

## A Short Note on Plaster Cast Treatment for Bone Fracture

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### DESCRIPTION

The process involved after bone fracture is called fracture reduction. The fracture reduction process helps heal the fractured bones by putting them back into position. After a bone fracture, proper rest and support are required to recover. Orthopedic doctors commonly recommended treatment process is casts around the injured or fractured bones to provide protection and support. A cast is a supportive bandage that is wrapped around the injured body part externally. The effective and efficient method to treat fractures is casting. Casts are in different shapes, and the most commonly used materials are plaster and fiberglass; some of these casts may uncomfortable and heavy to carry. The casts are less cost compared to fiberglass and more malleable. Fiberglass is modern material in the casting process, but plasters are most often used in the fracture reduction process. The property of plaster is that it is easy to mold, will help reposition the bones, and will support the bone more precisely. The plaster casts must be avoided from water and always kept dry because water can change the cast shape easily and is heavy to carry; it will be a burden to patients. When bone is not out of position, and the healing process is already started, fiberglass casts are well fitted; fiberglass casts are longer wearing, lighter weight, and more breathable than plaster. The fiberglass casts require less maintenance and are sturdier than the plaster. Today, most casts used are fiberglass casts; fiberglass casts are available in many colors and are easy to dress up. While the casting process, initial layers above the skin are wrapped with cotton to protect the skin; keeping this cotton dry and clean will be of utmost importance for comfort. Particular padding material is used under the fiberglass material to allow the cast to get wet. Plaster's chemical name is calcium sulfate dihydrate, and its chemical formula is  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$  which is generally called

Gypsum, Plaster Of Paris (POP). The healing process with plaster typically takes 6 to 12 weeks. While the cast is prepared on the injured part, sometimes underneath the skin feels an itchy and burning sensation, don't poke anything in; it may cause infection. The healing process is divided into three phases: The inflammatory phase, the repairing phase, and the bone remodeling phase. The inflammatory phase duration is from hours to days; in this phase, torn blood vessels and blood clots are healed with the inflammatory reaction. The inflammatory reaction leads to the release of growth factors, cytokines and prostaglandins. These factors help to heal and formation of primary callus. In the repairing phase, the primary callus is hardened for several weeks and turns into bone. The bone remodeling phase is the longest phase; it may last for several years. In this remodeling phase, excess callus around the fracture is removed and comes to the normal stage.

The soft cast or temporary casts are called splints; when no more rigid mobilization is needed, splints are used at the early stage of fractures. Doing exercise on joints that are not covered with plaster, such as the knee, toe, fingers, and elbow, will improve blood circulation. Never try to alter the length or position of the cast. There are other complications with bone fracture; those are blood clots during the injury. If the blood vessel is broken, then blood will flow free inside the body; if the skin is damaged during the injury, then it is causing cast wearing complications. Bleeding or swelling within the muscles surrounding the fracture is a compartment syndrome and bleeding into the joints causes swelling called Hemarthrosis. The rudimentary precautions to avoid bone breaks are necessary, like balance while walking, keeping rooms clutter removed and making rooms with good lighting condition, using skid-free mats in a walking way, and checking eyesight along with age.

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