

Ali Brauer Was A Rising Pro. Then It All Came Apart.

The story of how one promising young triathlete met an all-too-common fate.

FEBRUARY 1, 2023 **KRISTEN SEYMOUR**

When professional triathlete [Ali Brauer](#) got her first pro win at the White Lake Half in White Lake, NC back in May 2022, spectators and fans saw a young pro on a sharply rising trajectory. But even as Brauer stood on the top step of the podium, something was off. Not only was the young pro disappointed with how she raced, she also genuinely didn't feel well – mentally or physically.



“The realization that something wasn't quite right was very gradual,” she said. Her health had degraded slowly but surely since the year before. Although she'd achieved impressive results on paper, those race results didn't align with the numbers she was producing in training. As someone who'd always performed better on race day, she found this disconnect concerning, but chalked it up to her inexperience and a lack of durability at the 70.3 distance.

After all, she'd only begun pursuing her professional triathlon career in 2018, at which time she went all-in, joining an elite daily training environment. She had some promising early results, but her plans over the next couple of years were severely derailed by injuries (three metatarsal stress fractures in less than two years) and the pandemic. She had only returned to racing 70.3s in 2021, earning podium spots at Ironman 70.3 races in both Memphis and Indian Wells and qualifying for the 2022 Ironman 70.3 World Championships. But just weeks before the championship event in Utah, she withdrew from the race, citing [“concerning physical symptoms.”](#) Her trajectory was clearly supposed to be on the rise, ready for the biggest race of her career – so why was she at rock bottom?

One thing after another

Despite the outwardly visible success she achieved in 2021, Brauer began experiencing changes in her body composition, behavior, and mood. She dreaded training and struggled to get out the door to her sessions. And, once she finished her afternoon or evening training sessions, she felt so exhausted – in mind and body – that she'd sometimes put off making or ordering food until 9 or 10 pm.

“After my last race of 2021 – which, against all odds, was the best race of my career thus far – I felt mentally done,” Brauer said, referring to the training environment she was in. Still, she wasn't done with triathlon in general, and returned to give her training one last shot; unfortunately, things only devolved from there.

She began experiencing extreme hunger cues the following winter and spring, despite intentional fueling and protein shakes before bed. “Eventually, this progressed to a point where I was waking up hungry in the middle of the night multiple times a week,” she said. She also began experiencing gastrointestinal issues ranging from pain and bloating to worse, and still, she kept pushing, convinced that this approach and environment was the way to achieve success – and continued to feel more worn down and burnt out each day. “I became miserable, bitter, and angry – and I was self-aware enough to see this change in my personality,” she said. “I did not feel like myself, was not acting like myself, and did not like the person I was becoming. My relationships were negatively impacted. I was jealous of anyone who looked like they were having fun with training.”

At the same time, Brauer found herself altering more and more training sessions due to her high fatigue, while continuing to push herself to complete her assigned training regimen. By April 2022, it took every ounce of energy she had just to complete that training; she had nothing left to give for anything else. “I spent the rest of the time in bed, completely exhausted,” she said. “I felt extremely sluggish and had started experiencing brain fog. And I was still gaining weight despite a high training load and healthy eating.”

By the time she crossed the White Lake Half finish line in May, she knew she needed to make a change. She moved back home to the Pacific Northwest and began working with a new coach who was open to significantly reducing her training load in an attempt to salvage her season.

Yet even with reduced training, her symptoms continued to worsen, expanding to include insomnia, extreme fatigue, dizziness, [menstrual changes](#) (including unusually painful periods), heat intolerance, increased acne, and even an overactive gag reflex. “Outside of any training I attempted, I was essentially bedridden,” she said. And despite constant feelings of extreme hunger, she continued to put on a significant amount weight. It was at this point that she truly began to understand something was wrong – really wrong.

A blood panel confirmed her suspicions that it was more than just “feeling off.” Whereas a pro triathlete should be balanced and healthy, instead the results showed a bevy of concerning results: high [cortisol](#), [elevated thyroid stimulating hormone](#), [low estrogen](#), and low [alkaline phosphatase \(or ALP\)](#). It was a menu of alarming indicators.

Going down the list of concerning blood values, the symptoms started to make sense. High cortisol can impact just about every organ system in the body, affecting metabolism, inflammatory response, and more. Elevated thyroid stimulating hormone is an indication that the thyroid isn’t making enough thyroid hormone, which can have symptoms like fatigue, weight gain, or depression. Low estrogen is another potential cause of weight gain, in addition to irregular menstruation, moodiness, and brittle bones. Finally, the low alkaline phosphatase or ALP was likely due to chronic mental and physical stress, likely along with unintentional under-fueling; low ALP can be indicative of tissue damage or disruption of normal bodily processes.

No wonder Brauer felt like she was dealing with a chronic illness. “Clearly, my body was unable to keep up with my training load,” she said.

What we really mean when we talk about overtraining

Sounds like a classic case of overtraining, right?

Well, yes and no, says exercise physiology researcher [Alexandra Coates, PhD](#). Coates got into this research because of [her own experiences as a pro triathlete](#), but this overtraining expert is quick to point out that “overtraining” often functions more as a convenient catch-all term than an official diagnosis.

“Overtraining’ is actually just a verb for the process of overload training,” Coates said. And overload training isn’t inherently a bad thing; it stresses the system and causes acute fatigue, which, after a day or two of recovery, results in a micro-supercompensation, which, when repeated, leads to performance enhancement. “However,” she said, “if the athlete doesn’t receive appropriate recovery when they are acutely fatigued, it can lead to functional overreaching.”

Functional overreaching is part of a spectrum that all athletes should understand. Training overload (like you’d experience in a tough training session) leads to acute fatigue. If the athlete doesn’t take the time (a day or a few days) to recover, this can lead to functional overreaching (FOR), where their performance begins to suffer, no matter how hard they push (like you’d experience at the end of an intense training camp). It can take a week or two for an athlete to appropriately recover from FOR, and they may or may not have a micro-supercompensation, but if they take the time they need, they shouldn’t have any trouble getting back to their sport. It’s a speed bump, maybe a red light, but not the end of the road.

From there, though, things can get dicey. If the athlete pushes through that FOR state, they may reach the point of non-functional overreaching (NFOR). With NFOR, the athlete needs weeks or even months to recover, and there is no micro-supercompensation possible. And from *there* we get to what's actually known as overtraining syndrome (OTS).



“OTS lies at the far end of the overtraining spectrum, and is a complete physiological maladaptation caused by excessive training, inadequate recovery, and other external factors,” Coates said, adding that OTS presents very similarly to chronic fatigue syndrome (CFS). The big problem, however, lies in the biggest similarity between the two: Neither OTS nor CFS are well-understood.

The Energy Availability Factor

Often, when athletes describe what they think of as overtraining symptoms, they may actually be experiencing something known as [relative energy deficiency syndrome in sport \(RED-S\)](#), which, Coates says, should be thought of as a separate entity, although overreaching and RED-S can certainly co-occur.

RED-S is driven by [low energy availability](#), which Coates says is reported to occur in 22-58% of athletes from various sports. “It’s more prevalent in sports that emphasize low body weight, judged/aesthetic sports, and weight-class sports,” she said. “Many athletes, such as long-course triathletes, inadvertently put themselves into low energy availability simply by training so much that it is difficult to take in enough calories to support the training and basic physiological functioning.” These athletes begin to experience symptoms like suppressed reproductive hormones and elevation of cortisol. “If you think about it, from an evolutionary perspective, it doesn’t make sense to have a baby

during a famine,” she said, “so you can see that in a state of starvation, the body will suppress the natural ability to conceive.” (And yes, that holds true for men, too, who will have a [reduction in testosterone](#).)

While OTS and overreaching don’t have blood markers to indicate them as issues, RED-S does (including elevated cortisol and extremely low estrogen). Additionally, Coates said, OTS is characterized by underperformance from training fatigue, but with RED-S, performance isn’t necessarily altered – for a short period after an individual loses weight, they may actually perform better in certain sports. But that won’t last. “It will eventually be altered as the athlete will not adapt to training as well, and also has a high risk of musculoskeletal injury and illnesses,” she said.

Researchers don’t truly know the prevalence of full-blown RED-S in elite triathlon at this time, but it’s believed to be quite high, said Coates. “Signs of RED-S include recurrent [stress fractures](#), loss of menstrual cycle (or alterations in reproductive hormones), lack of performance improvements with training, increased incidence of injuries and illnesses, and a suppressed resting metabolic rate that will result in the maintenance of body weight (and sometimes weight gain) despite the insufficient calories,” she said. Recovery is a long process, involving months during which the athlete must increase their caloric intake and reduce their training load. This can be particularly difficult because it often results in further temporary weight gain, which Coates acknowledges is psychologically difficult to handle. Still, she said, with patience, commitment, and proper support, athletes experiencing severe RED-S should be able to make a full return to the sport.

What we don’t know about overtraining syndrome

As little as we know about RED-S, we know even less about OTS.

“Researching OTS is incredibly hard because we just don’t know what it is,” Coates said. It may be that it’s essentially CFS, but since they don’t have a good understanding of that, either, this comparison isn’t terribly helpful. “The field of CFS is very controversial,” she said, “primarily because for years and years patients were told that it was all in their head, and that nothing was wrong with them.” Like with OTS, there are no typical medical tests that will show evidence of something wrong with CFS, so cognitive behavioral therapy and gradual return to exercise have long been seen as the only treatments available – and that’s not good enough, said Coates. “Cognitive behavioral therapy is great, but you wouldn’t tell someone with diabetes to treat their elevated blood glucose with it, correct?”

It’s now understood that, for many people with CFS, exercise will only make things worse – and that’s something that’s become clear from research on long COVID and other post-viral illnesses that cause CFS. “One of the only good things about the emergence of long COVID is that finally there is some research funding going into this

field,” Coates said. She’s hopeful that, with more research, we’ll have a better understanding of CFS, OTS, and how to aid recovery.

Recovery from overtraining syndrome and RED-S

As for Brauer, she’s trying to find a balance between rest and structure that will allow her to recover fully and while allowing her to – fingers crossed – return to racing sometime this year. After all, triathlon is her livelihood. But for the time being, she’s making her health her top priority.

To that end, she’s found new, fun ways to be active without a training focus – like skate skiing and [strength training](#). “In the past few weeks, I’ve actually felt good enough to increase my training volume and intensity just a bit,” she said. Still, only about half of her activity is run, bike, or swim-focused, she caps all sessions at 60-90 minutes, and she continues to closely monitor how she feels mentally and physically. “I made a deal with myself that I have to pull back immediately if I feel myself regressing in any way,” she said.

Brauer is still dealing with weight gain along with extreme hunger cues, which she is listening to and respecting – but it’s not easy. “It feels entirely out of my control and is honestly quite demoralizing,” she said. “I don’t feel like an ‘elite.’” She said that it’s hard not to worry about whether people will judge her for her current body composition, but her eyes remain on the prize. “I try to remind myself that this weight gain *needs* to happen for my body to heal itself,” she said, “and that very few people know and understand my full story.”

Her mental health has seen a strong improvement due to her new environment, where she feels free to try something new (like skate skiing) without worrying about being shamed for mistakes. “I don’t fear failure,” she said, “and I believe this has allowed for quicker improvement and progression.” Her physical environment in the Pacific Northwest has helped, too, and she’s found herself reconnecting to her love of nature and the outdoors. “Being able to appreciate the outdoors during my sessions instead of having blinders on constantly is great for my mental health,” she said.

Warning signs of overtraining and RED-S

As Coates noted, triathlon – especially long-course triathlon – is a sport that makes it easy for athletes to overreach and under-fuel. But given how long it can take to recover from NFOR, OTS, CFS, or severe RED-S, it’s especially important to recognize the warning signs – and know what to do if you suspect you or someone you know might be dealing with one of these problems. Overreaching can begin to occur within just 2-3 weeks of hard training, so it’s smart to be aware of these symptoms from the get-go.

Symptoms of overtraining:

- Severe fatigue after training or post-activity malaise
- Increased anxiety or depression
- Changes in behavior or mood (like grumpiness, snapping, etc.)
- Unexplained changes in appetite
- Brain fog
- Difficulty sleeping or struggling to get out of bed
- Restless legs at night
- Low heart rate during exercise that isn't explained by increased fitness

Remember, there are no blood tests that can show if you're overreached or nearing OTS territory, so it's imperative that you listen to your body – and be careful that you don't simply make excuses. Triathletes are awfully good at explaining something away as part of the lifestyle, but a healthy approach to this lifestyle shouldn't lead to major behavioral and mood changes or constant, severe fatigue.

“Symptoms of overreaching should be resolved with rest and recover,” Coates said. “So long as the athlete is doing easy recovery training, things should resolve on their own.” This typically takes around 1-2 weeks for FOR, but for NFOR, it can take months.

And, she stressed, “A lot of times, athletes who believe they have NFOR actually have RED-S,” which makes sense since [studies have found such an overlap of symptoms](#).

Symptoms of RED-S:

While RED-S symptoms can largely mimic NFOR, it's also possible to get a blood test from a doctor to confirm LEA. That test may show low leptin, estrogen or testosterone, and/or low fasted glucose and ferritin, Coates said. And there's also the possibility of high cholesterol and/or growth hormone.

A questionnaire called the [LEAF-Q](#) (low energy availability in female athletes questionnaire) can be useful, but is best used in female athletes who are not on [hormonal birth control](#), Coates said. “There's also a [RED-S clinical assessment tool](#) that physicians can use to evaluate the severity of RED-S the athlete may be experiencing, and whether or not they need to stop exercise altogether,” she said. Symptoms you might notice on your own can include:

- Decreased muscle strength, endurance performance, and training response
- Decreased coordination and concentration
- Impaired judgment, depression, and irritability
- Decreased glycogen stores
- Abnormal menstrual cycle

Recovering from RED-S can be a time-consuming process, but Coates urges athletes to increase energy intake and carbohydrate availability while increasing strength training to help improve bone health. “I think finding a sports dietician may be another great step for these athletes,” she said.

Overall, she said, education is probably the best method for avoiding or recognizing unhealthy training practices. “So long as the athlete in question understands RED-S and overreaching, they’ll be better able to recognize the symptoms in themselves,” she said. An emphasis on recovery and nutrition for performance is also important, and, for any athletes who struggle with that, talking to [registered dietitians](#) or counselors who are qualified to deal with these issues is likely the best step. And when it comes to choosing a medical provider to assist with this, make sure it’s someone who understands these issues; a [2015 survey of physicians](#) showed that only a third of them had heard of the Female Athlete Triad (the connection between RED-S, bone health and menstrual function), and it’s not a far stretch to assume that the number of those familiar with RED-S is unlikely to be much better.