the race.



OFFICIAL RULES

General Race Rules

1.) There are three starting times for the 2007 Badwater Ultramarathon (6am, 8am, and 10am on July 23, 2007), but all racers in all groups are competing in the same race. Runners may attend only their assigned start time. Runners must check in at the start line, ready to race, 30 minutes prior to their start time. Starting Groups are assigned by the race director and are non-transferable. Split times will be collated throughout the race to maintain overall standings. There are only two divisions: men's and women's. The racer to arrive at the finish line in each division with the lowest overall time, based on their starting time, will be considered the winner.

2.) The race number must be worn on the front of the body, unmodified, unfolded, and visible at all times during the race. It may not be worn on the head or hat.

3.) The clock does not stop for any reason until the race course officially closes 60 hours after each designated official start time. All racers must leave the course by the 60th hour.

4.) Running must always be single file, on the far left side of the road or off the left side of the road, facing traffic (pacers, too).

5.) Racers must make their presence known at all Time Stations located along the route. Runner arrival times at Time Station will be recorded.

6.) The race ends at the Mt. Whitney Portal. If you choose to hike to the summit, please remove any official race logos and be sure to have the appropriate permits from the Forest Service.

7.) Racers, crew, and staff must not litter, mar, or pollute the landscape or environment.

8.) All racers, crew and staff must display courtesy, good taste, decorum, and sportsmanship at all times. Nudity is specifically not allowed.

Legal and Bureaucratic Issues

1.) All racers must follow and complete the entire application and entry process, filling out all forms and paying all necessary fees.

2.) All racers must sign the Entrant Contract.

3.) All racers and all crew members must sign the Accident Waiver and Release of Liability / Release of Name and

Likeness. Each entrant must also bring the properly completed Check-In Form to Runner Check-In.

4.) All race vehicles must meet the minimum requirements of property damage and personal injury liability automobile insurance for the state of California. All vehicle drivers must be fully licensed.

5.) All racers and at least one crew member for each entrant must attend Racer Check-In and all of the Pre-Race Meeting. Those racers who do not complete the scheduled check-in and attend the meeting will not be allowed to participate. No exceptions.

6.) All racers must be willing to submit to a drug urine test before, during, or after the race. If any USOC banned substances are detected, the racer will be disqualified from competition and listed as DISQUALIFIED FOR DOPING in the final standings of the race.

7.) No TV, film, or video crew, person, producer, director or other broadcast media representative may accompany or cover any racer or the race itself without the specific written permission of the Race Director. All film crews must sign a Non-Exclusive Licensing Agreement and pay a Rights Fee. Additionally, Death Valley National Park and/or the U.S. Forest Service may also require payment of a filming fee and signature of a filming agreement.

8.) All racers and crew must pay the Death Valley National Park Entrance Fee. Proof must be brought to Runner Check-In. Runners will not be allowed to check-in for the race without proof of paying the Park Entrance Fee.

9.) All entrants must bring one U.S. dollar (or more) in a sealed envelope to the Pre-Race Meeting. Please write the runner number on the envelope. This envelope will not be returned and the money will be donated to charity.

Support Crew

1.) Each racer must be accompanied by a support crew comprised of at least one four-wheeled motor vehicle and two crew members at all times. Each racer must have his or her own personal support crew and vehicle; crew and support vehicles may not be shared, except informally in the spirit of the event, i.e., crews may lend assistance to other racers or crews. NEW FOR 2007: Race entrants may have no more than two support vehicles and no more than six crew members in total (including "unofficial" and "family cheering squads") at the race. This includes at the finish line: no more than six crew and two vehicles.

2.) Runners must progress under their own power without drafting, helping, pushing, supporting, or any other type of physical assistance. Runners may not use walking sticks, ski poles, or the like. So-called "cooling vests" or other types of artificial / technological cooling systems may not be worn or utilized by race entrants. Crew members may not carry an umbrella or shade cover for a runner.

3.) Runners may not be accompanied by more than one pacer at any given time. Additional crew members that are handing off supplies to the runner and/or pacer must be off the roadway at all times (i.e. left of the white line on the shoulder).

4.) Runners must not run abreast with other runners or with pacers on the roadway. All running must be single-file on the roadway. If runners or pacers want to run next to one another, they must be OFF the roadway, i.e. left of the white line. Pacers may not run in front of race entrants at any time.

5.) Crewmembers may not use illegal drugs, stimulants, or dope, as well as alcohol of any kind, during the race or at any official race events or activities.

6.) Runners under the age of 60 may not be accompanied by pacers or moving crew members between Badwater and Furnace Creek.

7.) Wheeled conveyances (other than a motorized support vehicle), including in-line skates, strollers, and bicycles, are prohibited on the course at all times. Likewise for hovercrafts and helicopters. Runners accompanied by any such conveyance will be disqualified.

Support Vehicles

1.) The support vehicle may not be wider than 78" in width, as stated in the manufacturer specifications. Small Cars, Minivans, and SUVs are recommended. All motorhomes, RVs, oversize SUVs, vans, and trucks, or other types of oversize vehicles are strongly discouraged, even as a secondary support vehicle.

2.) All support vehicles must have their headlights on whenever the engine is running, 24 hours a day.

3.) All race vehicles must have highly visible signage on the back of the vehicle stating "CAUTION RUNNERS ON ROAD," as provided by the race organizers at Runner Check-In. Magnetic, reflective, professionally made signs for this purpose can be made to order by your local sign shop instead.

4.) All support vehicles must have their racer's name and race number easily visible on all four sides. This type of

sign can be made, for example, using yellow, white, or pink adhesive shelf paper with at least 6 inch letters. This should be done in advance of coming to Death Valley. Magnetic, reflective, professionally made signs for this purpose can be made to order by your local sign shop.

5.) Vehicle windows may not be blocked or obstructed with any signage, paint, or the like.

6.) Only one support vehicle is allowed for each racer at the Start Line before the race and then between the Start Line and Furnace Creek during the race. This support vehicle may not be an RV or motorhome. No RVs or motorhomes are allowed between the Start Line and Furnace Creek.

7.) No RVs or motorhomes are allowed between the Lone Pine and the Finish. Due to a severe parking shortage at the finish line, no more than two vehicles per runner may be on the Whitney Portals Road and/or parked at or near the finish line.

8.) Vehicles must "leapfrog" the runner at all times. Attempt to make each "leapfrog" at least one mile or more in length. Racers may not be "shadowed" (driving a vehicle at the runner's speed) and vehicles must not "caravan" (drive together, like a train, at any speed). Driving may never be at the speed of any racer. Driving must be done at the speed of traffic, never slowing down to encourage, talk to, or lend assistance to any racer while moving. All assistance must be provided by pedestrian crew members; handing off of supplies from the vehicle is never allowed.

9.) Vehicles must be parked completely off the road surface whenever they are stopped (with all four tyres right of the white line). Many areas of the route have very little shoulder for parking so care must be taken in choosing stopping places. When stopping/parking, vehicles may not stop on the left side of the road. All stopping/parking must be on the right side of the road, off the roadway.

10.) All vehicles must obey the vehicle code laws of California at all times.

Safety and Medical Issues

1.) Remember, at all times and in all situations, safety is the most important issue. This means safety for racers, crew, staff, and the general public. The roads are not closed for this event and are, in fact, quite busy with tourist and local traffic.

2.) I.V.s (intravenous fluids) are not permitted during the race. If a racer receives an I.V. during the race, for any reason, then that racer is disqualified and may not complete the course officially.

3.) Racers and crewmembers/pacers must wear reflective material facing in all four directions, as well as blinking LED lights facing front and rear, at night. Racers and crewmembers are encouraged to wear reflective material during the day as well.

4.) Racers are responsible for both their own and their crew's actions; crews are responsible for both their own and their racer's actions.

5.) Always look and listen both ways before crossing the highways. Remember that drivers will not expect to encounter a racer or parked vehicle out on the course. Remember we are on public roads. Racers should not cross over the highway more than necessary; crew should cross the highway carefully to bring assistance to their racer.

6) All entrants and crew must study "Medical Risks in the Badwater Ultramarathon," "Dangers of Running in the Heat," and "The Dangers of Hot Weather Running".

Leaving the Course or Withdrawing

1.) Every inch of the course must be traveled by each racer. In the event of a routing error, e.g., wrong turn, the racer may be driven back to the exact original spot where he/she left the course and continue running from that location. There will be no allowance made for lost time or miles run in the wrong direction.

2.) If a racer needs to leave the course, his/her crew must note the exact location with a numbered stake in the ground. This numbered stake must be visible from the road in both directions. The racer must then resume the race from the same place that he/she left it. The numbered stakes will be provided to all runners at Runner Check-In. Racers may only leave the course for appropriate reasons such as rest or medical attention. Focus must be kept on the speedy completion of the course.

3.) If a racer withdraws, he/she or his/her crew must contact Race Headquarters or a Time Station immediately. Name, reason for withdrawal, time of withdrawal, and miles completed must be stated. All racers and crew who drop are encouraged to come to the finish line and both post-race events to greet and celebrate with their fellow racers and crews.

4) All Emergency Evacuation costs for participants or crews will be borne by that person or their heirs. The race organizers are in no way liable or responsible for emergency evacuation.

Awards

1.) All racers who begin the event will receive up to five Badwater Ultramarathon race t-shirts, a hat, a Race Magazine, and a goodie bag. All racers who officially complete the event within 60 hours will receive a commemorative certificate, a finisher's medal, and a finisher's t-shirt. All racers who officially complete the course within 48 hours will also receive a commemorative Badwater Ultramarathon buckle.

Rule Enforcement and Penalties

1.) Race rules are designed to provide a safe and fair experience for everyone involved and to help ensure our ability to produce the race again next year.

2.) Major rule infractions by racers or their crew, especially those regarding "cheating," will result in immediate disqualification of the racer.

3.) Other, lesser offenses will result in the following cumulative time penalties:

First Penalty: One Hour

Second Penalty: Disqualification

4.) Time penalties are imposed by stopping at the final Time Station in Lone Pine to serve his/her time. The race and clock will continue while the penalized racer waits out his/her penalty time. A Race Official will be present to oversee this process.

5.) The Race Director has the authority, at any time, to overrule any rule or invent a new rule based on extenuating, unforeseen, and/or unusual circumstances and/or to maintain the integrity and fair play necessary for the successful completion, and continuation, of the race. The Race Director has ultimate authority in regards to all rules, their interpretation, and their enforcement. There is no "appeals committee" or "appeals process." All entrants in the race, and their support crews, willingly acknowledge this fact, as well as all other race rules, by attending the race in any capacity.

6.) In all cases and circumstances, it is the intent, and spirit, of the rules which will govern their implementation and enforcement.

Finally

1.) Have fun and keep smiling!



OFFICIAL ROSTER**2007 OFFICIAL RACE ROSTER****6:00 AM START**

#	M/F	Age	Name	City	State	Country	Nationality
60	M	60	Balsley, David	New York	NY	USA	USA
65	M	65	Fallis, Don	Kaneohe	HI	USA	USA
59	M	44	Herrmann, Jan	Gladesville	NSW	Australia	Australia
52	M	52	Hilliard, Gary	Sierra Madre	CA	USA	USA
51	M	51	Hudgens, Stephen	Fort Worth	TX	USA	USA
61	M	47	Hunter, Hugh	Remagen-Bandorf	NRW	Germany	United Kingdom
62	M	62	Ingalls, Frank (Jim)	Wichita Falls	TX	USA	USA
68	M	49	Kjenstad, Tim	Henderson	NV	USA	USA
73	M	44	Kozinc, Gabor	Pasadena	CA	USA	Hungary
33	M	33	Kuhn, Brian	Champaign	IL	USA	USA
37	M	37	Lusskandl, Gerhard	Ober-Grafendorf	Nied.	Austria	Austria
74	M	48	Marinsik, Dan	San Jose	CA	USA	USA
69	M	69	Meyer, Peter	Frankenthal		Germany	Germany
78	M	37	Millar, Anton	Bryanston	Gauteng	South Africa	South Africa
80	M	54	Neumann, Klaus	Stuttgart	Bad-Wue	Germany	Germany
75	M	56	Parker, Ian	Irvine	CA	USA	United Kingdom
67	M	67	Pollard, Fred	Brea	CA	USA	USA
98	M	66	Remington, Dave	Spokane	WA	USA	USA
83	M	47	Rennison, John	Hamilton	ON	Canada	Canada
49	M	49	Runions, Neil	Calgary	AL	Canada	Canada
70	M	70	Smit, Robin	Fresno	CA	USA	USA
31	M	42	Smith, James	Superior	CO	USA	USA
97	M	49	Triumph, Tom	Mountain Lakes	NJ	USA	USA
38	M	38	Vondruska, Jerry C.	Bloomington	IL	USA	USA
12	M	54	Weber, Scott	Dunsmuir	CA	USA	USA
56	M	56	Weiss, Erhard	Siselen	Siselen	Switzerland	Germany
84	M	48	Westergaard, Danny	Rolling Hills	CA	USA	USA

8:00 AM START

#	M/F	Age	Name	City	State	Country	Nationality
34	M	49	Baum, Todd	Fayetteville	NY	USA	USA
58	M	58	Bialla, Vito	Tiburon	CA	USA	USA
16	F	44	Blangy, Marianne	Chaussin	Bourg.	France	France
13	F	49	Busch, Bonnie	Bettendorf	IA	USA	USA
36	M	36	Chorgnon, Ludovic	La Ville Aux Clercs		France	France
35	M	35	Cockbain, Mark	East Hunsbury	NO	United Kingdom	United Kingdom
57	M	57	D'Andria, Henri Alain	Bouches du Rhone		France	France
19	F	45	Elias, Barbara	Yuma	AZ	USA	USA
42	M	42	Franklin, Martin	Aspen	CO	USA	USA
66	M	57	Frixe, Eberhard	Meine	Nied.	Germany	Germany
15	F	36	Fromm, Anita Marie	Manitou Springs	CO	USA	USA
54	M	54	Grizard, Philippe	Chaussin	Bourg.	France	France
29	M	29	Gunderson, Jonathan	San Francisco	CA	USA	USA
32	M	43	Harper, David	Clermont	FL	USA	USA
50	M	50	Humphrey, Jack	Louisville	CO	USA	USA
23	F	48	Huneycutt, Jamie	Fayetteville	AR	USA	USA
30	F	30	Matukaitis, Kira	Alexandria	VA	USA	USA
76	M	55	Mendoza, Adalberto	Burbank	CA	USA	Mexico
21	F	58	Monot, Annie	Chalon sur Saone		France	France
64	M	63	Moore, James	Bowie	MD	USA	USA
44	M	44	Natraj, Nellisery (Nattu)	Lafayette	CO	USA	India
71	M	50	Ostor, Pierre	White Bear Lake	MN	USA	France
22	F	51	Otero, Monica	Santanna de Parnaiba	Sao Paulo	Brazil	Brazil
82	M	40	Rasmussen, Kim	Allinge		Denmark	Denmark
45	F	45	Seeger, Nikki	Chicago	IL	USA	USA
41	M	41	Sublett, Brett	Durango	CO	USA	USA

10:00 AM START

#	M/F	Age	Name	City	State	Country	Nationality
11	F	50	Alidina, Noora	Palm Harbor	FL	USA	Jordan
53	M	30	Benke, Blake	New York	NY	USA	USA
39	F	39	Bliss, Lisa	Spokane	WA	USA	USA
17	F	32	Donaldson, Jamie	Littleton	CO	USA	USA
3	M	44	Engle, Charlie	Greensboro	NC	USA	USA
47	M	47	Fatton, Christian	Noiraigue	Neuch.	Switzerland	Switzerland
55	M	56	Frost, Chris	Malibu	CA	USA	USA
5	M	32	Goggins, David	Chula Vista	CA	USA	USA
25	F	45	Grossheim, Dagmar	Gaefenberg	Bayern	Germany	Germany
26	M	55	Heukemes, Achim	Gaefenberg	Bayern	Germany	Germany
72	M	49	Jacaway, Scott	Downers Grove	IL	USA	USA
95	M	55	Jones, David	Eagleville	TN	USA	USA
1	M	33	Jurek, Scott	Seattle	WA	USA	USA
4	M	44	Karnazes, Dean	San Francisco	CA	USA	USA
2	M	32	Konya, Akos	Oceanside	CA	USA	Hungary
10	F	46	Langstaff, Anne	Alpine	CA	USA	USA
24	M	24	Lint, Adam	Indiana	PA	USA	USA
14	F	44	McFadden, Linda	Modesto	CA	USA	USA
48	M	44	McKinney, Frank	Delray Beach	FL	USA	USA
46	M	47	Mendes, Manoel de Jesus	Brasilia	DF	Brazil	Brazil
79	M	33	Moeller, Kent	Tilst		Denmark	Denmark
85	M	45	Neckar, Tim	Houston	TX	USA	USA
43	M	43	Nunes, Valmir	Santos	SP	Brazil	Brazil
100	M	39	Pacheco, Jorge	Los Angeles	CA	USA	Mexico
81	M	39	Pereira, Adilson Jose	Pocos de Caldas	M.G.	Brazil	Brazil
99	M	39	Pressler, Greg	Portland	OR	USA	USA
77	M	53	Radich, John	Monrovia	CA	USA	USA
7	F	46	Smith-Batchen, Lisa	Jackson	WY	USA	USA
40	M	41	Teal, Steve	Phelan	CA	USA	USA
27	F	45	Thomas, Tracy	Champaign	IL	USA	USA
20	M	56	Ulrich, Marshall	Idaho Springs	CO	USA	USA
8	M	48	Vallee, Albert	Chauvigne	Bret.	France	France
9	M	65	Webb, Arthur	Santa Rosa,	CA	USA	USA



2006 RACE STAFF AND SPONSORS





- 1: Maxwell Lucas and Matt Ruscigno
- 2: L-R: Dan Dominy, Lana Corless, Jon Gay
- 3: Laurie Streff, Chris Kostman, Lisa Bliss, Anna Boldon
- 4: Christopher Bergland and Susan Towers of Kiehl's
- 5: Margaret and Dave Nelson
- 6: L-R: Anna Boldon, Mags Denness, Leon Draxler, Jack Denness
- 7: 2006 Medical Team
- 8: Web Video Team at work
- 9: Dr. Kent Wang
- 10: Marlis Schmidt
- 11: Charlie Liskey and Steve Winfrey
- 12: Phil Marchant and John Wiley
- 13: John Vonhof
- 14: Mike Schafer and Rachel Schmidt
- 15: Eric Wilson and Joe Garza
- 16: Gillian Robinson and Don Lundell of ZombieRunner
- 17: Chris Kostman with the Injinji bro's: Randuz and Joaquin
- 18: Mike Angelos

MEMORIES FROM 2006

1



2



3



4



5





- 1: Jim Magill
- 2: Linda McFadden
- 3: Bobby Bostic
- 4: Frank McKinney
- 5: Guenter Boehnke
- 6: Jay Hodde
- 7: Shannon Farar-Griever and the LA Times story about her race
- 8: Dusan Mravlje
- 9: Dan Marinsik
- 10: Bruce Gungle
- 11: Juergen Hofmann
- 12: Xy ("Chrissy") Weiss

MORE MEMORIES FROM 2006



- 1: Hall of Fame inductee Rhonda Provost
 - 2: Hall of Fame inductee Jack Denness
 - 3: Final finishers Heidi Weiss, Ian Parker, and Erhard Weiss
 - 4: Marvin Snowbarger and his crew
 - 5: Hildegard Doppelmayr with husband Michael
 - 6: Arthur Webb
 - 7: Hall of Famer Jeannie Ennis with Lisa Smith-Batchen
 - 8: Angela Ngamkam and crew
- Opposite Page:**
- A: Monica Scholz
 - B: Scott Weber with his 10x Finisher plaque
 - C: Mario Lacerda with Nattu Natraj on his heels
 - D: Scott Jurek
 - E: Judit Pallos and crew
 - F: Ferg Hawke with his Dean K insole



MORE MEMORIES FROM 2006



A full-page photograph of a runner in a white Kiehl's long-sleeve shirt and black shorts running on a paved road in a desert landscape. The runner is wearing a white cap and sunglasses. The background shows a vast, arid desert with rolling hills and sparse vegetation under a clear sky.

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