

Flying Loose

by Seánan Forbes

excrete large amounts of water to urine that otherwise would have stayed in the blood. The elimination of this water from the body raises the salt concentration in the blood. With the high rate of water excretion, the urine becomes lighter in color. Along with thirst, urine flow rate and color provide key clues that can tell athletes about their state of water balance. That probably won't help much during a race, but it can be a good indicator of your body's fluid levels in the hours or days leading up to a race. It is not necessary, however, to increase urine flow to a maximum level to prevent dehydration — in fact, at some times it may hurt rather than help by reducing vasopressin levels in the blood too much.

The changes in water excretion seen by observing urine color are dependent on special water transport molecules in the kidneys called aquaporins. They transfer water from the urine being formed in the kidneys back into the blood. In the short-term, the release of vasopressin during even a mild state of dehydration activates a certain aquaporin, called aquaporin-2. This causes a nearly immediate rise in the amount of water retained in your body. One important recent discovery in aquaporin research was the finding that the kidneys need the hormone vasopressin just to make aquaporins, let alone activate them. Long periods without vasopressin, for example, due to drinking fluids continuously on a daily basis, results in a depletion of aquaporin-2 from the kidneys and a loss of ability to respond to dehydration by retention of water. Thus, periodic moderate dehydration is necessary to maintain the ability of the kidneys to conserve water when called upon to do so.

You can be sure to maintain normal levels of aquaporins in your kidneys if you periodically raise your vasopressin levels through regular sweat-producing workouts to increase fluid loss and by making sure not to overhydrate between races with habitual excess intake of dilute fluids such as water or coffee. In other words, if the kidneys are conditioned, or trained, to maintain their water-conserving ability, there is potential to improve performance by avoiding in-race dehydration.

Both thirst and kidney function change under periods of fatigue.

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In 2003, Deena Kastor flew to Lausanne to compete at the World Cross Country Championships, followed by the Flora London Marathon just three weeks later. When she arrived in Europe she was a bit sore and achy. Although she finished second in the 8K cross country race, shortly afterwards, she started to have Achilles pain.

Fortunately, Kastor's husband, Andrew, a massage therapist and personal trainer, and her coach Terrence Mahon figured out that Kastor needed to stretch her psoas muscles in the hip flexor group. Once she stretched those muscles, which run from the lower back through the pelvis and stabilize the base of the spine, her Achilles pain let up and she went on to set an American record and place third at London.

"We were able to trace the pain back to the travel schedule and lack of stretching for her hip flexors," says Mahon, Head Coach of Team Running USA. "Since then we

make sure that everyone on our team tries to stretch, both while traveling and immediately when we get to the hotel."

A long flight — especially in the tight quarters of coach class — can have debilitating effects on a runner's body. A few key stretches and some expert insights, however, can allow you to hit the ground running.

Spine specialist Dr. André Panagos of New York-Presbyterian Hospital and Weill Cornell Medical College, stresses the importance of being attentive to body position and minor aches while flying. Crossing time zones means your circadian rhythm — the 24-hour cycle of physiological processes your body goes through — is thrown off, so you aren't as conscious of your body's warning signs.

Mahon, a former 2:13 marathoner, says that the major problem with flying is being cramped in the frontal flexion position for hours. "Certain muscle groups get locked in short positions," he says. "The most important ones to focus on are the hip flexors."

When the hip flexors shorten, the pelvis gets stuck in an anterior rotation. This leads to pain in the low back and upper hamstrings. It can also cause the calf muscles

and Achilles tendon to get overstretched. The neck can also get strained from being pushed forward because of the position of the hips and because many people read magazines or watch movies while flying. The shoulders follow suit and get internally rotated, which can cause pain in the upper back and neck muscles.

Both Mahon and Panagos advocate pressing your spine into the back of the chair. "Try to stick your butt into the angle of the seat and the seat back," Panagos



says. He also suggests using a blanket or pillow to provide lumbar support, taking pressure off the spine.

Shoulder rolls and neck stretches can be done in your seat, as can hamstring and IT band stretches, which will help to ease the strain in your lower back. When you are allowed, walk to the exit row or rear of the plane where there's usually space to stretch. Take advantage of time spent waiting in line for restrooms. Damon Roxas, National Director of Training and Fitness for the Crunch Fitness gym chain, advises focusing on squats, knee raises and "anything that gets your blood flowing."

If the aisle is clear, he suggests upping your airplane walk to a jog. His list of in-flight stretches: swing squats with reach, trapezius and levator scapulae stretches, shoulder rolls, downward dog and hamstring, calf, piriformis and glute stretches.

While you're standing in the aisle, waiting to get off the plane, do calf raises to get your blood moving and warm up your muscles.

In-flight stretching won't guarantee you a place as a podium finisher, but it will keep you in your top form, ready to run. ■