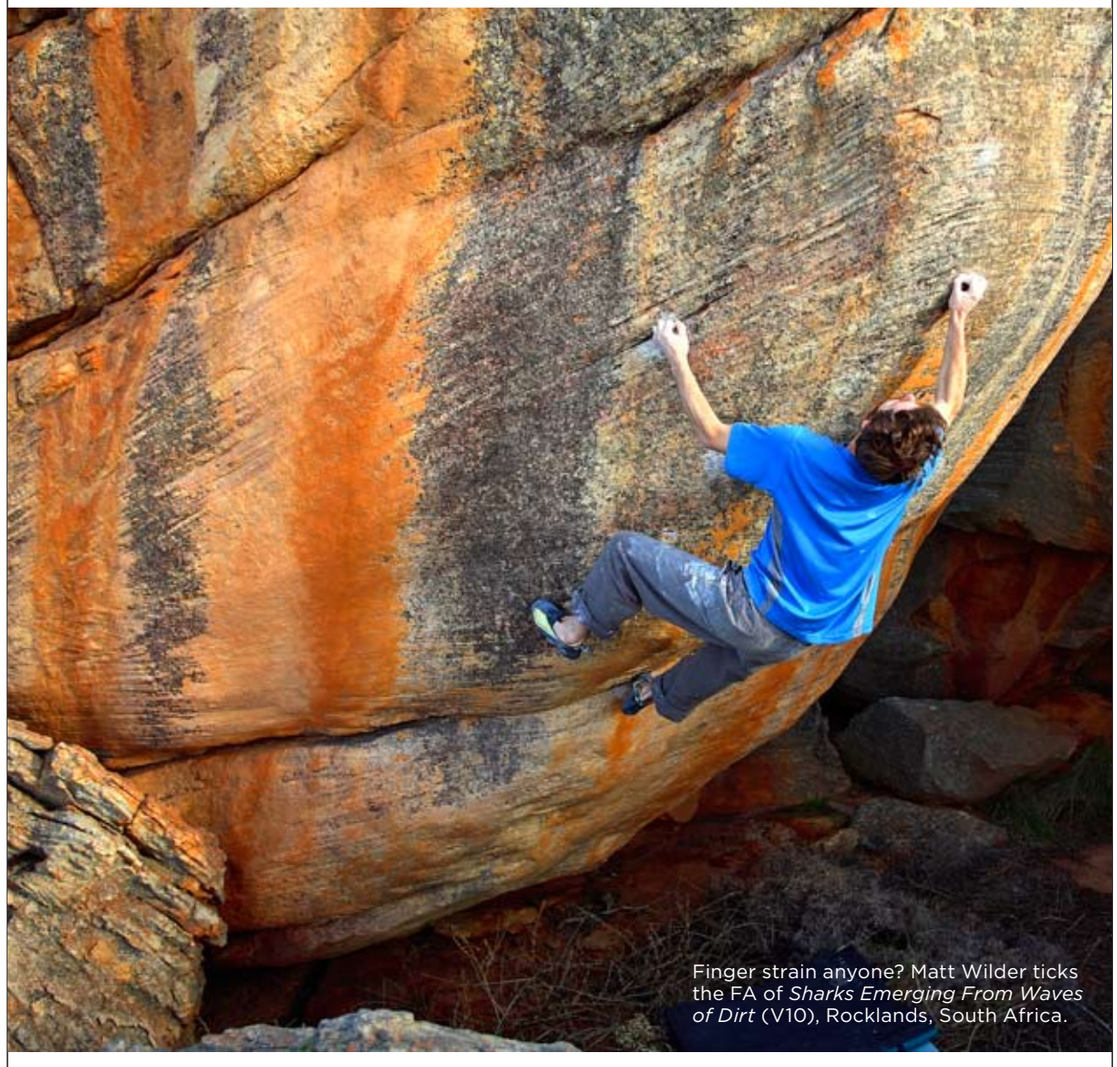
STRESSED-OUT FINGERS

Dr. J takes a look at climbing's most under-diagnosed injury: finger stress fractures.



Finger strain anyone? Matt Wilder ticks the FA of *Sharks Emerging From Waves of Dirt* (V10), Rocklands, South Africa.

YOU MIGHT THINK it would be difficult to break a finger while climbing. However, the chronic prehensile force generated by a climber is second to none. With training techniques focusing on nano-hold strength, and the volume of training unparalleled, bones are now being pushed to their limits. Hairline cracks can evolve over time, causing a diagnostic dilemma and plenty of discomfort.

Finger injuries in climbers are mostly no-brainers to diagnose. Pulley strains and tears account for 90 percent of injuries. Bone stress, however, probably accounts for most of the remaining 10 percent. That is, the pain in your appendage may indicate a fracture rather than the "pulley strain" you or your health-care provider thought it was.

Anecdotally, I would say one in 10 sore fingers exhibits signs of bone stress. The ability to diagnose stress fractures through imaging technology is recent, and the brain wave that climbers might get them is even more recent.

Stress fractures occur for one of several self-destructive reasons, typically a combination of too much crimping combined with too much volume. A rapid increase in training, or going "holiday climbing" (suddenly climbing every day instead of once a week), *will* lead you down the merry path of what Freud might have called "subconscious masochism." Bone stress is proportional to bone strength. If you abruptly start applying a lot more force than the bone is accustomed to, expect it to become a tad annoyed.

Like other tissues, bones must adapt to new demands over time. Bone-mineral density (BMD), however, changes only slightly faster than the religious right's policy on gay marriage. Going from a desk jockey to full-time climber on your annual vacation is no doubt fun for your brain, but be fire and brimstone for your bones.

In athletes other than climbers, stress fractures almost exclusively occur in weight-bearing bones such as the foot or lower leg. Given that fingers are typically non-weight-bearing and practitioners rarely understand the forces a climber's hand must withstand, this condition can easily fly under the radar of even the most meticulous medicos.

Children and adolescent climbers are at more risk for bone-stress related

Treatment

STOP F*%@! CRIMPING

You could prevent nearly all stress fractures by not crimping, but you might as well ban teenage parties to prevent the spread of glandular fever. At least try to crimp less. Crimping generates considerably more cross forces than other kinds of moves and those forces can potentially lead to stress fractures. Learn how to open hand, as it will exact less stress on your bones.

TRAINING

Perhaps the biggest contributor to stress fractures. The advice is fairly straight-forward: keep it consistent; don't change the program any more quickly than it takes the leaves to turn orange and fall off. Throwing in a few weeks of committed campus boarding will fuck you up faster than a mafia drug lord. Reducing the time of each session, and not crimping, *may* enable you to climb through your injury, but don't count on it.

ULTRASOUND

Showing more promise than it ever has (which isn't saying much), though it is largely anecdotal evidence. Regular low-pulse ultrasound is apparently effective in stimulating fracture healing, specifically when the bone ends are not bonding as quickly as they should. Not many high-quality studies pertain to stress fractures specifically, but certainly enough to raise a curious eyebrow.

COMFREY CREAM

I like creams. You feel proactive. If you don't ask Western medicine, you'll hear a chorus of support for this goo, especially from naturopaths and homeopaths, when it comes to assisting bone re-growth. This ointment is inexpensive and has no adverse side effects, so give it a lash. It's certainly a nice analgesic. Ice cream is also very good, especially for prevention.

PAINKILLERS

My standard philosophy is: "Suck it up, pumpkin, you got yourself there in the first place," though I must admit this advice is not always appropriate. Masking pain certainly has its problems, but if you must, use acetaminophen-based products such as Tylenol. There is research that suggests non-steroidal anti-inflammatory pain relievers—such as aspirin, ibuprofen (Advil, Motrin, others) and naproxen (Aleve, others) can interfere with bone healing. If your finger is sore or swollen, icing is better.

REST, OR NOT

Not a bad option in terms of healing. But you might as well ask the man-child George Bush to stop wearing his Master Blaster pajamas to bed. If you don't want to stop, or if the pain doesn't make you stop, back off the crimping. Healing will not be immediate, though the pain should drop noticeably. As my usual dictum goes, if you stop pissing it off, not only will it hurt less, it may even heal! Six weeks is about the norm, but it may take as long as 12.

Be very careful to monitor the pain parabola, and keep the trajectory going south. I am a fan of continuing to climb, primarily to keep the rest of the rig from falling apart. Climbing has the added benefit of preventing mental breakdown: sound fingers are useless if all you can do is sit in a dark room chanting "Mummy" as you rock back and forth. That said, any more than an itsy bit of pain is deleterious and counter productive. If you have so far ignored your injury to the point of tears, complete rest is the only sane option.

If you decide to rest, I prescribe coitus maximus. It will keep you off the Prozac, and oblivious to your shrinking shoulders.

injuries than the rest of us. Even though they make you look like you should be collecting a pension, their bones are still growing and may not have the density to cope with the demands of climbing. Smart training is the only approach. Mostly, this translates to consistency of training load (intensity, frequency and duration). You can progress this load, just not at Mach 10.

Just as you would need more water in the desert, all climbers, like all athletes, require greater amounts of calcium than the next person. In layman's parlance that's called "a balanced diet"! Let me say that again … *balanced diet*. Sounds simple, but if lunch at the crag consists of dry rice crackers and a whiff of somebody else's tuna, you are on the way to visit the health dominatrix, and she is rather punitive, even on a good day. Some sources of calcium are more absorbable. For instance, seaweed products such as kelp have double the bioavailable calcium of even the best dairy products. The recommended daily allowance for both guys and gals is roughly 1,200 milligrams.

PAIN PATTERN / DIAGNOSIS

Most stress fractures present as pain around the middle knuckle, or more specifically about half an inch on either side. During climbing, the pain usually gets worse to the point where the climber stops, or at the very least backs up the mojo to reduce the discomfort. Injuries to the pulley apparatus have a moderate propensity to warm up, and the pain, typically on the front, decreases.

If you put pressure on the back of your finger, not necessarily right in the middle and it causes your eyes to bulge, you have two

Why Women Are More Likely To Get Fractures

Women are more susceptible to stress fractures than men, though for other reasons than crimping and climbing too much. Estrogen is the biochemical signature of being a woman. Without it, not only will your boobs shrink, your bones will fade away, reabsorbed by your body. Not a good look.

Enter the domain of the Female Athlete Triad (FAT—oh, the irony). If your menstrual cycle is reminiscent of a bus timetable in rural Mexico, your diet defies definition (because you are not eating), and your bone mineral density (BMD) makes your granny's look like she shagged Wolverine—welcome, you may now disembark into the FAT world, where pathological fractures, sterility, fatigue, hair loss, brittle teeth and, worst of all, bad skin are all on the menu.

Dieting has a dubious place in the world of narcissism; its place in the sporting world is cemented, but buyer beware. It is a catalyst for bone loss, and that translates to osteoporosis. A bone's strength is roughly proportional to the square of its mineral density; thus, osteoperotic bone is weaker than normal bone. Apply a normal load and you may get an abnormal response. This is known as an "insufficiency fracture."

Menstrual irregularity or delayed menarche can be a direct response to metabolic stress. This affects your estrogen level, which, in turn, causes the demineralization of your bones.

The interaction of stressors affecting BMD operates on a continuum. Your cycle may be just a little irregular, your diet just a bit crap, and your bones marginally piss weak. Combine those factors with a lot of stress and you might get a little bit of a broken finger.

Take-home message: If you want to lose weight because you can't grab that last hold, try having a wee before you leave the ground, and wear only lace on important attempts. You get the idea. There are many ways to improve your climbing. Weight loss is usually not the most effective or the safest way. Since self-analysis is rarely anybody's strong point, ask your friends what your weaknesses are. Denial, perhaps!

What Women Can Do To Prevent Stress Fractures

Listen up, my lovelies; estrogen is your best friend, so foster it as the currency of life. Restricting your diet can cause hormonal mayhem, causing your body to switch into "famine mode" to conserve energy. As your estrogen levels and BMD fall, your bones, initially just giving the odd groan, will end up silently squealing. And not-so-silently when they break.

Stress fractures in women usually herald underlying pathologies such as osteoporosis, amenorrhea and disordered eating. Consult zee Doc-tor!

Bloodletting

Reproductive function is, naturally, secondary to survival. As such, your body may issue the biological equivalent of a *cease and desist* notice. Lose your menstrual cycle and your BMD will fall like a BASE jumper without a chute—with similar consequences at landing time. View your cycle as a marker of bone health.

There are other causes of amenorrhea, ranging from the obvious, pregnancy or breastfeeding, to the more insidious. Some types of tumors, thyroid dysfunction, certain medications, or even plain old stress can disrupt your normal cycle. Standard warning: Self-diagnosis can have ramifications of nuclear proportions.

Please refrain from feeding the models

You might be able to rationalize eating like catwalk furniture if your income reflects our culture's obsession with being wafer-thin, but you are a rock climber, so you will need to eat like one. Sounds silly, but your metabolic needs are far more important than mincing it up for a few photographers. For starters, increase your daily intake of calcium. Depending on any irregularity in your menstrual cycle (a harbinger of falling BMD), and the volume of training you are doing, you will need 1,200 to 1,500 milligrams per day. Next, eat more food! You won't need supplements if your diet is well structured.

The black hole of age

After you reach age 35, calcium absorption goes into decline, and achieving strong bones becomes more problematic. Hitting menopause is a bit like retirement. The more money (or calcium) you put in the bank beforehand, the better off you are, since you will predominantly only draw on it afterward. The hourglass becomes bolted down, if you like, with your calcium molecules draining into the black hole of age. Predictably, pharmaceutical companies make good money from trying to remedy the situation, but as always, the best treatment is prevention. Age, I might point out, is not always a good indicator of when you may hop on this hormonal roller coaster. One of my patients got a wee fright as she entered the first loop of menopause … at age 26. You may not have another 20 years to "think about it later." Keep that in mind when you start to cook dinner tonight.

options: first, get an injection of radioactive isotopes (usually technetium 99m) and see which piece of you glows in the dark (a bone scan), or second, get an MRI. I'd take the MRI; there is something not quite right about the construct of bone scans, even though all the literature says otherwise. Following a bone scan, one of my patients, employed at a nuclear reactor, set off all the alarms upon entering the facility. She was told to go home … and not to hug any pregnant women! That doesn't sound healthy to me. Though a CT scan is also sensitive to such bony anomalies, it's not the gold standard these days, and in fact nuclear medicine is rapidly closing in on this title.

Normal X-rays usually precede any other investigation but rarely pick up a stress fracture—unless the practitioners look very carefully. Of all the stress fractures I have spotted in standard X-rays, none had been cited in the initial radiology report. This is not a slight on the radiologists' skill, just that I have the benefit of having the patient in front of me, which provides me with more information. If your doctor does not peruse the films, and proffers a different diagnosis, you are in the wrong place. If the person ups the ante and orders an MRI, go with that; not all doctors are proficient at reading X-rays.

Healing is assessed by local tenderness, and by doing what caused the fracture in the first place. Use climbing as a yardstick. Pain means that your finger is not ready. Further imaging can be misleading, as the fracture site may still be visible even though clinical healing has occurred.

Julian Saunders is an osteopath specializing in treating climbing injuries. Check out his new column, Ask Dr. J, in the next issue of Rock and Ice. *Send questions for the good doctor to jjackson@bigstonepub.com.*