

BADWATER ULTRAMARATHON

The Challenge of the Champions



adventureCORPS™

2006 Race Magazine



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A thermometer is pushed to its limits revealing the grueling conditions of the 2004 135-mile Badwater Ultramarathon. Photo: Lisa Bliss. www.enduranceis.com

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"We're Out There"



Chris Kostman

AdventureCORPS, an event production firm specializing in ultra-endurance and extreme sports events, is pleased to host the 29th Kiehl's Badwater Ultramarathon on July 24-26, 2006. 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 trail-head to the Mt. Whitney summit, the highest point in the contiguous United States.

Now in our seventh year producing this race, AdventureCORPS is pleased to welcome the return of our title sponsor, Kiehl's Since 1851, the hair and skin care company founded in New York City in 1851. We welcome the continuing support of E-CAPS Endurance Supplements and Injinji Anatomical Interface Systems, as well as the new sponsorship of The North Face and ZombieRunner.com. We also appreciate the ongoing support of the National Park Service, Furnace Creek Inn and Ranch Resort, Whitney Portal Store, and Lone Pine's Dow Villa, Seasons Restaurant, Pizza Factory, and Lo-Inyo Elementary School.

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 Laurie Streff, Dan Dominy, Keith and Poosa Kostman, Anna Boldon, Mike Angelos, Dave and Margaret Nelson, Leon Draxler, Jack and Mags Denness, John Wiley, Phil Marchant, Joe Garza Jr., Don Meyer, Jeannie Ennis, Mike Henebry, Scott Wall, Mike Schafer, Kai Norwood, Rachel Schmitt, Christopher Ragsdale, the medical team - Dr. Lisa Bliss, David Bliss, Dr. Kent Wang, Shayne Garvey, Dave Heckman, Jamie Huneycutt, RN, Dr. Jeff Lynn, Anthony "Woofie" Humpage, Dr. John Cianca - and many others. We also extend special thanks to Kevin Fung for the design and layout of this Race Magazine.

Sincerely,

Chris Kostman
Race Director and Chief Adventure Officer

RUNSMARTER[®]

Photo: Randue Penney 2005 BADWATER

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

GENERAL INFORMATION

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DATE: Monday-Wednesday, July 24-26, 2006.

DISTANCE: 135 miles.

WHO: An international, invitational field of up to ninety endurance athletes representing fourteen countries and twenty American states. See the race roster on pages 38-39 for full details.

MANDATORY RUNNER CHECK-IN: 12:00-2:00PM, July 23, 2006, 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 23, 2006, Visitors' Center Auditorium, Furnace Creek, CA. Every runner and at least one crew must attend for 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 TIME: 6:00AM, 8:00AM, and 10:00AM, July 24, 2006. 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 26, 2006.

POST-RACE GET-TOGETHER: 6:00PM, Wednesday, July 26, 2006, Lo-Inyo Elementary School, Multi-Purpose Room, Lone Pine, CA. All racers are encouraged to complete the race in time for this event! 2006 Official Finisher

T-Shirts and 2006 Sub-48-Hour Buckles will be awarded to all who attend who earned them in 2006. 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 27, 2006, 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 24-26, 2006, 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



Keith Kostman is the Webcast Guru.

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 coolers, 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.

NEWS FLASH: One can now buy an espresso, latté, or chai in Trona at the Desert Holly Espresso at 82856 Trona Road. This is a bit after the gas station, on the left, by the Rite Valu. Halleluhah! Tell them Chris at AdventureCORPS sent you!

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-



Staffers Anna Boldon and Leon Draxler, always organized and smiling.

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 Pharamph 55.8 miles. There, make a left on Bell Vista Rd. and go to dead end (Armogosa 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

WHAT TO BRING

GEAR:

Flashlights and battery lantern.
Ice chests and large fluid containers.
Folding chairs and/or cot.
Umbrella, tarp, and/or canopy.
Garbage bags, plastic bags, baggies.
Utensils, plates, cups, etc.
Bucket or basin.
Scale for runner weighing during race.
Water sprayer.
Clipboard, pens, pencils, notepaper.
Duct tape, rope, cord, string.
Towels of various sizes.
Paper towels and toilet paper.
Camera and film, if needed.
Cellular phone (often won't work).
Satellite phone (recommended).

FOOD AND DRINKS:

Water and ice (lots and lots).
Electrolyte/fluid: E-CAPS, Gatorade, Club Soda, plus pretzels, peanuts, corn-nuts, salt, etc.
Carbohydrate: Sustained Energy, Hammer Gel, Perpetuum, fig newtons, pop tarts, plus watermelon, cantaloupe, oranges, and other fruit.
Caffeine: Soda, coffee, tea, cocoa, etc.
Other food: Bread, sliced turkey, cheese, peanut butter,

jelly, cup-of-soup, oatmeal, jerky.

MEDICINES:

Sun block, lip balm, etc. (provided by Kiehl's)
First aid kit.
Thermometer for body and outside air temperatures.

FOOT BOX:

ZombieRunner.com Foot Care Kit.
Micropore tape (3M), Band-Aids, dressings, etc.
Compeed, Elastogel, Duoderm, etc., for pressure areas and blisters.
Swabs, needles, razor blades, tweezers, scissors, etc.

RUNNING GEAR:

Toe socks, "Tsoks," by Injinji. See www.injinji.com
Full coverage solar-protective clothing (white from head to toe).
Race number, worn unmodified and unfolded at all times.
Light-colored running shoes (several), including pairs one and two sizes larger.
Insoles, orthotics, etc.
Hat with long-bill or wide brim plus neck shroud.
Dark glasses, summit goggles, swim goggles.
Scarf or handkerchief.
Reflective gear (mandatory): strobe light, flashers, reflective vest. Awesome little strobes available from <http://www.roadid.com/?referrer=2305>



Logo and letterhead design,
Identity design, Illustration,
Brochures, Catalogs, Flyers

Contact: Kevin Fung • yukitopia@mac.com

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 \$8 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/

Rhonda Provost

—The First Woman
to Complete
a Double Badwater

Rhonda sets out on her 300-mile trek.

By Richard Benyo

In August of 1995, Rhonda Provost of Forestville, California, became the first woman to run from Badwater in the heart of Death Valley to the peak of Mt. Whitney, and back—a distance of nearly 300 miles. The course is famous for starting at the lowest point (-282 feet) in the Western Hemisphere and running to the highest point (14,494 feet) in the contiguous U.S. Death Valley is also famous for sporting the highest summer temperatures in the world.

She completed the grueling course in 143:45, just under six days. In the process, she became the eighth runner to complete the “out-and-back” course.

Rhonda had served as the medical director in 1989 for the first-ever out-and-back attempt on the course, which was made by Tom Crawford and her husband, Rich Benyo. Both were successful in their attempt. In the process, Rhonda developed some revolutionary—and unique—medical approaches to on-course treatment, including the use of duct tape as a “first skin.” By fashioning a foot covering of duct tape to Tom’s and Rich’s feet, she theorized that at least for the first day of running, the duct tape would take most of the

abuse of the 200+ degree heat of the roads, saving the runners’ feet from early blistering. (In later years, the duct tape was replaced with even better tapes which helped to reduce, or even prevent, blisters for the duration of the race.)

As a nurse anesthetist, she also applied her expertise once blisters did develop. She had served for several years as medical director at various aid stations at the Western States 100, and had assembled The Red Box, a metal medical kit that set new standards for completeness.

She also served as medical director for Rich Benyo’s second (1991) attempt at the out-and-back and at Tom Crawford’s one-way attempt that year. She again provided medical support at Rich’s successful third attempt on the out-and-back course in 1992.

For her own 1995 attempt to run the out-and-back course, her crew consisted of her husband Rich as crew chief, Jean Ennis (who with Tom Crawford comprised the U.S. team in the first-ever official “race” on the course, that in 1987), “Uncle Billy” Owens (uncle of Tom’s

wife Nancy, and frequent crew member for Crawford and Benyo), and Tony Gilbert, a massage therapist. Denise Jones served as her mountain crew.

“Even 11 years after the fact, the Death Valley out-and-back remains (and I’m confident will always remain) one of the high points of my life,” Rhonda commented recently, “not because I completed it, or the first woman thing, because, quite frankly, other than the rest of the team, no one even knew we were doing it.



Rhonda gets close to nature.

MY LIFE AT BADWATER

By Jack Denness



After 300 miles, a toilet paper finish line.

“To this day, what I learned about myself and others during the event serves me well. When my soul gets tested in life, I remind myself that we are not alone in any of this. There exists a great over-riding force of which we are part. And we can effect outcomes for good or evil depending on where our hearts are. It’s a rather spiritual perspective, but it’s what inspired me to run the course in the first place. It was a spiritual quest which quite literally became a divinely inspired run.”

Rhonda also offered medical seminars at several of the unofficial pre-race “camps” in Death Valley during the early 1990s and has frequently offered presentations on the course and its challenges. She also served as medical director and crew for Canadian Steve King at the 2001 Badwater Ultramarathon and for Texan Joe Prusaitis in 2003.

She continues to enjoy visits to Death Valley in order to tap into its more spiritual and inspiring aspects.



Back in 1989 when I was 54 years old, I read about these runners who had competed an amazing race across Death Valley over the two previous summers. I got very interested and thought to myself that it would be perfect to do this challenge if only I could find some way to get in contact with the organiser, (There were no emails; only faxes and telephones those days!)

The same year I completed the San Francisco Marathon and came down to Lone Pine to hike up Mt Whitney. After coming down, my wife Mags and myself drove across Death Valley and were amazed to see a man dressed all in white walking alongside the road. I realised straight away that it must be one of these “nutters” connected with (by now my dream) the ultimate race. I got out of the car and walked along and wheedled out of him details of the Badwater race. He said he was training for the next Badwater race (1990), He also said to me “Go for it Brit!”

By now I’m completely hooked!!!!. But how can I get invited to the race?

In 1990, again I read about these “nutters.” This time seven had completed the Badwater race, I bombarded the race organisers at Hi Tec with faxes and telephone calls and finally got accepted to compete in the 1991 Hi Tec Badwater.

I then posted a letter to Bart Yasso of “Runners World” who had completed the race in 1989 for some tips. He willingly obliged by writing back saying: “I wore Coolmax material, the hills are tougher than the heat, heat is the major factor from 12noon to 7pm, but the hills never go away.”

The Badwater race, from a quiet start, has increased interest from the first few years until Chris Kostman’s AdventureCORPS took over the running from 2000. Now it boast full fields of nearly 90 runners spread over three start times with strict qualifying standards. To be in the Badwater “family” is a hard won privilege!!

Here’s a brief recap of my many years out on the Badwater course:



Jack and crew eager for his "final finish" in 2005.

1991-Hi Tec Race Director David Pompel. Start 600pm. 14start; 14 finish.

My first Badwater Ultra, and what a shock!! In the UK the highest temperature that I'd ever experienced was approx. 90F. Here I was in temps of 120+F, but it was a beautiful feeling to finish the distance. I raised £4,500 for our local hospital Cancer Scanner Appeal. In my mind I'd achieved the ultimate, so now I could retire from racing and "hang my running shoes up." (What a joke that turned out to be!)

1992-Hi Tec Race Director Chris Stai. Start 600pm. 16 start; 13 finish.

I decided to do Badwater one more time! That's all: one more!!!! During this race I met Richard Benyo at mile 111 (1st runner to do the Death Valley 300 with Tom Crawford) who was on his way back to Badwater on a repeat 300. Mags, my wife, had purchased his book about the Death Valley 300 at Furnace Creek, so she got him to sign it. I said to him that I was interested to emulate his achievement and he replied "If anybody can do it, it will be you! I raised £3,600 for the Scanner Appeal that year.

1993: Hi -Tec Race Director Chris Stai. Start 600pm-12 start; 10 finish.

Oh well, one more race, then retire!!! It was a strange race as only twelve started, so the field quickly spread out. There were only a few occasions to see other runners until the finish. I raised £4,100 for our local Air Ambulance.

1994: Hi-Tec Race Directors Karen Raby and Pam Riggs. Start 600pm. 23 start; 16 finish.

Remembering Richard Benyo's remark that I could do the Death Valley 300, I thought "So why not! I will do the 300 with my mate Steve Kerr, then retire, that's final!!" After completing the Badwater race and hiking to the summit of Mt Whitney (150 miles) our support van broke down on the return leg at Panamint Springs, Now in those days there were no telephones at Panamint - only a radio link to Lone Pine - so after a long hectic time on the two way radio, a replacement van from Las Vegas was arranged via Lone Pine. Not wanting to waste time, we carried on with a car as support until the replacement van caught us. Steve and I completed the out & back and became the joint 5th ever to achieve this challenge. I raised £5,624 for our Air Ambulance.

1996: Hi-tec Race Directors Matt Frederick/Diane Kurity. Start 600am. 26 start; 14 finish.

It is now a 600am start time because it appears it's too easy with a 600pm start. Hang on! There is a walk section this year, I've never done a walk race, I have to try this, then retire! I

really enjoyed this race and finished quite comfortable with hardly any pressure. I raised a lot of funds for Disabled Childrens Stepping Stones and Simon Paul foundation.

1997: Hi -Tec Race Director Matt Frederick. Start 600am. 27 start; 20 finish.

Disaster!!!! My only D.N.F. - had to drop at Stovepipe Wells because of dehydration, etc. Will have to come back again and put this right. Anyway, still raised £3,500 for Hospital Hydrotherapy Pool.

1998: Hi Tec Race Director Matt Frederick. Start 600am. 29 start ; 20 finish.

First I have to put last years DNF to rest, the second reason to do the race is that "Real TV Productions" are making a documentary with Marshal Ulrich, Lisa Smith, Scott Weber and myself and to show it on TV over a 5 day period. I raised £2.600 for Marie Curie Appeal. Retire? Not yet, beginning to get a feeling I could get to 10 finishes, then retire!!

1999: Hi Tec Race Director Matt Frederick. Start 10am. 42 start ; 33 finish.

Mel Stuart Film Productions made a 1hour, 40 mins film of the race featuring fourteen competitors of which I was one of the lucky runners to be selected, The film is "RUNNING ON THE SUN." Much to the joy of Mel Stuart, the race had a lot of things which don't normally happen in Death Valley: the night before there was a freak storm and heavy rain with streaks of lightning, Furnace Creek awash with flowing water, the road to Badwater was blocked so instead of a 600am start we had to wait until the road was cleared by the park staff for a 1000am start. With the sun now out, it was perfect conditions for filming, as the storm was still around during the race with the wind and dust. I raised £6.000 for Crohns Research Charity.



Escorted through Lone Pine by Poosa of the webcast team in 2005.

2000: *AdventureCORPS Race Director Chris Kostman. Start 800am. 69 start; 49 finish.*

This race was the beginning of AdventureCORPS' involvement in promoting the Badwater Ultramarathon and it brought sanity to the entry system and, most important, to the start procedure, as now there was a three wave start which cut out crowding for runners and crew. I had the usual problems in race, i.e. heat exhaustion, too hot, not drinking enough, not eating, but I "enjoyed" it as I'm a bit mad!!! After the finish, we were having a well earned meal in PJs when we were asked if there were any volunteers to help crew my UK friend Chris Moon on the way back to Badwater on his Death Valley 300. Mags said later "I saw Jack look across at Frank McDonagh (crew member) who winked back. They were out the door in a flash. So much for our rest!!!!" I raised funds for a Rotary Handicamp for disabled childrens holiday and for Alzheimer Society.

2001: *AdventureCORPS Race Director Chris Kostman. Start 600am. 71 start; 55 finish.*

I thought to myself, if I can finish, it will make 9 completions, which will put 10 finishes one step away. I don't take any chances and get to the end OK. I raised £1,550 for Crohns Research, more cash for Rotary Handicamp for disabled childrens holiday, and cash for the school where I'm caretaker for playground equipment.

2002: *AdventureCORPS Race Director Chris Kostman. Start 600am. 78 start; 59 finish.*

It's the 25th Anniversary of the 1st Death Valley crossing by my mentor and dear friend Al Arnold who was the guest of honour for the race. He asked me to join him on stage where I gave him a personal souvenir to mark his achievement. A few years earlier I had sent him a letter telling him jokingly that "When we meet in the future I don't know what to do to you for starting this Death Valley madness: either I will shake your hand or wring your neck." On stage he turned to the audience and said "Well!, what are you going to do, Jack?" I shook his hand!!!! BUT, this was to be my 10th and final race, what a combination this was to be: The 25th Anniversary and my 10th, with Al Arnold greeting finishers; no way was I not going to fail! Yes, I finished the race, and there was Al Arnold at the finish. I was very happy receiving my finisher's medal, now for a celebration for my retirement. I raised a lot of funds for Cerebral Palsy.

2003: *AdventureCORPS Race Director Chris Kostman. Start 600am. 73 start; 46 finish.*

I wasn't going to race, but just can't keep away from Death Valley, so decided to crew together with Mags. We enjoyed

it, but had a feeling I should be in the roll call at the Badwater start. Stop it, Jack, you are retired!, I know, but!!!...

2004: *AdventureCORPS Race Director Chris Kostman. Start 600am. 72 start; 57 finish.*

I came out of retirement for this race: I just can't say no!!! Chris Kostman called Marshall Ulrich and myself on stage at the pre-race meeting and presented the both of us with wooden plaques to mark our 10 finishes in the Badwater Ultramarathon. I felt very proud. As for the race, I hadn't trained much, because having done it so many times I got a bit casual - big mistake! I paid dearly for this lapse, proving that you must always take the race serious. I missed cut-off, but was allowed to be a "Honourable Mention Finisher." There was a 2nd attempt for a runner to claim the title "1st 70 year old to finish Badwater",but he dropped near Lone Pine, so now I had to come back to get that record in the 2005 race.

2005: *AdventureCORPS Race Director Chris Kostman. Start 600am. 81 start; 67 finish.*

This is what I've been training for! To finally go for the record as the "1st 70-year-old to complete the Badwater Ultramarathon." On every part of course I was encouraged and urged on. It was a fantastic feeling to be known by so many. Wearing the 70 number, with my support crew, the finishing tape coming into view, words can't describe my gratitude to my team in getting me to my dream. Now I will retire, or maybe.....? I raised funds by sponsorship for: Cerebral Palsy Care, MS Society, and Stepping Stones Children's Charity.

This year, 2006, will see me together with Mags back in Death Valley, putting something back in the race by joining Chris Kostman's team as volunteers.

Over the years I have given respect to all other competitors and the helpers, and have had total respect in return. I've had American friends together with my UK friends as support crew, it seemed to work well (bar the language and humour difference, only joking!!) On a serious note I believe the mental strength involved in finishing the Badwater race is in all people - it just takes the right motivation to allow it to surface. In my case, the motivation was seeing the positive reaction of people prepared to sponsor me in the Badwater race in my quest to fundraise for worthy charities.



THE DANGERS OF RUNNING IN THE HEAT

By Jason Hodde, MS, ATC/L



Canadian Ferg Hawke, the 2004 and 2005 runner-up, passes Keeler.

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.

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. Although the most extreme weather is likely behind us for the year, the combination of moderate heat and humidity can still make some of those fall ultras dangerous to your health. 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.

	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

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. 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.



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

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 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 hopes to finally conquer the Death Valley heat at the 2006 Badwater.



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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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 Engo 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.



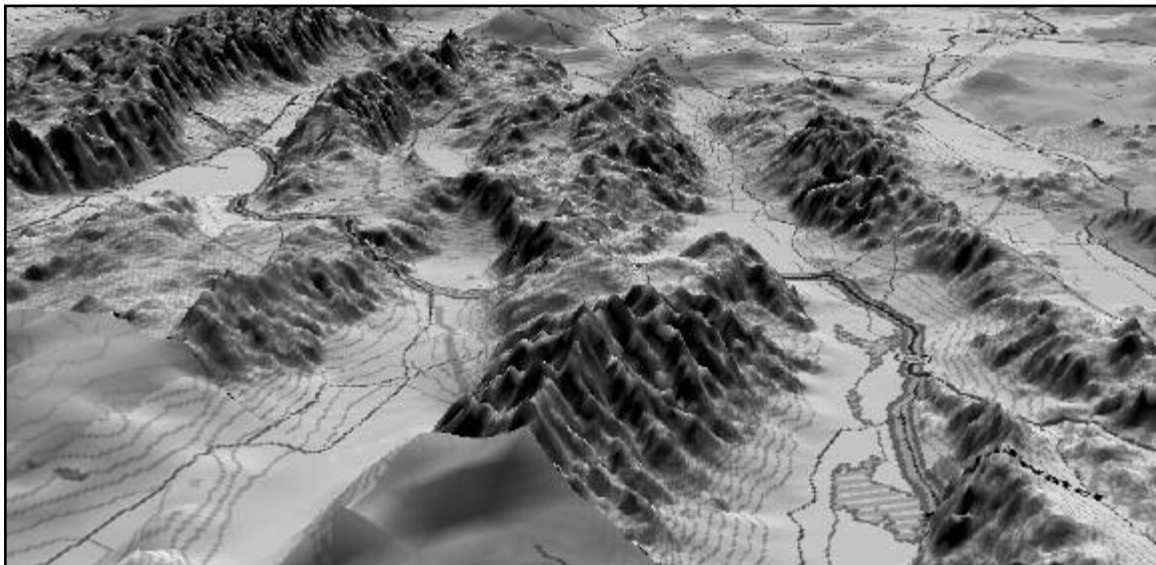
Ferg Hawke in grey t-shirt, loose black shorts, white hat, and grey shoes.



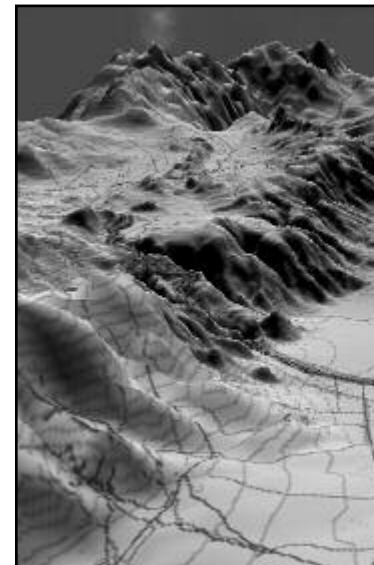
Charlie Engle in dark blue t-shirt, tight black shorts, white hat, and dark blue shoes.

3D COURSE MAPS AND VIEWS

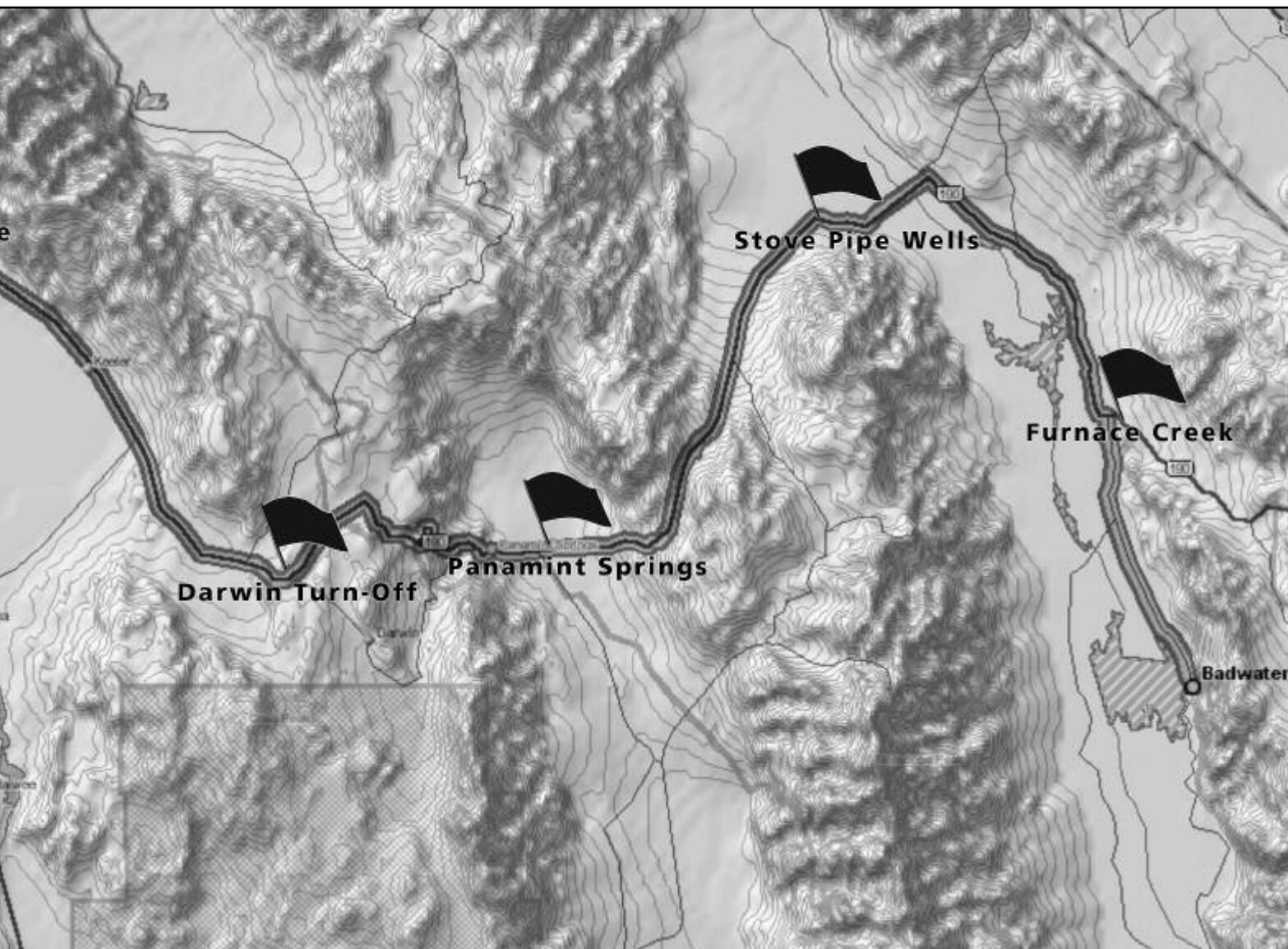
By Doug "Dog" Sloan



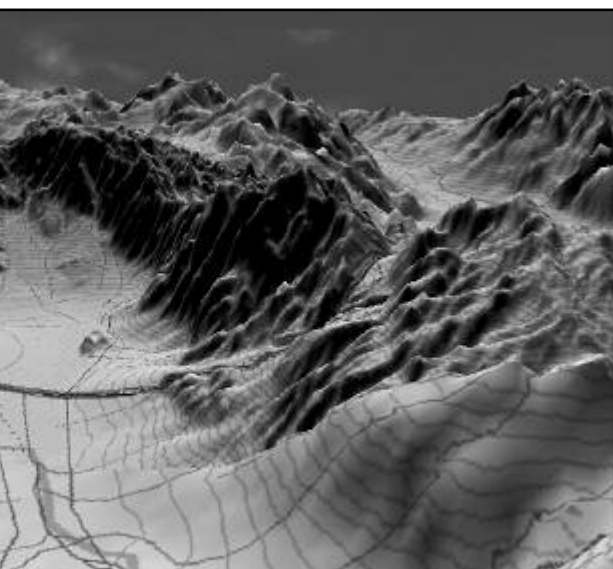
From Badwater, looking north-west at the entire route.



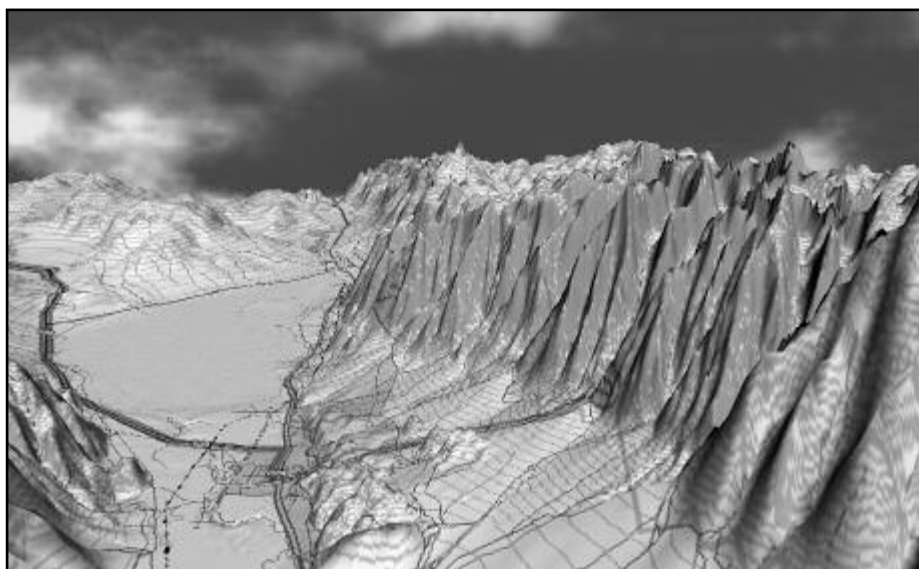
Panamint Valley, looking north.



Overhead view of race course.



Looking north to Hwy 190 and Townes Pass on right.



Looking south in the Owens Valley, towards Lone Pine and Mt. Whitley on the right.

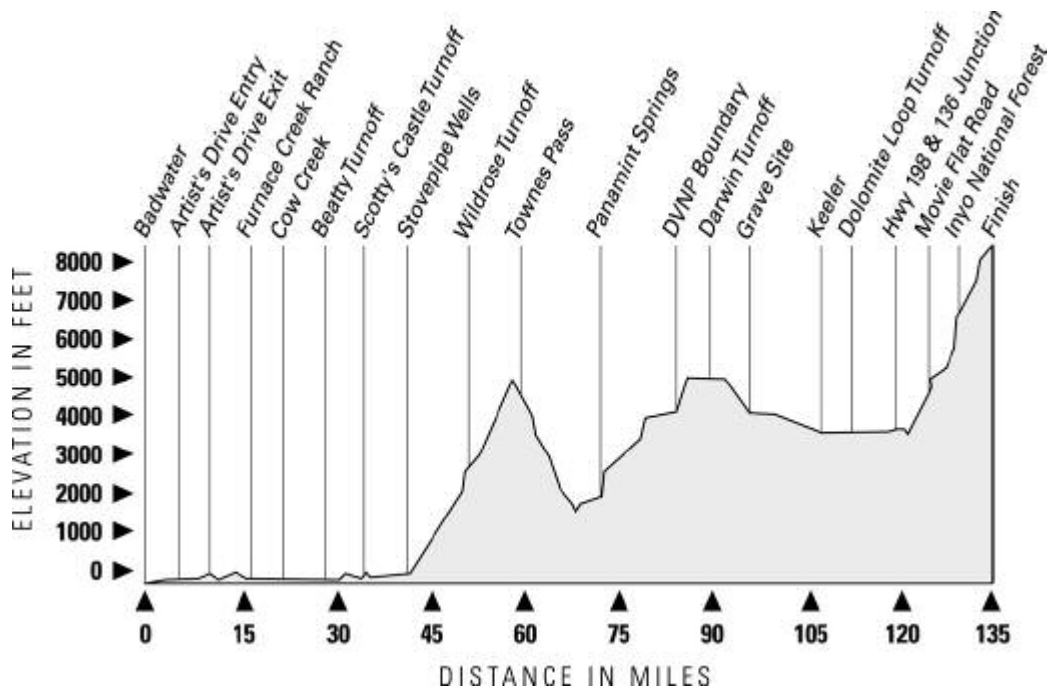
OFFICIAL RACE ROUTE

<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



Monica Scholz breaks the tape at the 2004 Furnace Creek 508

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, 37, Jerseyville, Ontario, Canada
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.)

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
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

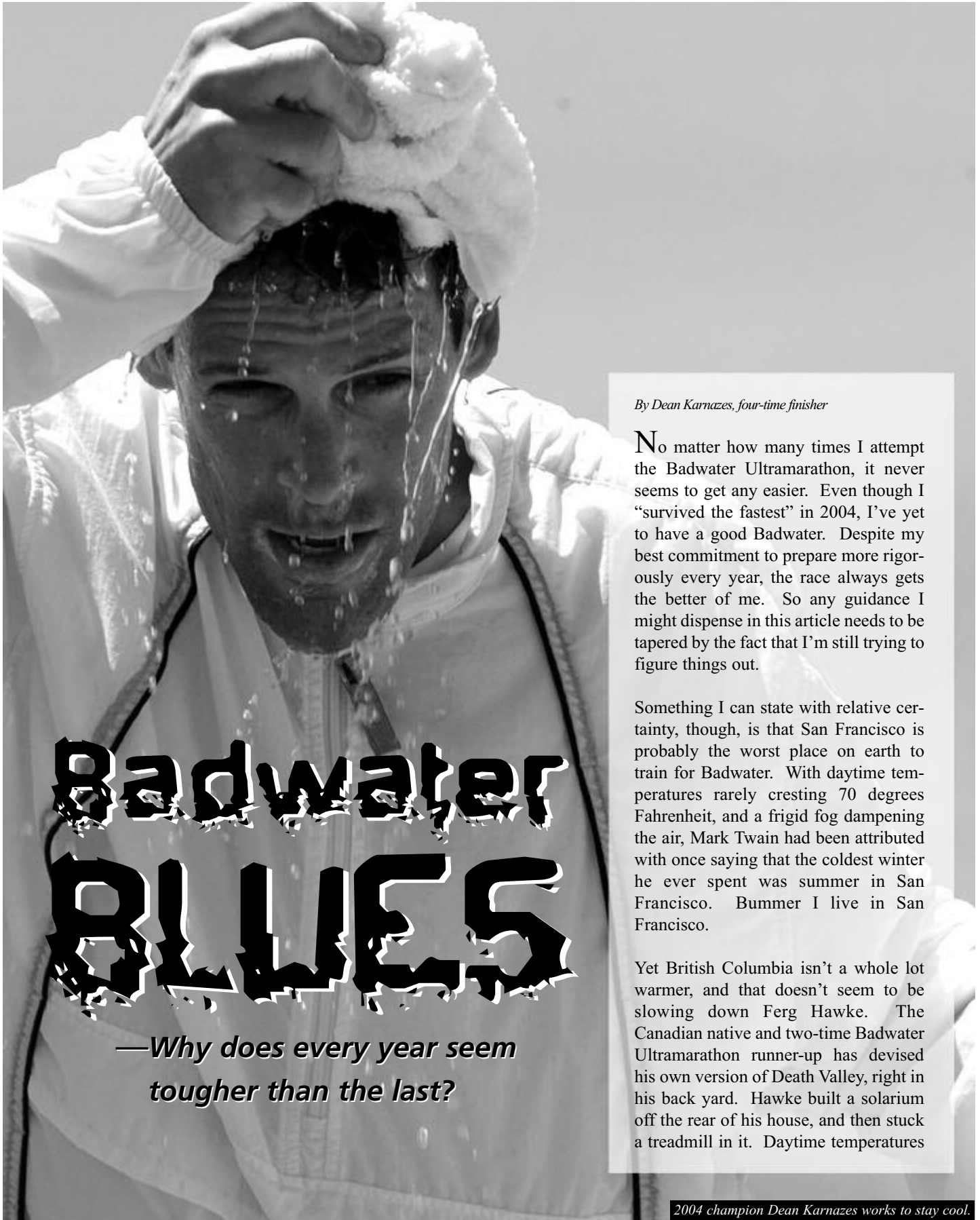
Angelika Cat Castaneda, San Diego, CA
1999 Badwater, 36:58, 1st place
1999 Furnace Creek, 43:46:40, 3rd place
=80:44:40 total time

David Jackass Jackson, Lexington, KY
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
1997 Badwater, 48:16, 13th place
1997 Furnace Creek, 42:15:26, 10th place
=90:31:26 total time

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

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



By Dean Karnazes, four-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 possibly 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.

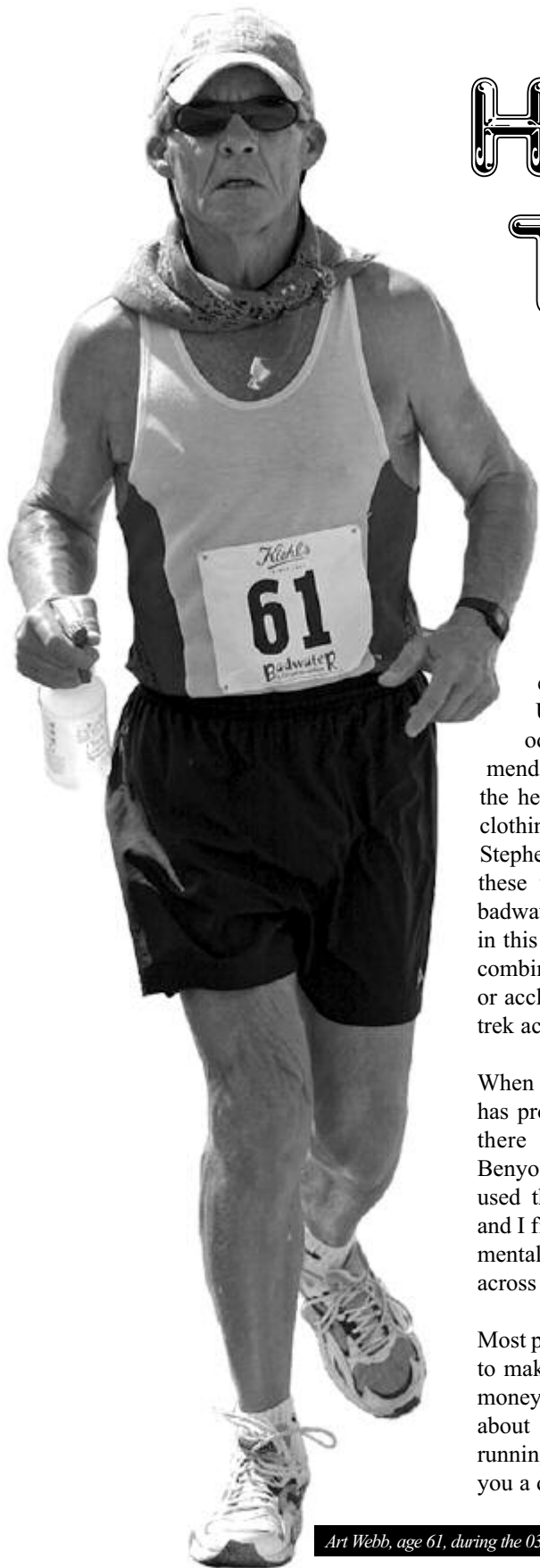
And even if you train hard, you still can bonk. Just ask Scott Jurek, who was dehydrated and vomiting after Panamint Springs. "I got behind on fluids," he says, "and paid for it."

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.ULTRAMARATHON.COM



Art Webb, age 61, during the 03 race.

HEAT TRAINING IN A SAUNA

By Arthur Webb, seven time finisher

There are a number of ways to train for all the heat one will encounter in the Badwater Ultramarathon. Two effective methods are training in the desert, recommended by Dr. Ben Jones, and simulating the heat conditions by wearing layers of clothing while running, as suggested by Stephen Simmons. Definitive articles by these two gentlemen are posted on the badwaterultra.com website and elsewhere in this race magazine. Either method or a combination of both should help one adapt or acclimatize to the heat for a successful trek across Death Valley.

When desert heat is not available and one has problems running in lots of clothing, there is Tom Crawford and Richard Benyo's bake in the sauna option. I have used their method in a modified format and I firmly believe that it has been instrumental for my four successful journeys across Death Valley.

Most people don't have a sauna, so one has to make use of the local fitness center. If money is a problem, just let them know about Badwater and the charity you are running for and they will probably make you a deal.

Have no fear for there is still plenty of time to complete a training program. I won't begin mine until the last week in June.

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

2. Heat training in the sauna should take no more than four weeks; usually three weeks is enough. When you have to wear a sweater or light jacket at work or around the house because you feel a little chilled, you are acclimated. It is best to stop sauna training at least three days before the race. You will need the time to super hydrate and the effects of heat adapting will not start wearing off for several weeks.

3. Train every day, although you may have to take a day off to completely hydrate yourself. If there is a steam sauna available, use it one day a week. Two years ago, at Badwater, tropical storms lashed the area for several days and it became

extremely hot and humid. Fortunately, I had rotated between dry and steam saunas in my training and was ready for anything. It made a huge difference.

4. The goal is to stay in the heat of the sauna for as long as possible. If you attempt any kind of rigorous workout inside the sauna you will have to leave it too soon, which defeats the purpose. So, just be content with simply sitting on the planks or doing a light abdominal workout. Save your harder workout for your daily run. I find it easier to run my daily 10 to 20 miles first and then go lay down in the hot box. Running after a session is extremely difficult. Save this time for re-hydrating.

5. Be patient. Begin at low temperatures and gradually work towards hotter sessions. The first day I usually start at 110 degrees and stay as long as possible. Sometimes when it gets unbearable I leave for a few minutes and take a cool shower before going back inside. The first few days are the hardest but as the days go by you will be able to raise the temperatures and stay in longer. By the fourth week, you should be able to handle 30 minutes at 180-degrees. Below, I have added a sample four-week regimen that I have used every year.

6. Drink, drink, drink. It is extremely important to continuously hydrate inside the sauna in order to replace all the liquids you will be profusely sweating out. This will simulate the conditions you will be facing in the desert and after three weeks the body will be able to efficiently process all the liquids it will be 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.

7. Time constraints. You may be pressed for time because of all the training. I suggest you taper on the mileage and hit the sauna or forget the run and just bake in the box.

Everyone has run more than enough at this point in time. Skip a run or two; the heat training is much more important. It will probably do you some good taking a day off. You will benefit more by spending some time getting blasted in the sauna.

8. Recovery. Immediately after the sauna I lay down on a bench in another room in order to let the body cool off. You will sweat again for ten to fifteen minutes while you reenter the normal world. Then take a nice long cool show-

er before continuing to hydrate for the rest of the day. Constant liquid intake is essential; drinking will enable you to start the next day fully hydrated and you will be able to continue to properly train.

9. Race Day. Pace yourself and make sure you wear a complete sun-protective suit and hat anytime the sun is out. It is much better if you keep the jacket and hat wet as suggested by Stephen Simmons. I have kept mine wet during the heat of the day and it has made an enormous difference. It probably cools you off by 10 or 20 degrees. My crew uses a super-soaker (large squirt gun) and blasts me with cold water every few miles. You will discover that if the suit gets dry it may keep out the ultra violent rays, but it also tends to retain the heat and you start baking inside. It is also best to keep the water from running into your shoes because large ugly blisters will develop.

Art's Heat Training Schedule

Day	Minutes in sauna	Temperature
1	30	110
2	45	110
3	30	120
4	45	120
5	30	130
6	45	130
7	30	140 (steam)
8	45	130
9	30	140
10	30	140 (steam)
11	45	140
12	60	140
13	30	150
14	Rest Re-hydrate	
15	30	150
16	45	150
17	45	150
18	30	160
19	30	160
20	30	140 (steam)
21	Rest Re-hydrate	
22	30	160
23	45	160
24	30	170
25	30	170
26	30	180
27	30	180
28	45	180

That's it. Other than a few days in the steam sauna all other days are in the dry sauna. Do the best you can and remember even a couple of weeks will help you out. Good Luck. It would be nice to see everyone finish this fantastic race.





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.



Dean Karnazes encourages an "ice cream headache" with a bucket of ice water in 00.

7. Regardless

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.



Two-time champ Pam Reed stays cool in 04.

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.

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 2006 Badwater Ultramarathon (6am, 8am, and 10am on July 24, 2006), 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.

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 Portals. 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 will 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 2006: Race entrants are strongly encouraged to bring no more than two support vehicles and no more than six crew members (including "unofficial" and "family cheering squads") to the race. (This will become a mandatory rule in 2007.)

OFFICIAL RULES

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. Crewmembers 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. NEW FOR 2006: 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 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." This type of sign can be made, for example, using yellow, white, or pink adhesive shelf paper with at least 6 inch letters. Magnetic, reflective, professionally made signs for this purpose can be made to order by your local sign shop. Additionally, all runners will receive two race-legal caution signs at Runner Check-In that may be used as well or 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.

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 crew.

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**2006 OFFICIAL RACE ROSTER****6:00 AM START**

#	M/F	Age	Name	City	State	Country	Nationality
38	M	38	Andrulis, Robert	Chandler	AZ	USA	USA
53	M	53	Bodoh, Jim	Tampa	FL	USA	USA
27	M	40	Bookspan, Adam	North Miami Beach	FL	USA	USA
37	M	37	Bostic, Bobby	San Francisco	CA	USA	USA
54	M	54	Buck, Kip	Beaverton	OR	USA	USA
6	M	63	Cantu, Ruben	Atoka	TN	USA	USA
19	F	46	Doppelmayr, Hildegard	Hallein		Austria	Austria
25	M	38	Fischer, Markus	Cologne		Germany	Germany
88	M	31	Goggins, David	Chula Vista	CA	USA	USA
28	M	28	Gunderson, Jonathan	San Francisco	CA	USA	USA
59	M	59	Hamilton, Ron	Concord	CA	USA	USA
32	M	42	Harper, David	Clermont	FL	USA	USA
67	M	48	Horner, Dave	Hendersonville	NC	USA	UK
57	M	57	Jensen, Dan	Sioux Falls	SD	USA	USA
26	M	37	Karch, Michael	Mammoth Lakes	CA	USA	USA
68	M	48	Kjenstad, Tim	Henderson	NV	USA	USA
39	M	42	Klob, Michael	Bad Staffelstein		Germany	Germany
31	M	31	Konya, Akos	Oceanside	CA	USA	Hungary
81	M	49	Lacerda, Mario	Colatina		Brazil	Brazil
82	M	56	LaDieu, Bill	Harrisburg	PA	USA	USA
60	M	60	Micka, Klaus	Saarbrücken		Germany	Germany
63	M	43	Natraj, Nattu	Lafayette	CO	USA	India
73	M	50	Nilsson, Gunnar	Uppsala		Sweden	Sweden
75	M	55	Parker, Ian	Irvine	CA	USA	UK
69	M	69	Snowbarger, Marvin	San Jose	CA	USA	USA
44	M	44	Tyszkiewicz, John	Saffron Walden		UK	UK
10	M	53	Weber, Scott	Dunsmuir	CA	USA	USA
65	M	47	Weidemann, Friedhelm	Sassenburg		Germany	Germany

8:00 AM START

#	M/F	Age	Name	City	State	Country	Nationality
29	M	29	Benke, Blake	New York	NY	USA	USA
43	M	43	Charton, Dominique	Chalon sur Saone		France	France
85	M	57	Cunningham, Ron	Klamath Falls	OR	USA	USA
72	M	49	dos Santos, Mozart	Curitiba		Brazil	Brazil
18	F	45	Farar-Griener, Shannon	Hidden Hills	CA	USA	USA
80	M	55	Haugh, Bob	Paducah	KY	USA	USA
36	M	36	Hodde, Jason	West Lafayette	IN	USA	USA
33	M	38	Kapoor, Neil	Enfield		UK	UK
50	F	50	Kashurba, Mary	Somerset	PA	USA	USA
58	M	58	Kladensky, Josef	Perchtoldsdorf		Austria	Austria
20	F	42	Lemus, Maria	Los Angeles	CA	USA	El Salvador
74	M	47	Marinsik, Dan	San Jose	CA	USA	USA
48	M	43	McKinney, Frank	Delray Beach	FL	USA	USA
83	M	56	Menard, Jack	Denver	CO	USA	USA
21	F	53	Muhlen, Monique	Bridel		Luxembourg	Luxembourg
22	F	40	Ngamkam, Angela	Dreieich		Germany	Germany
23	F	42	Pawzik, Heike	Rostock		Germany	Germany
42	M	42	Peischi, Otto	Ollersdorf		Austria	Austria
87	M	42	Pelissier, Stéphane	Lanta		France	France
34	M	40	Pence, Eric	Eagle	CO	USA	USA
30	M	30	Pratscher, Johann	St. Ruprecht/Raab		Austria	Austria
77	M	52	Radich, John	Monrovia	CA	USA	USA
79	M	54	Rampacek, Christopher	Houston	TX	USA	USA
70	M	48	Runions, Neil	Calgary	AB	Canada	Canada
76	M	51	Snyder, Scott	Littleton	CO	USA	USA
84	M	40	Treptow, Thorsten	Cologne		Germany	Germany
56	M	56	Weiss, Erhard	Siselen		Switzerland	Germany
24	F	48	Weiss, Heidi	Siselen		Switzerland	Germany
45	F	45	Weiss, Xy	Villa Park	CA	USA	USA

10:00 AM START

#	M/F	Age	Name	City	State	Country	Nationality
17	F	49	Alidina, Noora	Palm Harbor	FL	USA	Jordan
61	M	48	Bavato, Gerard	Villefranche de Lauragai		France	France
71	M	49	Boehnke, Guenter	Hofheim		Germany	Germany
41	M	41	Bursler, David	Bear	DE	USA	USA
62	M	43	Eggenreich, Gerhard	Mixnitz		Austria	Austria
3	M	43	Engle, Charlie	Hermosa Beach	CA	USA	USA
100	M	43	Escobar, Luis	Santa Maria	CA	USA	USA
55	M	55	Frost, Chris	Malibu	CA	USA	USA
47	M	47	Gungle, Bruce	Tucson	AZ	USA	USA
64	M	45	Hasse, Paul	Minneapolis	MN	USA	USA
2	M	48	Hawke, Ferg	Surrey	BC	Canada	Canada
5	M	54	Hofmann, Juergen	Eisenberg		Germany	Germany
95	M	54	Jones, David	Eagleville	TN	USA	USA
1	M	32	Jurek, Scott	Seattle	WA	USA	USA
99	M	43	Karnazes, Dean	San Francisco	CA	USA	USA
97	M	59	Magill, Jim	Saratoga	CA	USA	USA / UK
14	F	43	McFadden, Linda	Modesto	CA	USA	USA
46	M	46	Mendes, Manoel	Brasilia	DF	Brazil	Brazil
4	M	53	Mravlje, Dusan	Trzic		Slovenia	Slovenia
13	F	29	Pallos, Judit	Newport Beach	CA	USA	Hungary
11	F	45	Reed, Pam	Tucson	AZ	USA	USA
15	F	43	Reicher, Jody-Lynn	Midland Park	NJ	USA	USA
35	M	35	Sanderson, Marc	Pleasant Grove	UT	USA	USA
12	F	39	Scholz, Monica	Jerseyville	ON	Canada	Canada
52	M	52	Sichel, William	Sanday		Scotland	UK
7	F	45	Smith-Batchen, Lisa	Victor	ID	USA	USA
51	M	51	Sweeney, Mike	San Rafael	CA	USA	USA
40	M	40	Teal, Steve	Phelan	CA	USA	USA
9	M	55	Ulrich, Marshall	Idaho Spring	CO	USA	USA
16	F	40	Warren, Nancy	Wilton	CA	USA	USA
8	M	64	Webb, Arthur	Santa Rosa	CA	USA	USA
66	M	57	Weber, Uli	Wuergau		Germany	Germany



SPECIAL THANKS TO THE 2005 RACE STAFF!





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- 1: Mike "Ice Man" Angelos and Chris Kostman
- 2: Randy Klassen and Bruce Gungle
- 3: Andrew Mitchell, Jim Freim, Margaret Nelson, Tracy Fawns
- 4: Dan Dominy and Bonnie Ernst
- 5: Keith and Poosa Kostman
- 6: Most of the 2005 Medical Team
- 7: Mike Schafer
- 8: Laurie Streff and Chris Kostman
- 9: Dr. Lisa Bliss
- 10: John Wiley and Phil Marchant
- 11: Laurie Streff, Anna Boldon, and Adeline Goss
- 12: Mike Henebry and Scott Wall
- 13: Joe Garza and Nathan Phelps

MORE MEMORIES FROM 2005





A. Juergen Hofmann.
 B. Judit Pallos.
 C. Geoffrey Hilton-Barber and Flip Jergens.
 D. Scott Weber; 10-time finisher.
 E. Greg Minter and Ian Parker.
 F. 6am Wave.
 G. Mimi Anderson.
 H. Marshall and Heather Ulrich.
 I. Monica Scholz.
 J. Mark Cockbain and Holger Finkernagel.
 K. Albert Vallee.
 L. Dan Jensen.
 M. Frank McKinney.
 N. Mike Sweeney.



MORE MEMORIES FROM 2005



*A. Pam Reed
B. Nancy Warren
C. Sigrid Eichner
D. Jody-Lynn Reicher
E. Noora Alidina*



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