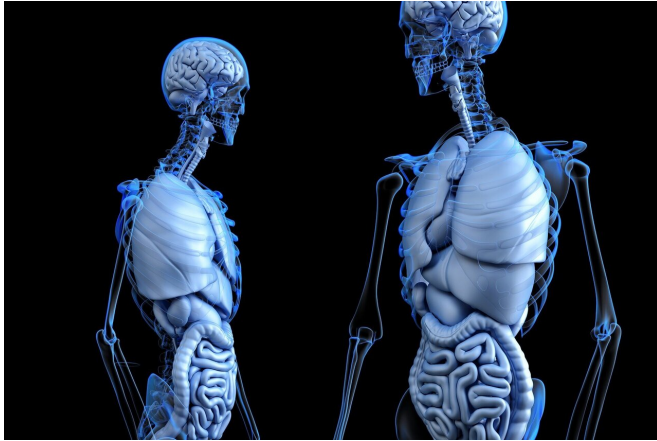


Keeping bone in its place

15 April 2019, by Anivarya Kumar



More information: Stephanie N. Moore-Lotridge et al. Trauma-Induced Nanohydroxyapatite Deposition in Skeletal Muscle is Sufficient to Drive Heterotopic Ossification, *Calcified Tissue International* (2018). DOI: [10.1007/s00223-018-0502-5](https://doi.org/10.1007/s00223-018-0502-5)

Provided by Vanderbilt University

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Heterotopic ossification (HO) is the formation of bone within soft tissue such as muscle, leading to pain and potentially the inability to use a limb. Once thought to be primarily a genetic disease, the cause of most trauma-induced HO is unknown.

Reporting this month in the journal *Calcified Tissue International*, Jonathan Schoenecker, MD, Ph.D., and colleagues led by Stephanie Moore-Lotridge, Ph.D., suggest a new paradigm for HO formation.

In an [animal model](#), they discovered that injured muscle can produce microscopic nanohydroxyapatite, the main crystal of bone. Surprisingly, these crystals are ingested by [macrophages](#) before reparative cells heal the injured muscle. If the macrophage cannot clear the crystal, the reparative cells transform into bone instead of muscle.

If confirmed clinically, this paradigm would support new therapeutic interventions that target muscle-produced nanohydroxyapatite or enhance the "eating" capacity of macrophages to prevent the consequences of HO while preserving normal bone formation.

APA citation: Keeping bone in its place (2019, April 15) retrieved 22 October 2021 from <https://medicalxpress.com/news/2019-04-bone.html>

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