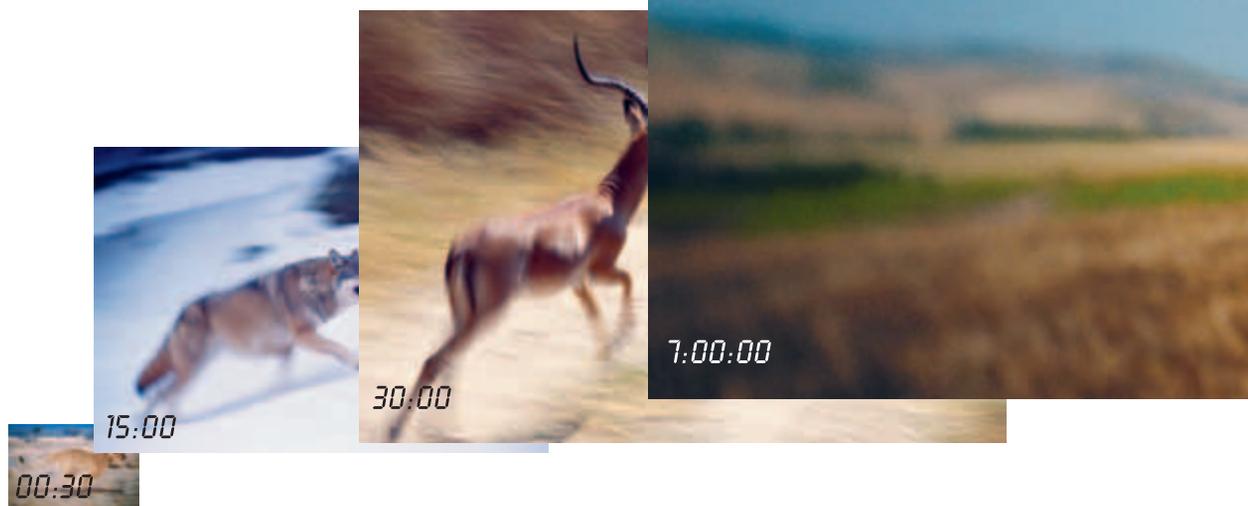


Endurance Hunters

Man is an animal on the move. In the extreme heat, we are unbeatable over long distances. This is what enabled our forefathers to chase their prey to death – quite literally.



Text: Mathias Plüss



Bernd Heinrich has recently turned 70 and is still running. Three of his US records from the 1980s are unbroken – over 100 kilometers, 100 miles, and 12 hours on the track. In five years' time he wants to set a new world record: again over 100 kilometers, but in the category of 75+.

Long-distance running is booming. Races open to the public are enjoying record participation levels. Nowadays, anyone who has yet to run a marathon almost needs to have a good excuse handy. Nor do even extreme distances put people off: The 2009 Trans-Europe Foot Race, which started in Bari in southern Italy and ended up at Norway's North Cape, spans a distance of more than 4,488 kilometers (2,789 miles) – with entrants averaging 70 kilometers a day, without a single day's rest. But is this racing boom just a momentary trend that will disappear in a few years? Hardly. For many runners, this activity is rather a case of returning to the original human condition. "As runners, we are fitting into the endless chain of history," Jim Fixx wrote in his "Complete Book of Running."

"We experience what we would have felt had we lived 10,000 years ago and kept our heart, lungs and muscles healthy through continual movement. We reaffirm something that modern man rarely achieves – our kinship with mankind in its earliest days."

Humans Were Born to Be Runners

Some people even view running as the essence of being human. "It is rooted in our collective memory," says South African anthropologist Louis Liebenberg. "Running is the superpower that makes us human." Deep in our inner being, agrees Bernd Heinrich, "we are still runners. We are all natural-born runners." It was put most beautifully of all by the legendary Czech distance runner Emil Zátopek: "Bird flies, fish swims, man runs."

Heinrich, a German-American, is a phenomenon even among the extreme running community. As an athlete, he extends the boundaries of his own performance, while as a zoologist he studies evolution and conducts experiments. Running has been his passion ever since he took to running barefoot behind tiger beetles across sandy trails when he was just six years old.

However, he only started proper training once he was nearing 40. A friend once suggested to him that he might be able to run a marathon in under 2:30. Heinrich began training the very same day. When a doctor urged him to stop on the basis of a degenerative cartilage, he simply ignored both the pain and the warning: "I just imagined how I could slowly but surely grind this small piece of cartilage into powder by intensifying my running." The knee held. He ran his first marathon in 2:25.

But then he switched to even greater distances. His great day came on October 4, 1981: the Chicago 100 Kilometer Run. Bernd Heinrich, 41 years old, wearing no socks, and relying solely on cranberry juice for sustenance, completed the course three quarters of an hour before his nearest rival, setting an American record. He then wrote a best-selling book about his experiences and findings under the legendary title "Why We Run." Heinrich's thesis? For thousands of years man has been an "endurance hunter" who quite literally chases his prey to death in the heat of the day. That concept may sound a bit ridiculous at first, since we carry



around with us the prejudice that man is a master of mediocrity who can do a bit of everything, but nothing very impressively: a bit of swimming, a bit of climbing, a bit of running.

Although that may essentially be true, man is actually superior to all other running creatures in a particular set of circumstances – over extreme distances in great heat. Hares are outstanding sprinters, capable of running at 70 kilometers an hour for up to 45 seconds. That is their salvation, as foxes can briefly reach top speeds of up to 60 kilometers per hour. The fastest land animal of all, the cheetah, typically captures its prey within 30 seconds or gives up the chase. Wolves too rarely pursue their prey for more than a quarter of an hour before risking death through overheating. The best medium-distance runners are believed to be antelopes, with several types capable of covering 10 kilometers in as many minutes. But their lean bodies mean that they lack energy reserves, so after 30 kilometers they are exhausted. That's why well-trained human beings can chase even antelope to death, as long as they do not lose the trail.

The best proof of this is the fact that many indigenous peoples actually practiced endurance hunting until very recently. Ethnologist Barre Toelken recalls witnessing for himself how a Navajo Indian would hunt deer back in the 1950s: "The stag got away from him in wild leaps, and then paused before fleeing once again. By following the track of the animal at an even tempo, the hunter would ultimately exhaust it. He would then approach the exhausted stag, put his hand over its mouth and nostrils, and suffocate it."

Endurance Hunting at 37 Degrees

Anthropologist Louis Liebenberg has himself taken part in an antelope hunt with the bushmen in the Kalahari Desert in Botswana on several occasions. By the end of it, he recalls, "the antelope collapses completely, or slows to the point where it simply stands there with its eyes glazed over. Ultimately the animal is made to overheat." This process requires the hunters to run distances of up to 35 kilometers, non-stop, for between two and seven hours. And this in temperatures of at least 37 degrees Celsius (99 degrees Fahrenheit) – any less and >

Driven to Run



Bernd Heinrich, born in 1940, has achieved fame as a zoologist for his research on bumblebees, wild geese and ravens. He was 40 when he began his career as a marathon and ultradistance runner. Among his best-selling works are "The Mind of the Raven" and "Why We Run: A Natural History." Heinrich lives in a log cabin in Maine (US).

they will not embark on the endeavor as the antelope would be too quick. And this is the crucial point: No other animal is so well adapted to deal with heat. Indeed, man is the world's undisputed perspiration champion. We have even disposed of our hides over the course of evolution to enable water to evaporate off our skin. Our three million sweat glands are capable of expelling up to two liters (0.5 gallons) of water an hour. Many animals are not good at perspiring, while others cannot do so at all. Dogs, for example, are hopelessly inferior to man on hot days as their only cooling mechanism is to pant. A cheetah cannot run for more than two minutes in the sun or it will suffer heat stroke. Evidently, most animals are designed to save water – but the very opposite is true of man. The compensation for this loss of fluid is man's ability to run in exceptional temperatures, which has enabled him to carve out his very own environmental niche.

Perspiring and the loss of his original hide are just the most striking characteristics of man's evolution. "From head to foot we are a mass of adaptations, many of which are irrelevant to the business of walking," argues anthropologist Daniel Lieberman of Harvard University. Here are a couple of characteristics of a long-distance runner:

■ **Bipedalism:** Our two legs allow us to run faster than four. The American cockroach stands up on its hind legs when it is in a hurry – as does the iguana. The fastest middle-distance runners among the dinosaurs were the two-legged variants. But standing up in the heat yields a further benefit: Thanks to an upright stance, the amount of sunlight absorbed by the body is reduced by around 60 percent. On the downside, two-legged animals suffer from the problem of their heads being exposed to the sun, but it is precisely to protect us from this vulnerability that we have a lavish crop of hair. In addition, a special network of blood vessels channels off the heat from our sensitive brains.

■ **The tendons:** These are the storage power plants of the runner. The Achilles tendon absorbs 40 percent of the energy released in every step, which would otherwise be lost, and then releases it again in the next step. For the humdrum business of walking, the tendons have no real importance. "Over the course of evolution, large tendons have developed exclusively in creatures that run," says anthropologist Lieberman.

■ **The buttocks:** Compared to other primates our backsides are huge. Indeed,

man's gluteal muscle is the largest he has. It is subjected to little pressure when walking, but when running it provides stability. All other two-legged runners (such as the kangaroo, for example) have a large tail that serves as a counterweight to a rump that is inclined forward. In man, gluteus maximus fulfills a similar function. In addition, man has a special neck ligament to stabilize the head. This theory is not uncontroversial, however. The problem is that the actual cause of any adaptation in the evolutionary process can never really be proved. This can be illustrated with particular clarity by the many benefits that walking upright entails: the greater view over the savannah after our forefathers rose up from their bellies; the freeing up of hands to enable the use of tools, or carrying children; or even the greater speed when it came to running. What was the actual trigger, and what was simply a welcome side-effect, is difficult to say.

From Carrion to Fresh Meat

What is clear, however, is that man's development into an outstanding runner must have been a long, drawn-out process. Bernd Heinrich reckons that earliest two-legged creatures first used their (initially only modest) speed to get to fresh carrion as quickly as possible. And having acquired a taste for meat, man then began to hunt. The high-energy nutrition provided by meat evidently offered so many benefits that man's running skills continually improved over millions of years.

The development of our brains is also wholly in keeping with successful hunting. Because when it comes to endurance hunting, the art of tracking prey is crucial, since the quarry is initially much quicker and the tracking process requires intelligence. But hunting also requires perseverance and the ability to envisage a future scenario – a typically human characteristic. Here Heinrich talks of the "visionary power" without which man would not have been able to endure all the pain and exertions that accompany the pursuit of an ambitious target. "We can imagine things that lie far in the future," writes Heinrich. "We see our 'prey' before us even if it has disappeared behind hills or in the mist. And it is this vision that becomes our key motivator at these moments. It is the power of visualization that enables us to reach out toward the future, whether our goal is to bring down a mammoth, write a book, or set a new record time in a race." <

Feel Like a Run?



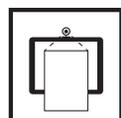
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