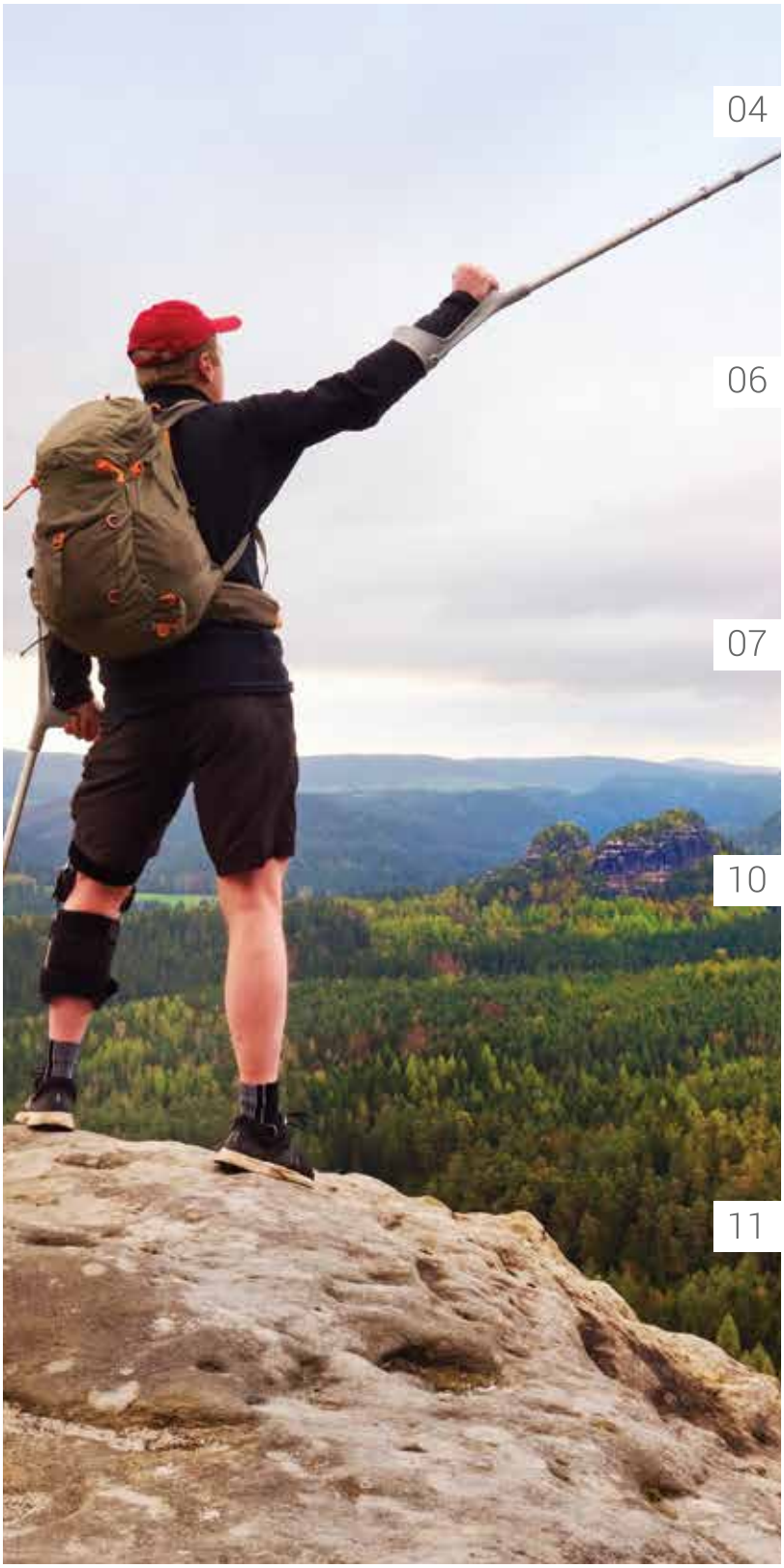
MEND™

STORIES OF HEALING & COURAGE

And Then There is **Courage**
Giving a kidney then running a marathon

Changing **RICE** to **NICER**
The missing letter in our understanding of healing

Ellen Towles **Ironman**
54 year old old iron woman on her training



If you're reading this, you're likely sitting in the waiting room of your doctor or physical therapist's office. You may be dealing with an injury, or experiencing some pain, or need surgery to fix some part of your body. We know it can be difficult or frightening so we want to provide you some encouragement and inspiration during this time.

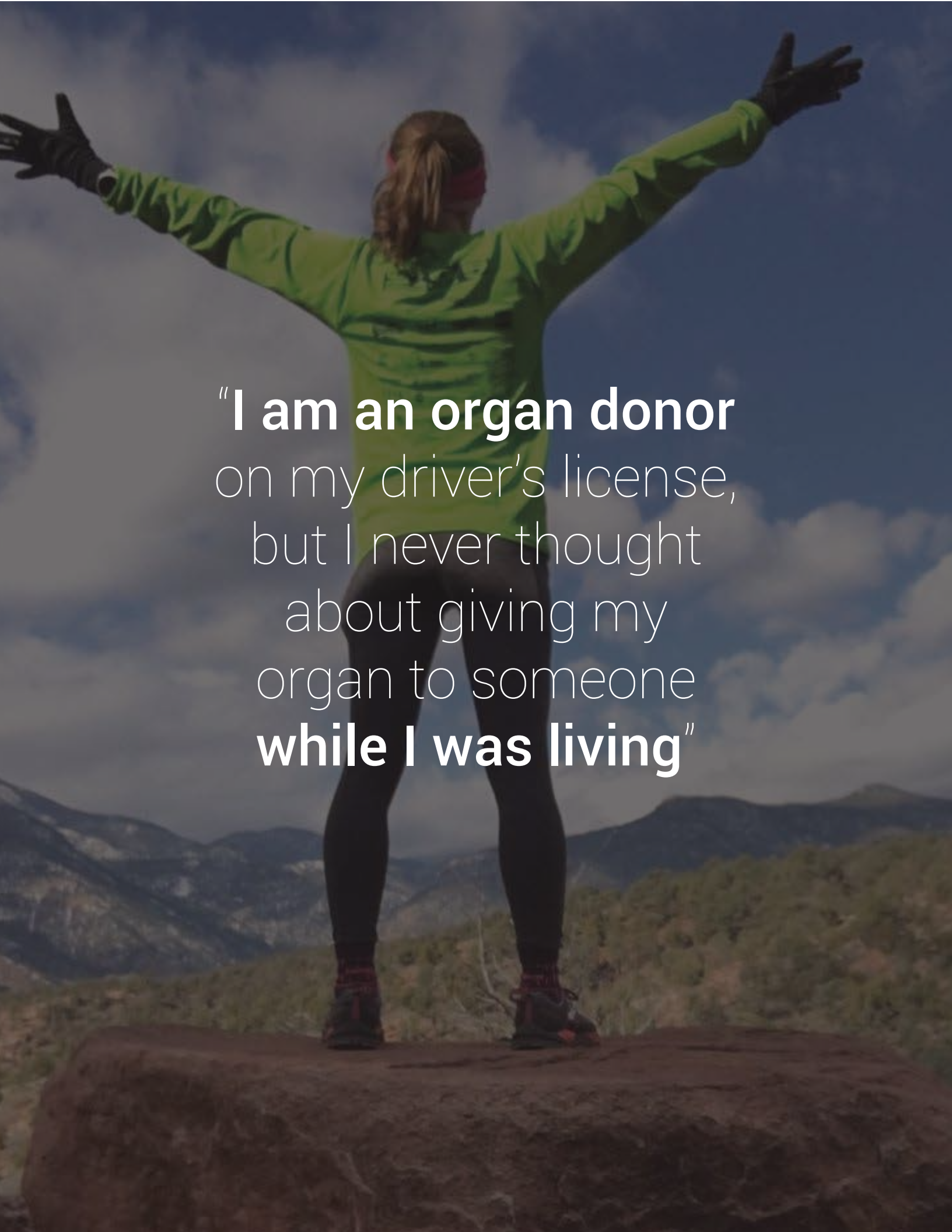
At **MEND** we are researching solutions and working with forward thinking doctors and therapists like yours to help people heal and live their healthiest. In our pursuit of this mission, we often come across people just like you who were once injured and through hard work and perseverance are now back to living normally, often healthier than they ever were before. Sometimes their stories are truly heroic and inspiring. We thought we'd share some of these stories with you, as well as other helpful information that will motivate you to work hard to heal and become the healthiest you can be.

When given the right set of conditions, the body has a remarkable ability to heal. We hope the following stories, articles and science will help you and motivate you.

Eziah

Eziah Syed
CEO
MEND

Do you have an incredible story that you'd like to share to inspire others? Email us at stories@mend.me


"I am an organ donor
on my driver's license,
but I never thought
about giving my
organ to someone
while I was living"

And Then There is **Courage**

From donating a kidney to running a marathon

Not many people can say they've run Denver's Colfax Marathon less than a year after donating a kidney. Brandy Loseke can. And this year, she is going to run it again on the anniversary of her surgery.

"I love a challenge," Loseke said about the 26.2-mile race. Following her organ donation in July, Loseke set a goal for herself to run Alburquerque's Duke City Half Marathon in October.

Then, she made plans to run the Colfax Marathon in Denver just 10 months after giving her kidney.

"I thought this would be a fantastic way to show people that you can not only give your organs, you can also be kind of a badass," said Loseke, who lives full-time in Albuquerque with her husband, Brian, and two kids, Gunner and Gracie.

A few years before her organ donation in July, 2016, Loseke got word that her cousin, Terry Gellagos, was sick. Gellagos – a Gulf War vet who served in the Navy and now lives in Denver – was a childhood hero to Loseke.

Loseke's only question was what she could do to help.

"I am an organ donor on my driver's license, but I never thought about giving my organ to someone while I was living," Loseke said. "This is something I felt I was called to do."

Loseke ended up being a match for a kidney transplant, but because she is significantly smaller in size, the kidney could not go to her cousin. Instead, she signed up to do a paired exchange. Loseke's kidney would go to a stranger and Gellagos would be moved to the top of the list.

"It was a very humbling experience to save the life of a man who fought so hard for mine and for my country," Loseke said.

Loseke says that living healthy, nutrition, family and her spirituality are some of the most important things in her life. Post-surgery, Loseke's style of healthy living was challenged with the difficulties of recovering and living, then, with one kidney.

A normal day for Loseke starts with a run along the Paseo del Bosque "the Bosque" Trail in Albuquerque and ends with the "night time routine" she does with her kids. Post-surgery, everything from running to nutrition became a small challenge for Loseke.

"The recovery process was pretty intense," Loseke said. "It hurt for a few weeks, I'm not going to lie."

While training for her first run of the Colfax Marathon. Just over 22 miles into the race, Loseke's knee blew out. Determined to finish, Loseke walked the last three miles. She finished the race in 4 hours, 15 minutes. The race organizers asked what they could do for me and I just said 'Meet me at the finish line because I am not stopping,'" Loseke said.

"I started taking medical grade supplements recommended by a friend and noticed it started doing a lot of good things for my body," Loseke said. "Directly after a long run, my legs didn't feel so fatigued. The next day, my recovery runs were a lot easier. My muscles didn't feel as fatigued or sore."

She began to run her sub 20 minute 5k training with relative ease.

This year, Loseke is going back to run the Colfax Marathon again with hopes to qualify for the Boston Marathon. Her goal is to finish in 3 hours, 32 minutes, which is eight minutes under her qualifying time.

Loseke said that she doesn't ever want to stop living such a healthy, active lifestyle. As far as donating a kidney goes, Loseke, who is now an ambassador for Donate Life of New Mexico Donor Services, thinks that it was a pivotal decision in her life.

"I love life so much and there are so many opportunities out there for all of us, and I think it is important for us to help our fellow people," Loseke said. "I'm not a superhuman…I'm a mom who goes to school and I like to run a lot. I can do all of those things after donating. It's just made my life richer and fuller."

Loseke ran the Colfax Marathon in Denver, the same city she had the organ donation in July, 2018.

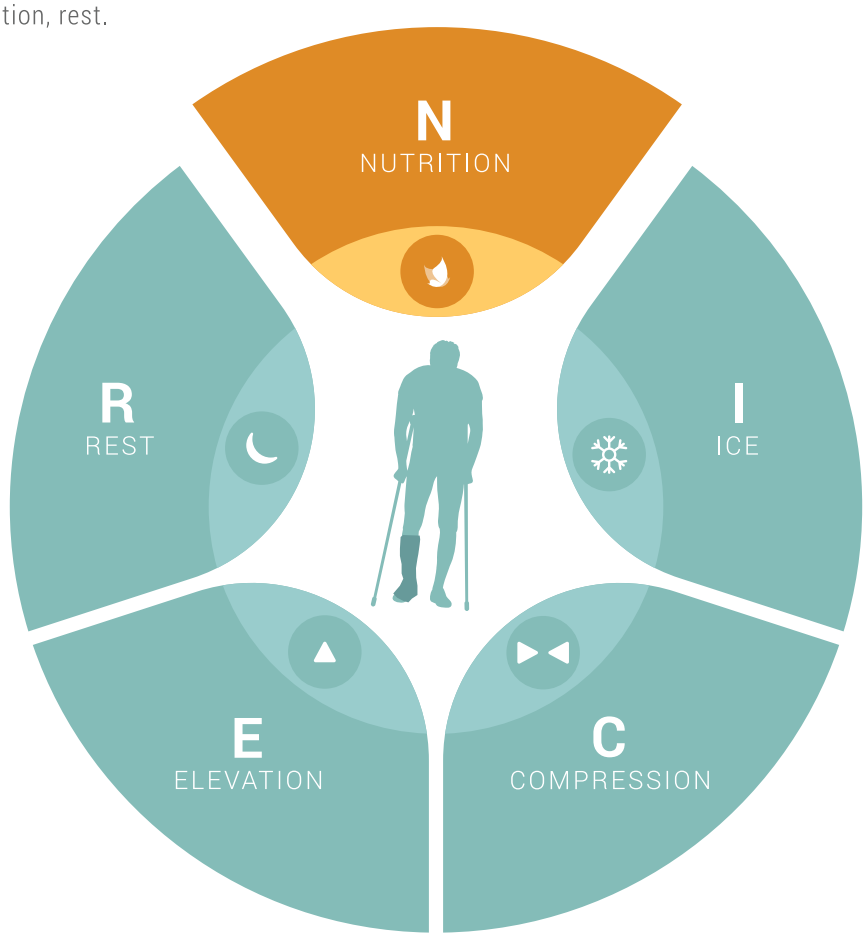
Changing **RICE** to **NICER**

The missing letter in our understanding of healing

When we are injured and visit our doctor, we are provided the old adage "RICE - rest, ice, compression and elevation." We are taught this young, at our school physical education classes. While RICE is critical for healing properly, it is missing the concept of nutrition, a core element of ensuring timely and quality recovery.

At MEND, we've been studying the science of nutrition as it relates to healing and we believe there's been a missing letter in RICE. We believe nutrition is so important to healing that RICE should be changed to NICER -- nutrition, ice, compression, elevation, rest.

A significant body of scientific evidence has firmly established that nutritional deficiency can compromise healing. In fact, during a state of trauma, your body is in a higher metabolic state and requires more than the average baseline level of nutrients. And targeted nutrients can actually enhance both the quality of healing and the time needed for healing.



We now know that during a state of trauma, such as injury or surgery, the body's nutritional needs increase:

- The body enters a higher metabolic state and requires more energy
- Trauma and lack of use leads to muscle atrophy, which prolongs recovery
- The immune system is weakened due to stress and shock
- Risk of wound infection is increased
- Persistent inflammation delays return of function
- Trauma and physiological stress leadto increased fatigue

It's time we put the N in RICE and make it NICER. This is long overdue and a foundational change in our approach to healing and recovery.

Ellen Towles **Ironman**

54 year old iron woman on her training

An Ironman triathlon was never on the radar for Ellen Towles.

That's not to say the physical therapist from Culver City, California wasn't up for the challenge. As a type A personality, she's been disciplined in all areas of her life, including her physical fitness routine as a long-distance runner.

"Endurance athletes are all a bit of a type A bunch, and none of us are real lazy," she said. "When I set a goal, I stay so directed. I wouldn't even think about missing a workout. I'd have to be dead or in the hospital," she said.

That's why when Towles – who turned 54 in October – was sidelined by injuries to her knee and foot, she was devastated.

A marathon runner is born

Towles' passion for long-distance running was born in a surprising way. She decided to give it a go after hearing the trials and triumphs of runners who participated in the Los Angeles marathon during a year of torrential rains. Those who crossed the finish line were a bedraggled bunch drenched in a mix of rain and sweat with sopping shoes that no longer provided much by way of support, but they carried such a sense of accomplishment that Towles was inspired.

"Hearing the stories of these people getting through with such adversity, something in my brain clicked," she said. "I was athletic all my life, but this was at a whole other level."

She began to train in earnest, and eventually ran three marathons, but at some point she realized that something had gone wrong, a problem with her knee and foot that revealed itself through unrelenting pain.

After her injury, she realized she had to make some changes to her routine, and that's when the idea of trying a triathlon – a mix of running, biking and swimming that would alleviate some of the pressure of long runs – came to mind.

From runner to triathlete

Rather than exclusively running, the bulk of training is spent on the bike, where injuries are less likely to occur or be exacerbated, since cycling and running work different muscles, even as they create a symbiotic relationship between muscle groups.

"I'm sprinkling in running and swimming around the bike, and trying not to run for two consecutive days to prevent problems," Towles added.

She also started learning more about the role proper nutrition could play in her recovery, so she boned up a bit, did some online research began to take targeted supplements.

For Towles, the difference was appreciable.

Nutrition, supplements elevate recovery

"I realized that nutrition was a huge part of recovery," she said. Previously, she had only eaten enough protein and carbs to ensure she wouldn't give out on mile 18 of a 26.2 mile marathon.

And while she'd heard other endurance athletes talking about nutrition, she'd listened to but hadn't really absorbed the advice, because her routine was working well for her, and she hadn't experienced any problems.

As an inpatient physical therapist at UCLA Medical Center, Towles had always focused on the physical, in part because of her background in the intricacies of muscles and tissues. She just hadn't made the whole connection between the recovery of her muscles and tissues and the nutrition she provided for the task, despite knowing Hippocrates adage at the beginning of modern medicine – "Let food be thy medicine and let medicine be thy food."

"You don't think about it until after you're hurt," said Towles, who had come to rely on the pain as a constant companion, especially on the days when she returned home after a run.

Now, she found herself exploring how each nutrient and each morsel of food she ate could change her recovery rate, and make her stronger.

"The body starts getting more fragile, and you have to play a lot more attention to maintenance. It does not take much to get out of synch," she said. "You can recover if you're diligent and you look at all the components carefully."

After revamping her diet to include more anti-inflammatory foods while supplementing, Towles' pain is gone, and she's still pretty amazed about it.

"I still have this mindset of this anticipatory pain, and it's just not there anymore. And that's so great. Training without pain is heaven."

Living pain free elevates training techniques

Living and training free from soreness has allowed her to increase her stretching regimen, which has lengthened her running stride and improved her form.

She has to make sure she eats right, gets enough sleep and doesn't overdo her training sessions. Additionally, she uses physical therapist mindset to ensure that every muscle in her body is toned and working in tandem with the others, like a well-oiled machine.

"The body is a chain, and if just one part of the chain is not working, you definitely feel it. But it feels like I'm kind of floating now," she said. "And this is the state I want to continue in."

When she races in May – the Ironman includes a 2.4 mile swim, a 112-mile bike ride and a 26.2 marathon run – she will be one of the youngest in her age group, and that gives her extra incentive to do well, although she won't be competing against the top-notch athletes in her group as much as she'll be competing against herself.

"When you watch the network coverage of these races, it's great to see the elite athletes, but it's even more interesting to see people like me."

It's nothing but a number

Her participation in such a challenging event allows her to inspire others and remind them that as long as they care for their bodies, age shouldn't be limiting.

Still, many of her friends and coworkers – even some of the people in her running club – look at her quizzically when she talks with such enthusiasm about her spring Ironman event.

"When you're explaining to people that you're doing the Ironman, you get so many puzzled looks, and they ask 'Why do you want to do that?' I've been thinking about it, and I love challenges, love the feeling of accomplishment."
And she knows that even if she crosses the finish line a bit bedraggled and worn, it will be with an inner feeling of jubilation that has no comparison.

Healthy muscle matters – a lot!

Why healthy muscle is critical to preventing disease and enhancing your health – particularly as you get older

You have more than 600 muscles in your body. They have a variety of different functions from movement and digestion to pumping blood and even breathing. There are voluntary muscles (skeletal muscles) that you control, such as your biceps and quadriceps and involuntary muscles (smooth muscles) that you don't control, such as your heart.

When we think about muscle, we often only think about it through an athletic lens or aesthetic lens. We imagine bodybuilders or athletes and the role that muscle plays in fueling their body's ability to perform. Or we think about people who lift weights so they can strut up and down the beach in the summer to catch admiring eyes.

Muscle is indeed incredibly important for athletic activity, and lean muscle does undoubtedly give the body an aesthetic appeal, but muscle is so much more important than that. Muscle plays a central role in whole-body protein metabolism, which is particularly important in the response to stress. Furthermore, abundant evidence points to a key role of altered muscle metabolism in many common pathologic conditions and chronic diseases.

Healthy muscles let you move freely and keep your body strong. They help you to enjoy playing sports, dancing, walking the dog, swimming, and other fun activities. Strong muscles also help to keep your joints in good shape. For example, if the muscles around your knee are weak, you may be more likely to injure that knee. Strong muscles also help you keep your balance, so you are less likely to slip or fall.

Furthermore, muscles also play a critical role in preventing disease and illness. A stressed state, such as that associated with cancer or traumatic injury, imposes greater demands for amino acids from muscle protein breakdown. Physiological responses necessary for recovery may include the accelerated use of proteins for immune function and wound healing.

Beginning in our 30s, we naturally begin to lose muscle mass and function. However, the latest science is showing that this doesn't need to be so and that we can maintain and even increase healthy muscle as we get older. With the right nutrients and a regular resistance training program, we can improve muscle health to maintain strength, mobility and to fight disease well into our golden years.

Bone Fractures

Can nutrition enhance healing?

Bone fractures are the most common musculoskeletal injury, with over 18 million[1] per year, and the average person will have at least 2 bone fractures in their lifetime. Fractures impact people of all ages, but as we age our risk of fracture increases, and bone healing and recovery becomes more difficult.

Your bones are complex, and the process of healing fractured bones is dynamic, and influenced by a variety of factors and elements. Though different types of fractures have different clinical implications, they all go through the same basic healing process.

In this article, we will dive into the composition of your bones, how a fractured bone heals, and discuss how nutritional interventions may help speed up the healing process.

Composition of Our Bones

Made up of proteins, minerals and vitamins, bones provide shape, structure and mechanical support to our bodies. They also provide an environment for marrow (and the production of white blood cells) and act as a storage area for minerals (such as calcium).

Nutrition to improve the healing and recovery process

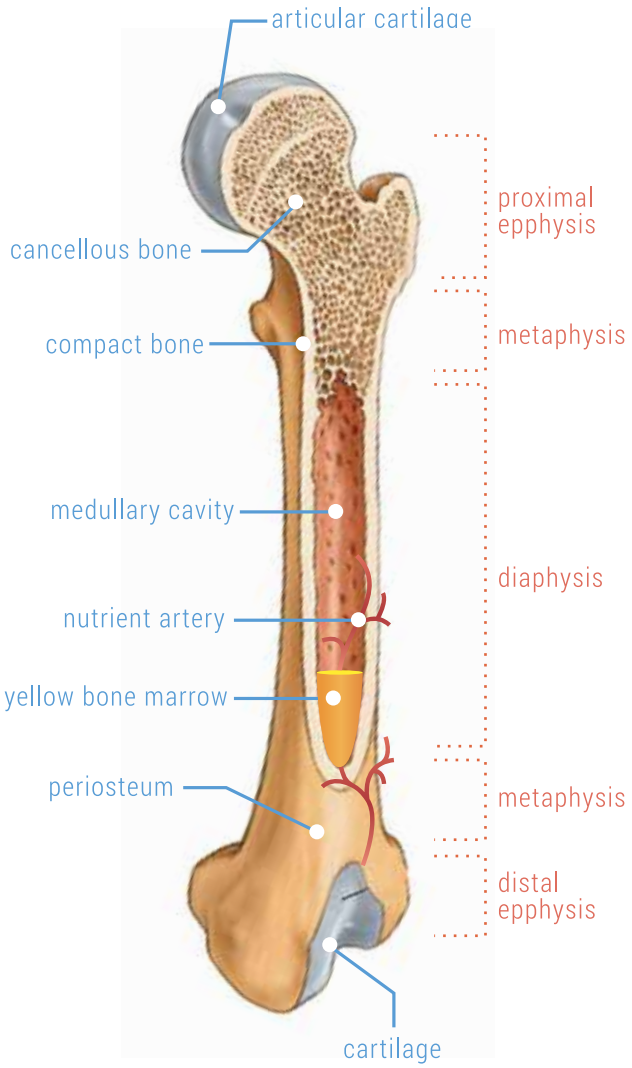
Depending on the severity of the fracture, bones can take between weeks to several months to heal. There are multiple factors involved in this healing process[4], including:

- Severity of the fracture
- Excessive movement or mobility
- Age
- Nutritional status

The last factor - your nutritional status - plays an important but often neglected role in healing. As we stated earlier, bones are made up of proteins, minerals and vitamins. Any deficiency in these nutrients can compromise the bone healing process, both by prolonging the initial period of inflammation and by delaying the bone repair[5].

Unfortunately, the reality is that most of us are undernourished and don't know it. In the developed world, we eat abundantly and therefore believe we are getting all the right nutrients into our body. But this isn't the case. A large study published in the Journal of Nutrition, evaluated over 16,000 Americans and found that many are not meeting the minimum recommended thresholds for micronutrient intake. The study found that 93% of Americans are deficient in Vitamin D, 45% in Vitamin A and 49% in calcium – three critical nutrients for bone health and healing.

FEMUR BONE STRUCTURE



We know insufficient intake of Vitamin A, Vitamin D and calcium negatively impacts the time and degree of bone healing, according to a study published in the Journal of Osteoporosis[5]. In addition, malnourished elderly patients are at a greater risk of losing muscle mass - a condition known as sarcopenia - which has been shown to increase the risk of delayed or compromised healing.

The Bone Fracture and Healing Process

Different fractures have different recovery times and rehabilitation protocols, but all broken bones go through the same healing process. This is true whether a bone has been cut as part of a surgical procedure or fractured through other means like a sports injury or fall.

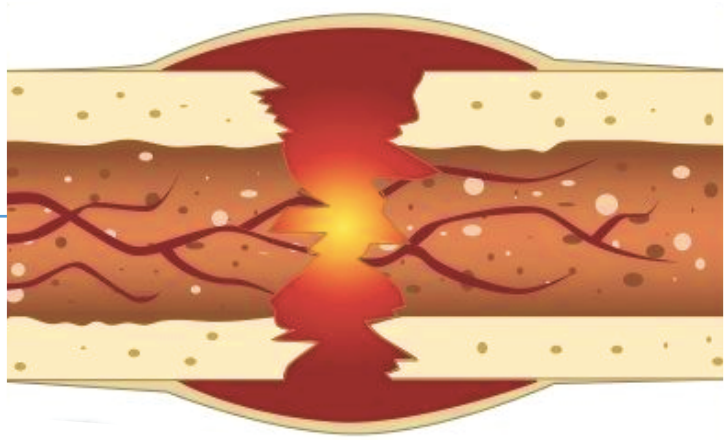
The bone healing process has three stages: **inflammation, bone production and bone remodeling**.

.1

INFLAMMATION

(0-2 weeks)

Inflammation starts immediately after the bone is fractured and lasts for several days. There is bleeding into the area, leading to swelling and clotting of blood at the fracture site. This provides the initial structural stability and framework for producing new bone.

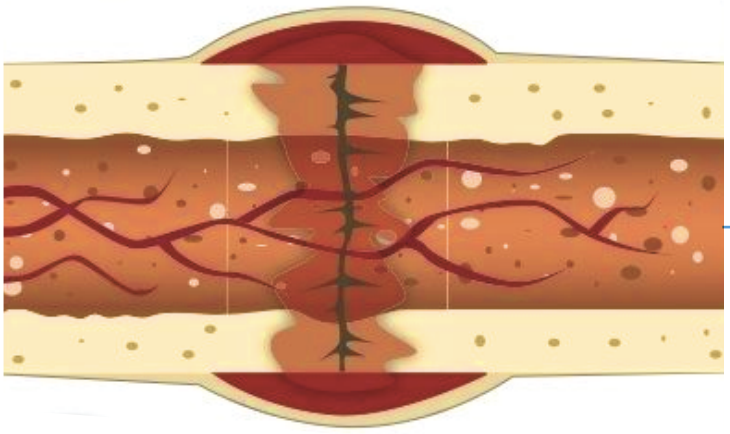


.2

BONE PRODUCTION

(2-6 weeks)

New bone is then produced when the clotted blood formed by inflammation is replaced with fibrous tissue and cartilage, known as the “soft callus”. As healing progresses, this tissue is replaced with osteoblasts (cells that help new bone form) and hard bone, known as the “hard callus.”

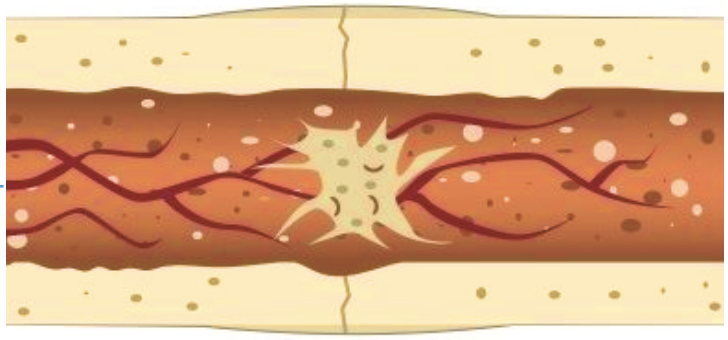


.3

BONE REMODELING

(6 weeks - several months)

The final phase of bone healing - bone remodeling - goes on for several months. In remodeling, bone continues to form and becomes compact, returning to its original shape. In addition, blood circulation in the area improves.



Nutrition Recommendations for Better Healing

If you have a bone fracture, your body needs more energy to support the demands of healing. During injury, your body goes into a higher metabolic state as it uses more energy to support healing. Increasing your nutrition intake with the proper foods and nutrients can help you keep up with the demands of your body during this critical healing period. To optimize your body for healing, you should:

1) Consume more calories during the healing period
After an injury, your metabolic rate increases between 15-30%. To keep up with this accelerated metabolism, you should increase your caloric intake with more healthy, whole foods and high quality supplements.

2) Increase your protein intake
Muscle mass is a direct indicator of both fracture risk and delayed healing. A diet high in protein will help preserve muscle mass, and has also been shown to improve bone healing. At minimum you should aim to consume at least 1 gram of protein per pound of body weight during the recovery period.

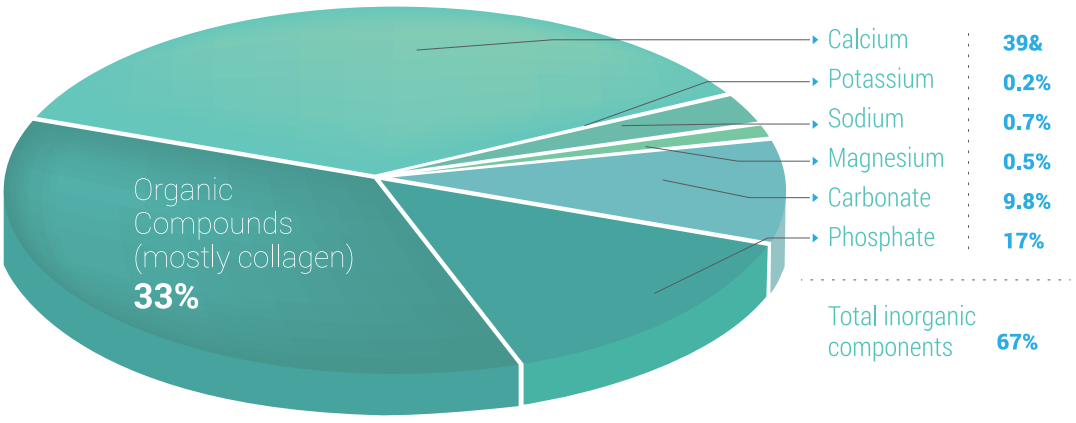
3) Supplement your diet with targeted therapeutic nutrients during the recovery phase
While diet is critical to healthy recovery, during this period it can be difficult to consume sufficient nutrients through food alone. We recommend increasing your intake of key nutrients to support your body's demands. In particular:

- Protein - to support healing, tissue repair, and growth
- Vitamin A - to aid in wound and skin healing
- Vitamin D - to increase calcium absorption and improve bone healing
- Calcium - to build strong connective tissue
- Turmeric - to minimize inflammation around the wounded area

Our bones are made up of proteins, minerals and vitamins, and it is critical that you replenish your bones with these important nutrients during the healing process.

A CHEMICAL ANALYSIS OF BONE

COMPOSITION OF BONE



BONE CONTAINS

99% of the body´s Calcium
4% of the body´s Potassium
35% of the body´s Sodium
50% of the body´s Magnesium
80% of the body´s Carbonate
99% of the body´s Phosphate

BETTER NUTRITION = BETTER HEALING

MEND™

Dedicated to helping people heal and live their healthiest

mend.me