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Paragon Orthopedic Center Grants Pass, Oregon



How Bones Heal

Have you had a broken bone and wondered why you needed to stay in a cast or a sling for a certain amount of time? Do you know researchers are working to speed up the healing time using technology and some of the latest research on bone regrowth has been coming out of the beautiful state of Oregon? The way our bodies repair a broken bone is complex, but we will break it down into its simplest steps.

- When you break a bone, blood rushes around the site to begin protecting the area and sends the necessary cells to the injured site for the body to repair itself. You see this as bruising and swelling.
- “Threads” of bone form on both sides of the break and grow toward one another. Fun Fact: the soft cartilage that forms is similar to what is formed during the embryonic development of a child.
- A soft callus forms, then turns into a hard callus, followed by the formation of new hard bone. The new hard bone doesn’t begin forming until 3-4 weeks after the break occurs and can take months to years, depending on the location and size of the fracture, as well as many other variables.

This is simplified and does not include any information about medical intervention. Many breaks need to be set into their proper place and casted to stay in that position as this healing occurs. You might have heard of people having a broken bone and they didn’t require any repositioning. These include clavicle/collarbone fractures, some wrist fractures and some ankle fractures.

You should know some of the variables that affect healing times because some are within your control.

- Age. The older you are, the slower you heal. You can’t control this one unfortunately.
- Nutrition. If you are obese, your body may not heal as quickly or well. Lack of proper vitamins and calcium can delay healing as well. Consider adding more fruits and vegetables into your diet today!
- Medical Conditions. Some medical conditions slow healing, such as diabetes, which you cannot control.
- Medications. Your orthopedic surgeon should always be made aware of everything you take, both prescribed and over the counter, in order for you to have optimal bone healing. Some medications may need to be temporarily stopped to allow your body’s healing mechanisms to work well, such as steroids.
- Smoking. Dr. Bents and Dr. Van Horne will ask you to quit prior to some surgeries because it is known that smoking’s effects on the body will put you at a much higher risk for a failed surgery or delayed bone healing. Nobody wants to have a failed surgery &/or infections and have to do it all over again. For many reasons, stop smoking today!

The very exciting technology being developed in our state is coming out of Oregon Health Sciences University. They have patent-pending “bone bricks” the size of fleas, made using 3-D printing, that are capable of healing broken skeletal tissue. These stimulate your cells to grow in the right place, at the right time, making for a more precise and quick repair of the tissue. This is still being studied by OHSU, as well as other similar applications around the world that will hopefully make your recovery time quicker and get you back to being fully operational sooner.

The following articles were referenced for this newsletter:

<https://orthoinfo.aaos.org/en/recovery/fracture-healing-video/>
<https://3dprintingindustry.com/news/oregon-researchers-develop-lego-inspired-3d-printed-healing-bone-bricks-173967/>
<https://www.medicalnewstoday.com/articles/318961#Cartilage-and-bone>