

MARATHON TIMES

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There are only 38 days left until Grandma's Marathon. We'll continue to keep you updated. Keep running.

Photo courtesy of grandmasmarathon.com

With the bridge in sight, runners are on their way

Runner's high demonstrated

Photo by Drew Geraets

A running fan captured one of hundreds of water stations featuring Coca-Cola Cups at Grandma's Marathon

Pace driven by car, runners driven by endorphins

ScienceDaily

Throughout the world, amateurs, experts and the media agree that prolonged jogging raises people's spirits. And many believe that the body's own opioids, so called endorphins, are the cause of this. But in fact this has never been proven until now. Researchers at the Technische Universität München and the University of Bonn succeeded in demonstrating the existence of an 'endorphin driven runner's high'. In an imaging study they were able to show, for the first time, increased release of endorphins in certain areas of the athletes' brains during a two-hour jogging session.

These results are also relevant for patients suffering from chronic pain,

because the body's own opiates are produced in areas of the brain which are involved in the suppression of pain.

Runner's high

Endurance sports have long been seen as reducing stress, relieving anxiety, enhancing mood and decreasing the perception of pain. The high that accompanies jogging even led to the creation of its own term, 'runner's high'. Yet the cause of these positive effects on the senses was not clear until now. The most popular theory was and still is the 'Endorphin Hypothesis', which claimed that there was increased production of the body's own opioids in the brain. However, since until now direct proof of this theory could not be provided; for technical reasons, it was a constant source of controver-

sial discussions in scientific circles. The result was that the myth of 'runner's high through endorphins' lived on.

Endorphin hypothesis confirmed

Scientists from the fields of Nuclear Medicine, Neurology and Anaesthesia at the Technische Universität München (TUM) and the University of Bonn have now subjected the endorphin theory to closer scrutiny. Ten athletes were scanned before and after a two-hour long-distance run using an imaging technique called positron emission tomography (PET). For this they used the radioactive substance [18F]diprenorphine ([18F]FDPN), which binds to the opiate receptors in the brain and hence competes with endorphins.

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Runner's high

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'The more endorphins are produced in the athlete's brain, the more opiate receptors are blocked,' says Professor Henning Boecker, who coordinated the research at TUM and who is now in charge of the 'Functional Neuroimaging Group' at the Dept. of Radiology, University Hospital Bonn. And further: 'Respectively the opioid receptor binding of the [18F]FDPN decreases, since there is a direct competition between endorphins in the brain and the injected ligand'.

By comparing the images before and after two hours of long distance running the study could demonstrate a significantly decreased binding of the [18F]FDPN-ligand. This is a strong argument in favour of an increased production of the body's own opioids while doing long-distance running. 'We could validate for the first time an endorphin driven runner's high and identify the affected brain areas', states Boecker. 'It's interesting to see that the affected brain areas were preferentially located in prefrontal and limbic brain regions which are known to play a key role in emotional processing. Moreover, we observed a significant



Photo by Drew Geraets

Running partners go through a viewing spot

increase of the euphoria and happiness ratings compared to the ratings before the running exercise.'

Professor Thomas Tölle, who for several years has been head of a research group called 'Functional Imaging of Pain' at TU Munich, adds: 'Our evaluations show that the more intensively the high is experienced, the lower the binding of [18F]FDPN was in the PET scan. And this means that the ratings of euphoria and happiness correlated directly with the release of the endorphins.' This has

clear implications for those who suffer from chronic pain. 'The fact that the endorphins are also released in areas of the brain that are at the centre of the suppression of pain was not quite unexpected, but even this proof was missing. Now we hope that these images will also impress our pain patients and will motivate them to take up sports training within their available limits,' he concluded.

Running down the pain?

It is well known that endorphins facilitate the body's own pain suppression by influencing the way the body passes

on pain and processes it in the nervous system and brain. The increased production of endorphins resulting from long-distance running could also serve as the body's own pain-killer, a potent potential therapeutic option. 'Now we are very curious about the results of an imaging study using Functional Magnetic Resonance Imaging which we are currently carrying out in Bonn in order to investigate the influence of long-distance running on the processing of pain directly,' Professor Boecker says.

Further research is required so as to investigate the exact effects on depression and states of anxiety but also on possible aspects which may promote addiction. That is why the relation between genetic disposition and opiate receptor distribution in the brain is being currently investigated at TU Munich. 'A scary thought,' Thomas Tölle comments, 'if we ran because our genes wanted us to do so.' The first step towards researching these connections has now been made.

The results of the study "The Runner's High: Opioidergic Mechanisms in the Human Brain" are published in the journal 'Cerebral Cortex'. This research was supported by the German Research Association, as well as the Federal Ministry of Education and Research and the German Association of Neuropathic Pain.

A LITTLE LESS INTENSITY THIS WEEK WILL PROVIDE A MENTAL BREAK

Training week 12- The seven day forecast

Advanced Runner

MON	TUES	WED	THUR	FRI	SAT	SUN
6- 8 miles	8 miles	10 miles	8-5 miles	OFF	8 miles	24 miles
Day 78	Day 79	Day 80	Day 81	Day 82	Day 83	Day 84

Intermediate Runner

MON	TUES	WED	THUR	FRI	SAT	SUN
OFF	6 miles	5 miles	8 miles	6 miles	5 miles	20 miles
Day 78	Day 79	Day 80	Day 81	Day 82	Day 83	Day 84

Runners must pass over carbs during Passover

Featuring Jonah Pesner and Wayne Cohen, two Jewish men who struggle with religious dietary restrictions while training for the Boston marathon

BOSTON (AP)

Jonah Pesner is looking ahead to his crucial carb-loading, fuel-up meal on the night before running his first Boston Marathon. On the menu: matzoh. It's not the usual choice for marathoners loading up on carbohydrates to drive their run, but Pesner, a rabbi, has limited options.

Passover begins just two days before the April 21 marathon, and the holiday's strict dietary rules mean Jewish runners can't eat bread and pasta, the normal staples in the days before the big race. Besides matzoh, which is unleavened bread, Pesner plans to pound down foods such as potatoes during a rare "carb-load seder" the night before the race.

Pesner never considered breaking the dietary rules for the sake of the race, which he is running with his wife for an autism charity. "For me, running the marathon is a very spiritual quest," he said. The marathon is always held on Patriots Day, a state holiday that falls the third Monday in April, and often comes within the weeklong Passover holiday. Marathon organizers try to be sensitive to religious concerns, but major changes to suit various religions aren't practical, said Marc Chalufour, spokesman for the Boston Athletic Association, the marathon's organizer.

"You've got 25,000 runners and you obviously want to be sensitive to the needs of all of them," Chalufour said. "But you can't make a change to accommodate some of the runners at the expense of the majority.

"It's not like I've been perfect in my religious beliefs." I'm beyond that"

- Wane Cohen on deciding to eat oatmeal and a bagel on race day, regardless of Passover restrictions

"The dietary restrictions for Passover forbid eating leavened foods, such as bread, cake, beer or pasta, which have yeast or other fermented grain products. The prohibition is traced to the roots of the holiday, which marks when God sent an angel to kill first-born Egyptian sons, but spared the houses of the Israelites. Soon after, Pharaoh freed the Jews, who fled in such a hurry that the dough they took didn't have enough time to rise.

Jews usually hold a Passover seder, a meal with religious rituals, in their homes on the first two nights of the holiday, which is usually observed for eight days. The level of observance varies. An Orthodox Jew, for instance, does not work or drive on the first two and the last two days of Passover, so he or she would not run a marathon on those days. It's not an issue for Pesner, whose liberal Reform branch generally suggests followers hold a seder on just the first day of the holiday, though the dietary rules are observed the entire week.

Pesner, 39, acknowledges he has questions about the

effects of his diet on his race. Matzoh is known to have a binding effect on the digestive tract. "It's definitely a concern," Pesner said, chuckling. Sandy Karpen, a real estate agent from Scottsdale, Ariz., said he and his wife, Sharon, are changing their tradition of attending seders the first two nights of Passover to accommodate their training. The second seder is the day before the race, and Karpen and his wife wanted to rest, rather than attend a seder on what is typically a long night.

Their rabbi from the Conservative Jewish tradition advised them that Jews may fulfill their obligation by observing only the first day, and said they could do the same. The 17-time marathoner admits to some guilt about straying from his lifelong tradition, but has no regrets. "I guess sometimes you're looking for justification for what you're doing," he said. "My rabbi said it was acceptable to do, and that was good enough for us." Karpen, 49, and his wife ate fish and potatoes before their last long runs as sort of practice. "The

last thing you want to do is change your diet or change anything you've been doing throughout your cycle," he said. "You never want to experiment the day of the race.

"Wayne Cohen, from Houston, figures that on the day before the marathon, he'll have egg whites and fruit for breakfast, rather than pancakes, and salmon with potatoes for dinner, instead of a carb-filled pizza.

But Cohen, 51, has decided he'll break Passover rules on the morning of the race, when he's planning to eat oatmeal without water and likely some pieces of bagel. Cohen has run about two dozen marathons, and decided he doesn't want to mess with his normal race day routine. And he's not feeling guilty about it. "I've pretty much convinced myself I would be a hypocrite if I said it would," he added. "It's not like I've been perfect in my religious beliefs." "I'm beyond that," he said. "I'm not going to worry."

MY MARATHON TIME: LETTERS TO THE EDITOR



Photo by Gary Kruchowski

Balloons greet finishers in Canal Park, the last stretch in the Grandma's Marathon

Dear Marthon,

My name is Matt Congdon I am junior at the University of Minnesota-Duluth. I have been signed up and training for Grandma's Marathon for about 12 weeks now and have unfortunately acquired some injuries throughout this whole endeavor. I have had shin-splints in the past and they have luckily only flared up once so far. Since the beginning of my training my feet have often hurt extremely badly and I have had to stop exercise for the entire day if not the next few days. I never knew what was wrong until a few nights ago when I was studying for my Aerobics Final exam. I came across a section in my textbook on injuries and it occurred to me to see if I could figure what was going on with my feet. I learned that I have a condition called metatarsalgia, an overuse injury caused by irritated

nerves between the metatarsal bones in my feet. To verify that this information was correct I looked up metatarsalgia at webmd.com and all of the causes applied to the symptoms I have been experiencing. For about the past week I have avoided running and have begun to go biking as a substitute to train for Grandma's Marathon. Hopefully this will allow my feet to avoid the heavy pounding of running and to heal while still keeping up my cardio-vascular-respiratory fitness along with endurance in my legs. I will pick up running short distances again in a few weeks. I am unsure how I will do come race day but to finish will be an amazing feat keeping in mind the injuries I have endured.