



Prinzipien der Gewebereneration

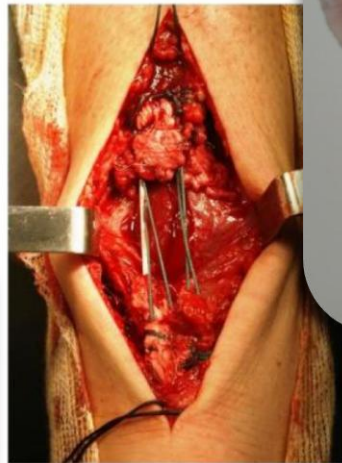


Franz Jakob

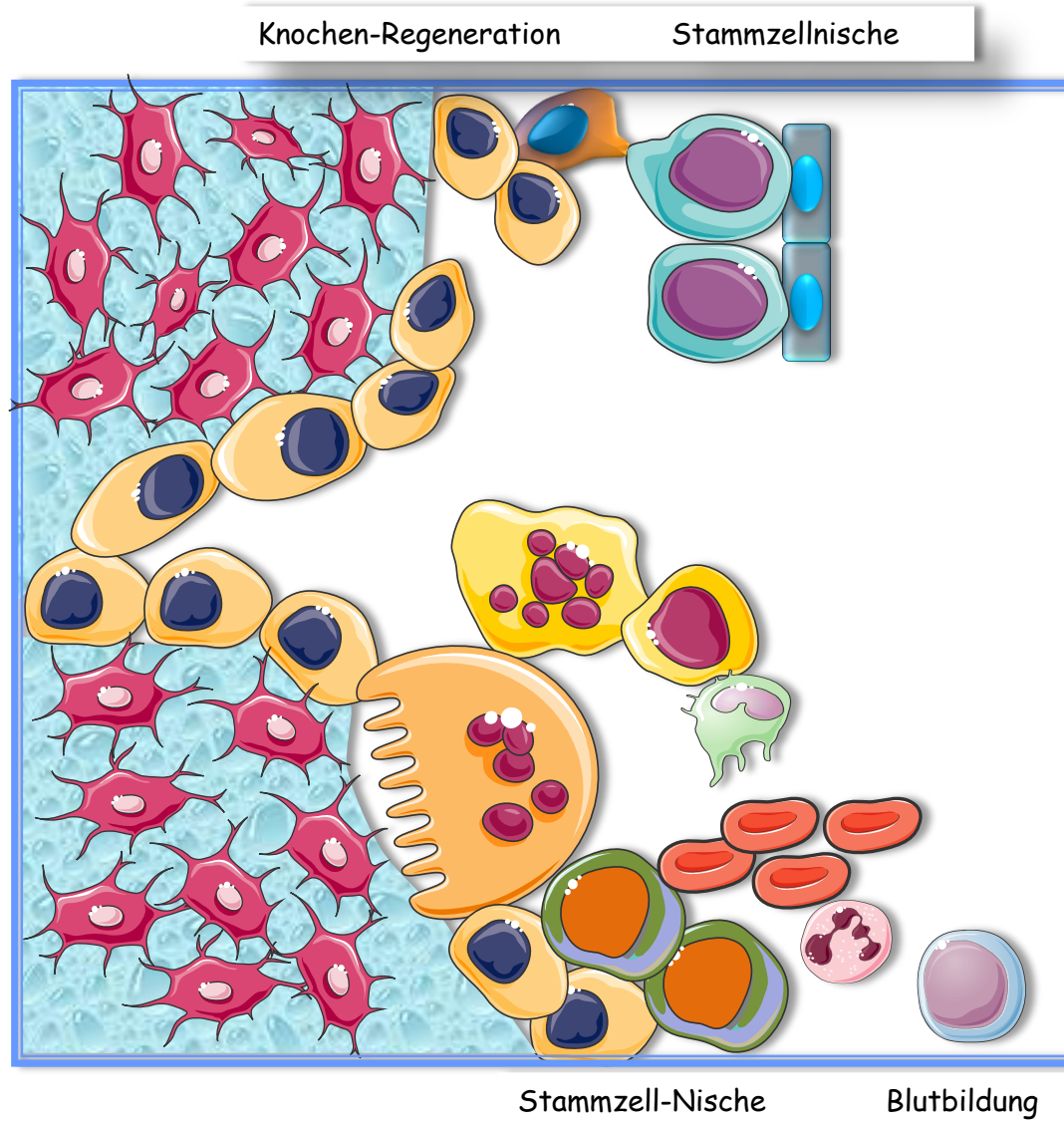
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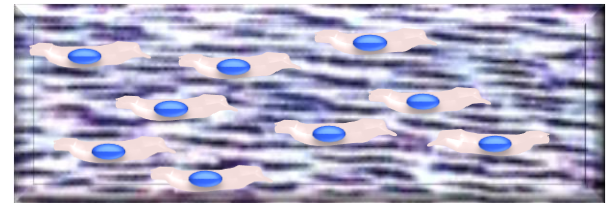
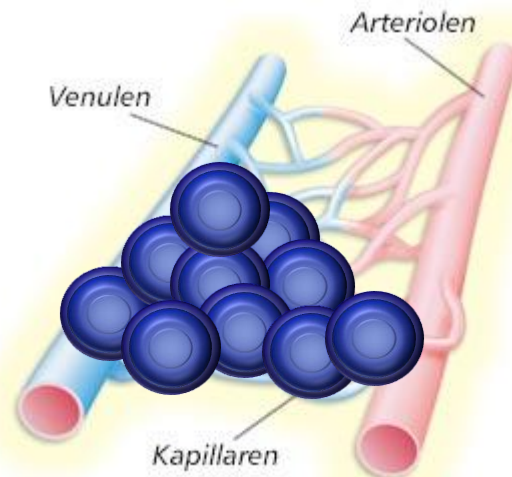
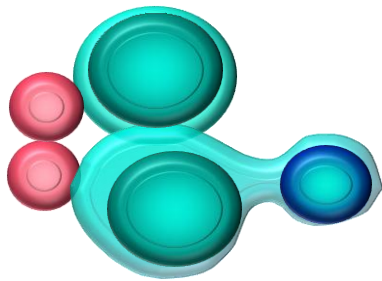
Verletzungen durch Unfälle Degeneration durch „Abnutzung“



Gewebe-Heilung – das Zusammenspiel zwischen Blutzellen und Gewebe-Stammzellen



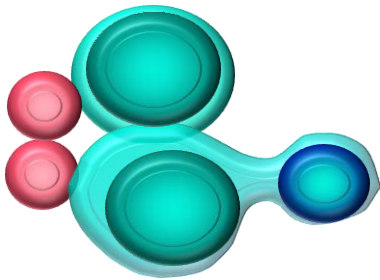
Heilung geht von unterschiedlichen Stammzellen aus



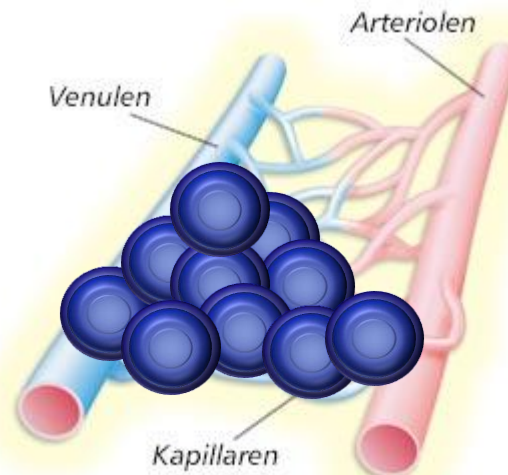
Heilung geht von unterschiedlichen Stammzellen aus

Verletzung
Blutpfropf
Abräumung

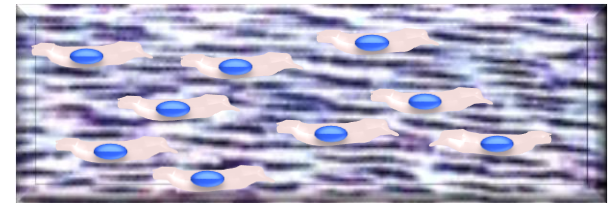
Erneuerungsreiz



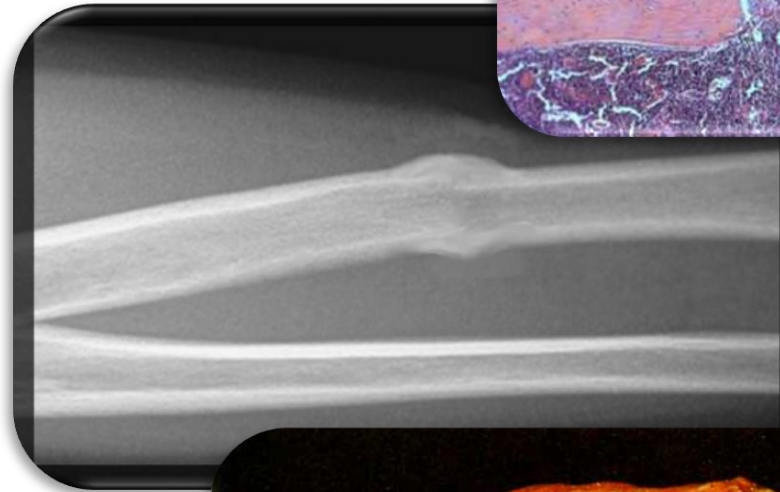
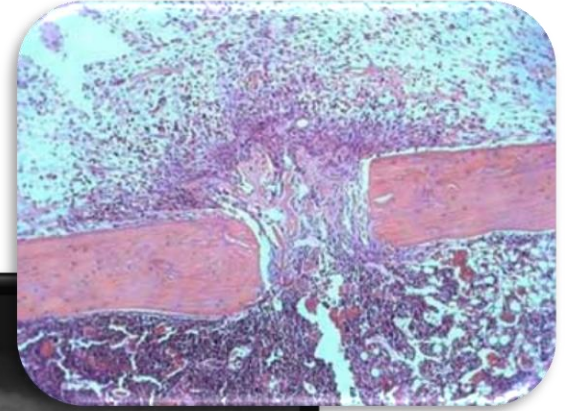
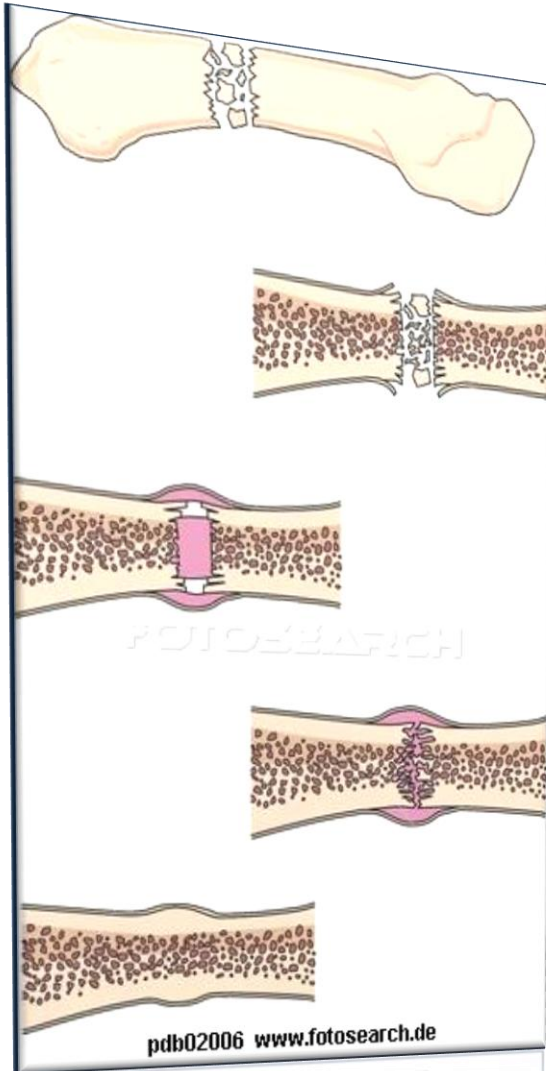
Neue Zellen
Adäquate Blutversorgung



Gewebereifung



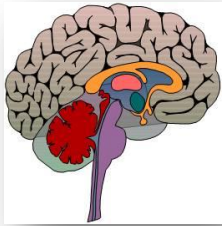
Verlauf der Knochenheilung



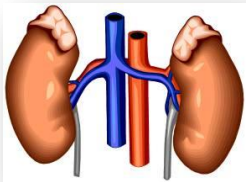
pdb02006 www.fotosearch.de

9h1c17692010f1ww 80050dhp

Millieu-Änderungen im alternden Organismus



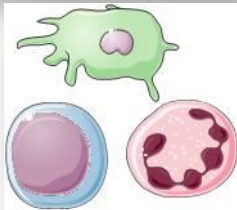
zentral
Activin Δ
GnRH Δ



adrenal
Glukokortikoide Δ
Renal
Glutathionperoxidase ∇



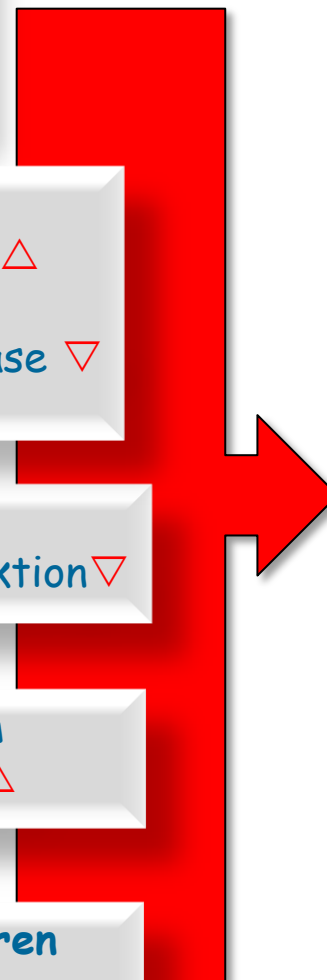
gonadal
Sexualhormonproduktion ∇



Immunsystem
Interleukin 6 Δ

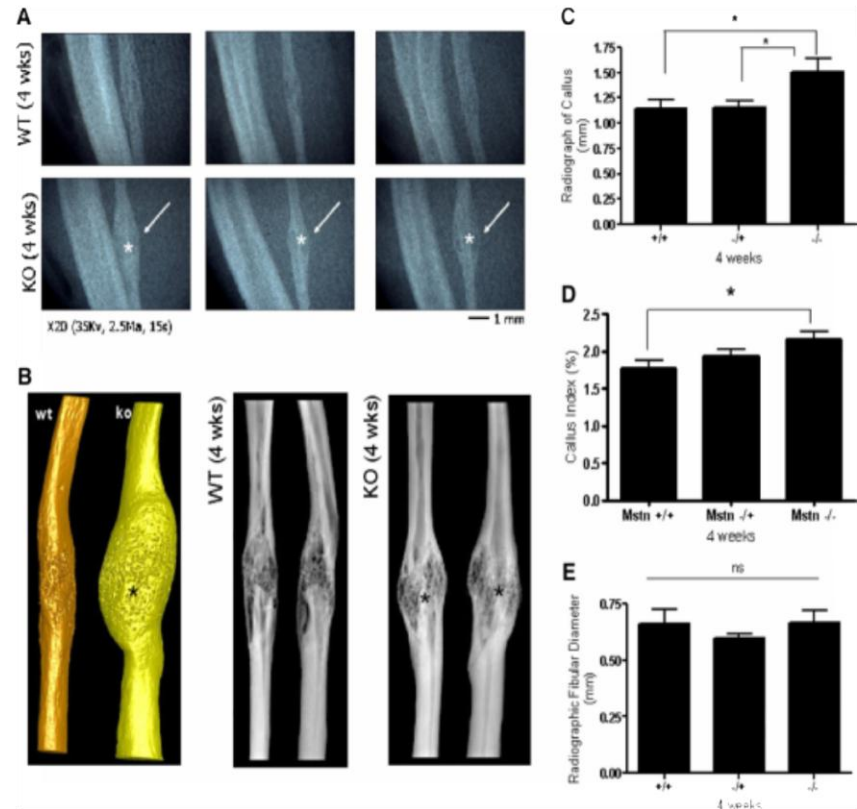
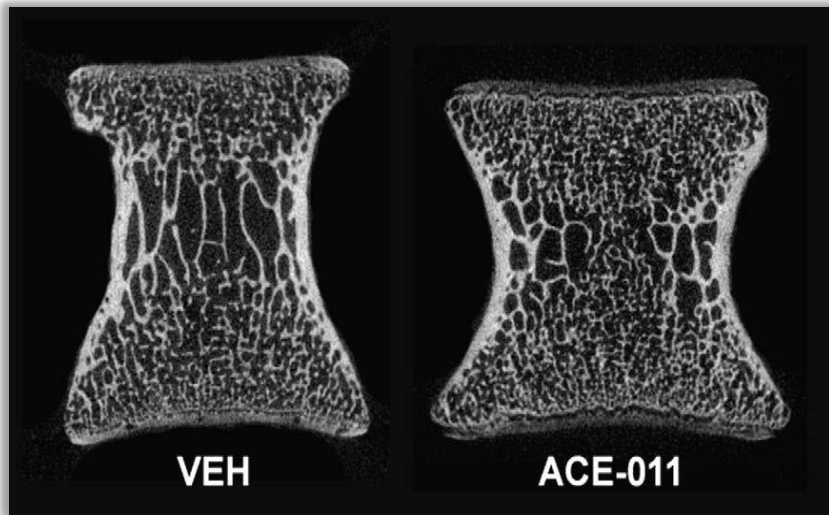


Geweberegulatoren
Myostatin Δ



**Hemmung der
Gewebe-
Regeneration**

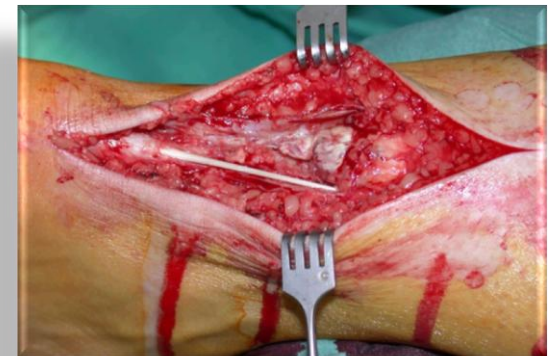
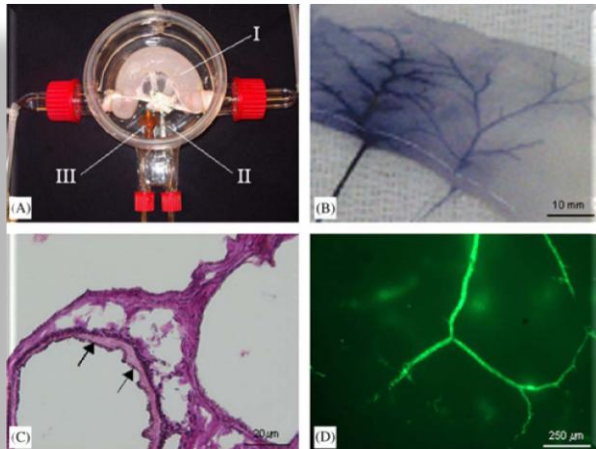
Neutralisierung von Hemmstoffen führt zur besseren Gewebe-Erneuerung



Lotinun S, Pearsall RS, Davies MV, Marvell TH, Monnell TE, Ucran J, Fajardo RJ, Kumar R, Underwood KW, Seehra J, Bouxsein ML, Baron R. A soluble activin receptor Type IIA fusion protein (ACE-011) increases bone mass via a dual anabolic-antiresorptive effect in *Cynomolgus* monkeys. *Bone*. 2010 Apr;46(4):1082-8. Epub 2010 Jan 18. PubMed PMID: 20080223.

Kellum et al. *Bone* 44 (2009) 17-23

Ex vivo und *in situ* Geweberegeneration





Vielen Dank



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