Is it possible for humans to regenerate limbs?

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Unlocking the complex biological and regenerative processes that would enable humans to regrow digits and limbs "would radically change the prognosis and quality of life for amputees," state the authors of "Looking Ahead to Engineering Epimorphic Regeneration of a Human Digit or Limb," a Review article published in *Tissue Engineering, Part B, Reviews*.

Lina M. Quijano, Kristen M. Lynch, Tabassum Ahsan, Tulane University (New Orleans, LA), Christopher H. Allan, University of Washington (Seattle), and Stephen F. Badylak, University of Pittsburgh

(PA), explore the highly ambitious goal of epimorphic regeneration in humans, which would require the regrowth of multiple tissues that would then need to be assembled in the proper conformation and patterns to create a fully functional limb. The authors approach this fascinating subject—a combination of the latest advances in tissue engineering and regenerative medicine—by examining the process of human digit healing and published reports of regenerative potential. They provide a comprehensive look at the processes of epimorphic regeneration in non-mammalian systems and describe some mammalian models of regeneration, including the digit tip of the mouse. This model can serve as a comparison of regeneration-competent and regeneration-incompetent tissue in the same animal.

"There is a critical need to develop engineered tissues with complex physiologies, such as a complete limb, and the paper by Quijano and colleagues identifies some of the key components required for these developments," says Reviews Co-Editor-in-Chief John P. Fisher, PhD, Professor and Associate Chair, Fischell Department of Bioengineering, University of Maryland, College Park, MD.

More information: Lina M. Quijano et al. Looking Ahead to Engineering Epimorphic Regeneration of a Human Digit or Limb, *Tissue Engineering Part B: Reviews* (2016). DOI: 10.1089/ten.teb.2015.0401

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