

What is bone tissue engineering?

The combination of scaffolds, cells and proteins to repair and regenerate bone tissue.



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When could it be used?

When our bodies have difficulty regenerating bone by themselves.

What proteins can be used?

Growth factors are proteins that can be used to encourage cells to re-grow on the scaffolds and to become specialized bone cells. Researchers at UNMC have been using growth factor models in their scaffolds and observing the speed at which these factors are released.

REPAIR BONES WITH ONE PRICK OF A NEEDLE

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Why is it important?

Patients who are unable to re-grow their own bone have to undergo an invasive bone graft procedure, which involves taking bone from one site in their body and implanting it at another. This is uncomfortable and has risky side effects.

What type of materials can be used?

Natural and synthetic materials can be used to form scaffolds. Examples of natural polymers are chitosan, derived from shrimp shells, or collagen. Synthetic materials such as poly (lactic-co-glycolic-acid) (PLGA) are also widely used due to their favorable properties.

Researchers in UNMC are working on micro-scale particles containing proteins that can be injected into the injury site. Once at body temperature the microparticles will stick together to form a scaffold and hence provide a support for the cells while they grow.

What are researchers working on at UNMC?

