

## **The Return of the Desert Fox - Badwater 2006 -**

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### **My Badwater Mantra:**

Start slow, finish strong  
Relax, be open, enjoy every step to Stovepipe Wells

Rising up Townes Pass  
Flying down Panamint Valley like an eagle

Rising up Darwin Turn Off  
Let's roll to Lone Pine

Rising up Mount Whitney  
Embrace Grace

Feel the flow of the dance  
Dance on, running dancer, dance on

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This report is a summary of my experiences during the preparation for and the participation in the Badwater Ultra 2006. It is thus no race report in the actual sense, bends rather towards a 'scientific' paper. You may be surprised at it, bored, perhaps even disappointed. The reasons are: 1. During the months and weeks before the run I had the desire to become absorbed in all the different aspects of such a run. 2. My emotional experiencing of the run wasn't by far as pronounced as with the first time. Therefore my 2004 report may address the majority more likely. Feel free to read it at the Badwater Ultra website or in Ultrarunning, October 2004.

## 1. Goal setting

From the objective and its stress ratio to reality evolves the path to follow, training, devotion, full life. Following my goal setting for the Badwater Ultra, whereby the upper goal includes in each case all the goals under it:

1. Be part of The Top Ten.
2. Improve my 2004 result (< 39 hours).
3. Remain under 48 hours to receive the belt buckle.
4. Finish within the 60 hours time limit.

In a time of 36:57:35 I was granted to cross the finish line, worth a 14. place finish. Goal 1 placed itself as not realistically. It was more of a dream still waiting to become true.

## 2. Training

Training consists of many more than only running. However, be always aware: **regeneration is training, too**. The necessary training was essentially derived in co-operation with my friend and coach Bennie Lindberg from the characteristic of the run in conjunction with the goal setting. The Badwater Ultra is honored due to:

- \* The heat during the day with up to over 123 F in the shade, whereby no shade exists.
- \* The distance of 135 miles.
- \* The elevation gain of approx. 14,300 feet with 3 very long ascents.

**Body:** Based upon my 2004 experiences a sufficient basic perseverance is of crucial importance, so that, after 90 miles, you are still able to run the very run-able 32 miles to Lone Pine and not to degenerate into a sluggish walker or crawler. It's here, not at the beginning, where quite a lot of time can be won. In addition serve:

- Back-to-Back-runs: middle distance runs of approx. 20 miles on 2 consecutive days or, a little bit shorter, in the morning and afternoon. The second run is to simulate the load, the exhaustion at the end of a very long run. The advantage is that you can train with higher intensity than with very long runs and you are able to arrange your training more flexible.
- Very long runs up to 40 miles or more and a combination of both.

Besides, Badwater is in parts a mountain run. 2004 I was forced to walk up all the way to Townes Pass (15 miles) and Darwin Turnoff. Apart from strength training, uphill running was part of my preparation.

**Spirit and Soul:** In order to endure Badwater a strongly marked psychological stability is required to handle stress conditions like extreme heat, nausea, pain, deep levels of exhaustion and sleep deprivation. My exercises consisted of meditation (a daily habit independent from my running), visualizing the course and run, autogenic phrase training (positive statements, affirmations), mental segmentation and penetration of the event.

**Heat:** Heat acclimatization on the spot is the most important element to adapt to it (as far as possible). 30-90 minutes of training per day for 10 days lead already to an extensive adjustment. Also mentally one should have experienced the heat at least 3 days before running. It is simply not conceivable. Also I was the third year in a row at Badwater (2 running, 1 crewing), it was shocking again. Another advantage is when you are able to start with heat training already at home (using a sauna, running over-dressed). Important changes occur with heat acclimatization: heart rate, body temperature, and sweat salt content during exercise decrease while the sweating rate increases.

### 3. Nourishing system

Meals and drinking remain one of the key factors for the successful participation in ultras, in particular with extreme runs such as Badwater. There are people who came to the conclusion that Badwater isn't a running competition but rather a drinking contest in which not the legs but stomach and intestine determine its results.

**Drinking:** To be able to take up sufficient liquid is one of the central points in the Badwater Ultra. Since temperature of the environment (up to 160 F in the sun) exceeds body temperature by far (body skin temperature is around 91.4 F normally) the only avenue for the body to stay cool is maximum sweating and the evaporation of the sweat, producing a cooling effect. The sweat rate can exceed 2 liters / hour. A welcome kind of removal of slag which makes expensive trips to beauty farms unnecessary. Additional losses of water come through urinating and in particular while breathing because of extremely dry air at the Badwater Ultra. By external cooling (with wet towels in particular) the loss of water through sweating can be reduced substantially.

The Western States 100 Mile in California issues the following guideline to monitoring weight loss: Three percent loss in weight: The runner will be feeling fatigued and nearing exhaustion. (A Step Beyond: A Definitive Guide to Ultrarunning, edited by Don Allison, 1. edition 2003, p. 126). Considering my body weight of 187 pounds this means only 5.5 pounds. How quickly is this reached with a possible loss of water of 2 liters / hour.

The key question is how our organism, above all stomach and intestine, can master such a quantity of liquid supply. MD Beat Knechtle gives an answer to me: "You can probably pour more than 1 liter / hour down your throat. As a consequence you will dilute your sodium more and more until you end with a well defined hypoglycemia (water intoxication). If you drink water with some glucose and sodium you may manage to keep the water somewhat longer in your body." **Therefore, the supply of water must absolutely happen in connection with the absorption of sodium.**

#### **Result:**

In accordance with recordings I was able to digest between 1 and 1.5 liter / hour without having stomach / intestine problems during the hottest phase of the run. I was handed water with 600 milligrams of salt / liter. Occasionally a little bit of juice was added. Included in the above quantity is 0.2 liter of the liquid food Fresubin and 0.1 liter ProvideXtra, which was handed, blended with water. After the first hours I drank 0.355 liter of alcohol-free beer / hour, a genuine highlight, which besides supplied me with additional 65 kcal. Also gastric irritations arose in the later process (easy vomiting caused by wrong food intake), I was always in the position to drink my bottle of non-alcoholic beer. Altogether I emptied approx. 30 bottles of 0.355 liter (seems to be the German way to do Badwater – drinking beer).

**Not a moment signs of dehydration arose.**

**Eating:** The goal is a sufficient and fast energy input, without loading stomach and intestine unnecessarily. During a run such as Badwater approx. 500 kcal / hour are needed. Energy input should not only be covered by carbohydrates, but also some proteins and fat.

Carbohydrates are the preferred and, beside fat, most important energy supplier of the body, whereby also with slow speed their supplies are exhausted soon. Besides they are needed to burn fat. Only then fat can be used as energy source. Body fat is available also for extremely long runs in sufficient quantity. During long-lasting efforts also proteins are used for energy supply by the body, if carbohydrates are used up in the appropriate muscles. An unwanted effect since the body eats up itself, demolishing muscle fibers. Thus a special meaning is attached to the supply of carbohydrates. However, due to restricted absorption and transportation processes by membranes there is a limit to the assimilation and oxidation of

carbohydrates during long-lasting efforts (Knechtle, MD Beat, Energieumsatz bei Ausdauerbelastungen, in: Praxis 2004; 93: 457-468, p. 465). So, the highest amount of carbohydrates from food intake which can contribute to the coverage of the body's energy consumption is 250 kcal per hour (round about 60 grams) , whereby roughly 80 grams should be supplied (Noakes, Prof MD Tim, Lore of Running, Discover the Science and Spirit of Running, 4. edition 2003, p. 226f). This would be approx. 50 % of the 500 kcal / hour determined above.

Liquid food of the company Fresenius Kabi was used. The composition is:

per 100 ml	Fresubin	ProvideXtra
kcal	100	125
Protein	3,8 g	3,75 g
Carbohydrate	13,8 g	27,5 g
Fat	3,4 g	0 g
Dietary Fiber	0 g	0 g
Water	84 ml	81 ml

At the same time, the advice of MD Beat Knechtle should be considered: Too many carbohydrates taken up while performing will cause troubles with the intestine due to osmotically determined diarrhea.

In addition, my coach Bennie Lindberg makes a point: „We need the theory as a foundation. But you know how it is. Suddenly, in the middle of the night, you have that desire to eat a salami sandwich .... and there is only Fresubin available. This is the awkwardness of the Badwater Ultra - to prepare everything as perfect as possible, but to stay flexible when needed.“

#### **Result:**

0.2 liter Fresubin could be easily taken up per hour. In addition 0.1 liter ProvideXtra blended with water was handed. Near Stovepipe Wells we changed over completely to ProvideXtra, to increase the supply of carbohydrates. Probably, this led to an over-supply of carbohydrates with the consequence of diarrhea. So we changed back again to Fresubin. No food otherwise was taken up (except non-alcoholic beer and Coca Cola). Near Lone Pine and up to Mount Whitney Portal I had no energy left, I walked more than I actually wanted. Lone Pine in sight 3 cans of Coca Cola à 0,355 liter boosted a short term sprint, than the energy input was scattered to the winds, my stomach rejected any further Coca Cola. Thus 0.2 liter Fresubin and 0.355 liter non-alcoholic beer / hour helped me over the last stretch to Lone Pine and those scarcely 4.5 hours up the mountain. My stomach rejected everything else, even if additional energy input would have been extremely helpful. Up the mountain most of my energy came from burning fat, I was breathing heavily and only able to walk.

**Salt:** In particular a sufficient level of salt in the body is necessary in order to be able to take up the supplied food and liquid. That is because of the fact that sodium is seen from quantity the most important electrolyte. A level of sodium too low entails nausea and an aversion to ingest food and liquid. Even if one forces itself to eat and drink, because one correctly believes that it is necessary to reach the finish line, in such a condition it doesn't make sense any more. Beverages will be absorbed in a poor manner only and will gurgle and slosh around in stomach and intestine. What is absorbed cannot be retained and will soon be urinated out. As the level of sodium in the blood decreases further, water will be moved from the blood into the spaces around body cells. That is why hands and feet swell after many hours of running (hypoglycemia, water intoxication), while dehydration increases (A Step Beyond, 133). The amount of sodium lost in the sweat of the heat-acclimatized, fit athlete is amounting to approx. 1.8 gram / liter sweat. However: MD Beat Knechtle points out that the **sodium**

**intake is limited** again by body processes **to 800 mg per hour**. Noakes (p. 198) notes that humans cannot store fluid or salt to any great extent. In humans, the aim of ingesting fluid before exercise is to ensure that we are appropriately hydrated at the start of exercise. Overdrinking will simply result in more frequent trips to the toilet, effecting an increased loss of sodium and potassium in the urine.

**Result:**

600 mg salt per liter water is tasteless and has proven completely sufficient.

#### **4. Without cooling no finish**

Heat is delivered to the body from 3 sources:

- \_ 1. By sun exposure (this way it has to be in Death Valley).
- \_ 2. By radiation from the pavement (granted, still after sun set).
- \_ 3. By physical exercise (well then, I have certain goals).

That leads to the dilemma, that blood is needed by 3 systems likewise, which compete with one another for the valuable material:

- \_ 1. Blood flow increases to the skin surface, in order to keep the core body temperature stable at around 98.6 F (1. priority of the body).
- \_ 2. More blood is requested as transportation medium for the urgently needed energy by the musculature (2. priority).
- \_ 3. The stomach needs blood for digestion in order to fill up the draining energy stores (3. priority).

**From the above there has to be concluded:**

1. So much the more external cooling is successful, the more blood is available to support the musculature – sweethearts of the sun and ascetics look at it with horror.
2. The slower your pace, the less internal heat is produced. Besides, the consumption of energy decreases, so less blood is needed as transportation medium, which can be put at the disposal of the digesting apparatus – the hiker smiles, the fast runner becomes furious.
3. If a fine tuning of point 1 + 2 is manageable, then sufficient blood for the stomach is available to fill up again and again the draining energy depots (enough food intake assumed) – not the legs, the stomach determines the clock.

**Result:**

An ice-cooled, wet towel every 7 minutes during the biggest heat as well as an ice bag under the cap upon my head worked satisfactorily. Additionally a wet neck wrap was carried, which cooled the carotid arteries. The long, sun protective clothing was an advantage. On the one hand no sun protection had to be applied on the other hand the burning sun wasn't felt directly on the skin.

**Even if I suffered from the heat, at no time I was overheated.**

#### **5. Fatigue**

It amazes me how tired I can *get* just thinking about how tired I *am* (Dreyer, Danny, Chi Running: a revolutionary approach to effortless, injury-free running, 2004, p. 185).

How can I get tired while climbing, when I have become the mountain? (Twight, Mark, Steig oder stirb (Kiss or Kill), 2001, p. 274).

Noakes (p. 542f) and in particular Dreyer (p. 184, 202) give a set of recommendations, which are not only helpful if tiredness occurs, but during the entire process of a competition.

However, often our spirit wanders away. In this case the insistent tiredness is a welcomed warning voice:

- Feel your body; go through it step by step.
- Relax, reduce tenseness - drop your shoulders, let your arms dangle and shake them easily, relax your face (facial muscles control most of the tension in the rest of the body –when I sit down to do my meditation, I have learnt, too, to relax my facial muscles at the beginning – mouth, jawbone, eyes, forehead).
- Examine your posture, correct it if necessary (in most cases: straighten it up).
- Shorten your stride length, slow down your pace.
- Breathe deeply and loosely.
- Enjoy your surroundings.
- Don't deny your fatigue, but don't give special attention to it.
- Relax especially any muscles that feel particularly tired or sore, imagine how energy is now flowing again to them (Chi – the energy of life, which runs through us).
- Smile!
- Take in the world around you.
- Lean a little bit from your ankles (don't bend at the waist – you can find the whole approach in Dreyer's book) and let you move by the arms of gravity of mother earth.
- Check your pace again.
- Hey, what you're doing, don't forget to smile!!

**Result:**

I did only need one sleeping break of 15 minute, in which I dozed off a little bit. The break was shortly after Panamint Springs at dawn.

## 6. Pacing strategy

There's such a fine line between trying to gear it up a notch and putting yourself in jeopardy later on. I think I pushed a little beyond that line, and for the first time ever, I really thought I could not do it. (Scott Mills at Western States 100 in Jamison, Neal, editor of Running Through the Wall: Personal Encounters With the Ultramarathon, 2003, p. 102).

It's easy to let your ego get the better of you early on and run beyond your means. It's a mistake that may haunt you as the miles and the hours add up. One of the biggest challenges in this early stage would be to have the discipline to go slow, even as other runners passed me. And I hated being passed. (Karnazes, Dean, winner Badwater Ultra 2004 in Ultramarathon Man: Confessions of an all-night runner, 2005, p. 105f).

- My 10 + 5 rhythm (10 minutes running, 5 walking) to Stovepipe Wells keeps my heart rate down, reduces my energy requirements, and protects me from overheating.
- The pace is set by the body and subconscious on the basis of all the information coming from the different body parts, which contribute to the running performance, not by the clock or your ego. Thus one knows exactly, which performance can be sustained, which is the appropriate pace, that avoids a sudden fall off in performance or a complete break-down. Listen to your body, choose an appropriate pace, and avoid getting into trouble. The conscious mind is not a good guide. Often too optimistically and affected by a host of imaginary variables (expectations, hopes, presumptions, ...), none of which has anything to do with your own, true physiological state before or during the race.
- Stay in the present, only this very moment counts, not the miles left to the finish line. Thus the smallest unit to be mastered is the next step, which should be always possible, until suddenly one of them leads you over the finish line.

**Result:**

In particular at the beginning, my 10 + 5 rhythm secured me against going out too fast. Immediately after the start I was the tail light of the 10:00 starting group. However, not before long I began to overhaul the first runners. Constantly I listened to my body. At no time I pushed too hard.

## 7. The team

At the Badwater Ultra, without his team, the runner is a nobody, a castaway. I was looked after, pampered, and nursed by my Dream-Team from the year 2004, additionally enriched with Juergen, also known as 'The Ultrakraut': Bennie Lindberg (team chef), Birgit Dasch, Ingrid Ruecknagel-Boehnke, Juergen Ankenbrand.

My success is theirs; my deepest thanks go with them.

## 8. Something else

Contrary to 2004, this time I had no problems with my feet. Not a blister formed. My feet were rubbed in carefully before the run and again at Stovepipe Wells with Bodyglide. In addition I did use double layered Coolmesh Wright socks.

## In the end – from the road

Such a run can become a spiritual experience. That's the very reason, my main objective, the core, the essence, which calls and directs me to the starting line still.

Dance on, dancing runner, dance on  
Devote yourself to the experience completely  
Be open, unfold yourself, and don't be locked  
Don't let your spirit wander to another place  
Be grateful, that such an experience was given to you



Bennie Lindberg, Birgit Dasch, The Desert Fox, Ingrid Ruecknagel-Boehnke, Juergen Ankenbrand

**Close your eyes, go on a journey, I'm pleased to meet you.  
Where?  
What a question!  
At the Badwater Ultra 2008 of course.**

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