

Procedure developed at Yale creates new bone

February 14 2008

A new technique that combines bone marrow removal and injection of a hormone helps promote rapid formation of new bone at targeted locations in the body, it was reported by Yale School of Medicine this month in *Tissue Engineering*.

"This could radically change the way patients are currently treated for weakened or fractured hips, vertebrae and acute traumatic long bone fractures," said senior author Agnès Vignery, associate professor of orthopedics.

She said currently available treatment requires surgery and artificial materials and often results in imperfect outcomes. "The ideal approach would be to create new bone where it is needed and at a faster rate," Vignery said.

The study in mice was done in collaboration with Unigene Laboratories, Inc. It evaluated the effect of bone marrow removal from particular sites followed by daily injections of anabolic agents such as parathyroid hormone (PTH).

The procedure creates new bone tissue that appears structurally and biologically normal and that endows the targeted bone with improved biomechanical properties at a rate and extent that would not be achievable by anabolic therapy alone, Vignery said.

"We have shown that it is the synergistic effect of mechanical marrow



ablation and PTH that allows for this new bone to fill the marrow cavity," she said.

She said additional studies are underway that extend the results of this work in other animals and that will determine whether the newly formed bone can be preserved over a long period of time.

Source: Yale University

Citation: Procedure developed at Yale creates new bone (2008, February 14) retrieved 13 May 2024 from <u>https://medicalxpress.com/news/2008-02-procedure-yale-bone.html</u>

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