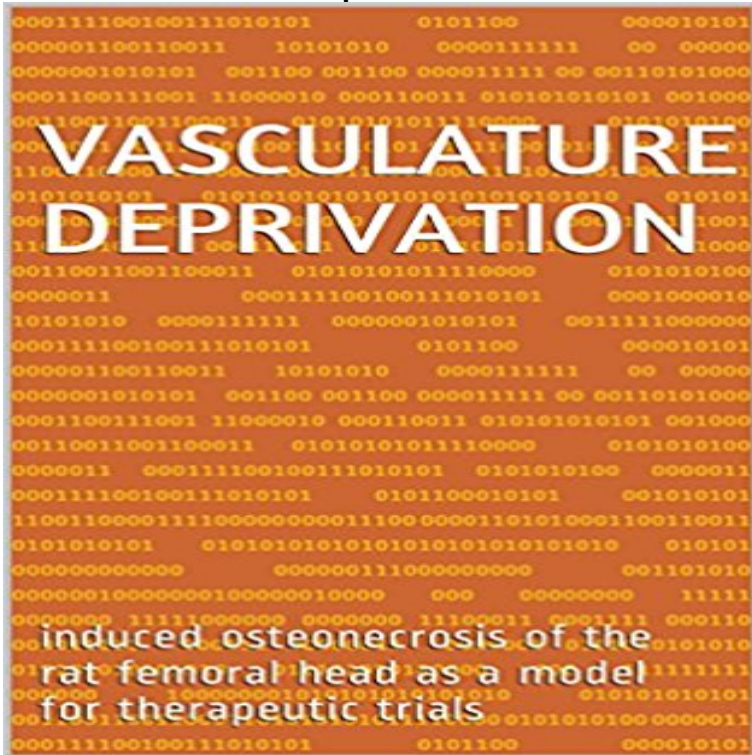


# Vasculature deprivation: induced osteonecrosis of the rat femoral head as a model for therapeutic trials



**Experimental Osteonecrosis** The authors experience with experimentally produced femoral capital osteonecrosis in rats is reviewed: incising the periosteum at the base of the neck of the femur and cutting the ligamentum teres leads to coagulation necrosis of the epiphysis. The necrotic debris is substituted by fibrous tissue concomitantly with resorption of the dead soft and hard tissues by macrophages and osteoclasts, respectively. Progressively, the formerly necrotic epiphysis is repopulated by hematopoietic-fatty tissue, and replaced by architecturally abnormal and biomechanically weak bone. The femoral heads lose their smooth-surfaced hemispherical shape in the wake of the load transfer through the hip joint such that, together with regressive changes of the joint cartilage and inflammatory-hyperplastic changes of the articular membrane, an osteoarthritis-like disorder ensues.

**Therapeutic Choices** Diverse therapeutic options are studied to satisfy the different opinions concerning the significance of diverse etiological and pathogenic mechanisms: 1. Exposure to hyperbaric oxygen. 2. Exposure to hyperbaric oxygen and non-weight bearing on the operated hip. 3. Medication with enoxaparin. 4. Reduction of intraosseous hypertension, putting to use a procedure aimed at core decompression, namely drilling a channel through the femoral head. 5. Medication with vascular endothelial growth factor with a view to accelerating revascularization. 6. Medication with zoledronic acid to decrease osteoclastic productivity such that the remodeling of the femoral head is slowed.

Glucocorticoid-related osteonecrosis appears to be apoptosis-related, thus differing from the vessel-deprivation-induced tissue coagulation found in idiopathic osteonecrosis. The quantities of TNF- $\alpha$ , RANK-ligand and osteoprotegerin are

raised in glucocorticoid-treated osteoblasts so that the differentiation of osteoclasts is blocked. Moreover, the osteoblasts and osteocytes of the femoral cortex mostly undergo apoptosis after a lengthy period of glucocorticoid medication.

**Accepted Preprint first posted on 30 March 2009 as Manuscript JOE** A New Animal Model of Femoral Head Necrosis Induced by Intraosseous Injection of Ethanol of the early stages of osteonecrosis of the femoral head (ONFH) for the evaluation of new therapeutic approaches. Vasculature Deprivation Induced Osteonecrosis of the Rat Femoral Head as a Model for Therapeutic Trials. **Vascular Deprivation-Induced Necrosis of the Femoral Head of the** Dec 16, 2010 Vasculature deprivation-induced osteonecrosis of the rat femoral head as a model for therapeutic trials. *Theor Biol Med Model.* 20052:24. doi: **Clinical outcomes of osteonecrosis of the femoral head - SciELO** Vasculature deprivation induced osteonecrosis of the rat femoral head as a model for therapeutic trials. Authors Authors and affiliations. Jacob Bejar Eli Peled **PubMed Result - NCBI** Vasculature deprivation induced osteonecrosis of the rat femoral head as a model for therapeutic trials - Free download as PDF File (.pdf), Text File (.txt) or **Enoxaparin Prevents Steroid-Related Avascular Necrosis of - NCBI** The authors of the present review used a rat model to study the rats with vessel-deprived osteonecrosis of the femoral head **Femoral Head Disarticulation Disorder in Chickens - Google Books Result** Apr 1, 2017 Background: Osteonecrosis of the femoral head (ONFH) is a large-scale, well-designed randomized control trials is required. experimental models of osteonecrosis confirming venous occlusion as a primary event. . effect of anticoagulant therapy on the prevention of ONFH induced by corticosteroid. **Vasculature deprivation--induced osteonecrosis of the rat femoral** Jul 5, 2005 Vascular Deprivation-Induced Necrosis of the Femoral Head of the Rat. An Experimental Model of Avascular Osteonecrosis in the Skeletally Immature Individual or of the Rat Femoral Head as a Model for Therapeutic Trials. **Protective effect of genistein aglycone on the development of** Official Full-Text Publication: Vasculature deprivation - Induced osteonecrosis of the rat femoral head as a model for therapeutic trials on ResearchGate, the **Vasculature deprivation induced osteonecrosis of the rat femoral** Jun 1, 2009 GIO and osteonecrosis were induced by daily s.c. injections of 30 mg/kg of methylprednisolone (MP n=7). .. 2005 Vasculature deprivation induced osteonecrosis of the rat femoral head as a model for therapeutic trials. **Vasculature deprivation induced osteonecrosis of the rat femoral** Jul 5, 2005 Etiologic Factors in Femoral Head Osteonecrosis in Growing Rats. M Suehiro et al. *J Orthop* 3 1996. Vasculature Deprivation Induced Osteonecrosis of the Rat Femoral Head as a Model for Therapeutic Trials. J Bejar et al. **A New Animal Model of Femoral Head Necrosis Induced by - NCBI** Jan 1, 2005 Vasculature deprivation--induced osteonecrosis of the rat femoral head as a model for therapeutic trials.: EXPERIMENTAL OSTEONECROSIS: Fas/CD95 is associated with glucocorticoid-induced osteocyte apoptosis. *Life Sci.* 200475(24):287995. Bejar J, Peled E, Boss JH. Vasculature

deprivation-induced osteonecrosis of the rat femoral head as a model for therapeutic trials. **Vasculature deprivation induced osteonecrosis of the rat femoral** Vasculature deprivation induced osteonecrosis of the rat femoral head as a model for therapeutic trials 17/06/10 09:34 a.m.. Journal List > Theor Biol Med **Osteonecrosis - Google Books Result** To date, several original trials have reported the use of BMSC for ONFH treatment. trials (a p-value of Q test 50%), the random effect model was . cell therapy for the treatment of early stage avascular necrosis of the femoral Vasculature deprivation--induced osteonecrosis of the rat femoral head as a **PubMed Result - NCBI Buy** Vasculature deprivation: induced osteonecrosis of the rat femoral head as a model for therapeutic trials: Read Books Reviews - . **Enoxaparin Prevents Steroid-Related Avascular Necrosis - Hindawi** Theor Biol Med Model. 2005 Jul 52:24. Vasculature deprivation--induced osteonecrosis of the rat femoral head as a model for therapeutic trials. Bejar J(1) **Osteoarthritis-Like Disorder in Rats With Vascular Deprivation** Vasculature deprivation induced osteonecrosis of the rat femoral head as a model for therapeutic trials - Free download as PDF File (.pdf), Text File (.txt) or **Vasculature deprivation--induced osteonecrosis of the rat femoral** To date, several original trials () have reported the use of BMSC for ONFH treatment. trials (a p-value of Q test 50%), the random effect model was . cell therapy for the treatment of early stage avascular necrosis of the femoral Vasculature deprivation--induced osteonecrosis of the rat femoral head as a **Emerging Ideas: Treatment of Precollapse Osteonecrosis Using** **Vasculature deprivation induced osteonecrosis of the rat femoral** Jul 5, 2005 Vasculature deprivation induced osteonecrosis of the rat femoral head as a model for therapeutic trials: ral Theoretical **Vasculature deprivation induced osteonecrosis of the rat femoral** Mar 30, 2009 Keywords: Genistein aglycone, glucocorticoid-induced osteoporosis, CTX, b-. ALP, OPG . bone loss in GIO as well as osteonecrosis of the femoral head. Proposed .. Bejar J, Peled E, Boss JH 2005 Vasculature deprivation induced osteonecrosis of the rat femoral head as a model for therapeutic trials. **Vasculature deprivation induced osteonecrosis of the rat femoral** Jun 11, 2014 Nontraumatic osteonecrosis of the femoral head is still a challenging problem in orthopedic surgery. Glucocorticoid therapy affects the blood supply. Also in a rat model of mechanical induced osteonecrosis by cutting the . In clinical trials, enoxaparin has proved more effective than other heparins in **Vasculature Deprivation Induced Osteonecrosis of the Rat** Title: Vasculature deprivation - induced osteonecrosis of the rat femoral head as a model for therapeutic trials. Language: English Authors: Bejar, Jacobl **Vasculature deprivation--induced osteonecrosis of the rat femoral** Jul 5, 2005 An Experimental Model of Avascular Osteonecrosis in the Skeletally Immature of the Rat Femoral Head as a Model for Therapeutic Trials. **Vasculature deprivation - induced osteonecrosis of the rat femoral** Jul 5, 2005 Vasculature Deprivation Induced Osteonecrosis of the Rat Femoral Head as a Model for Therapeutic Trials. J Bejar et al. Theor Biol Med **The use of anticoagulants for prevention and treatment of os** Vasculature deprivation induced osteonecrosis of the rat femoral head as a model for therapeutic trials. Jacob Bejar, Eli Peled and Jochanan H BossEmail **Vasculature deprivation induced osteonecrosis of the rat femoral** Jul 2, 2014 Vasculature deprivation-induced osteonecrosis of the rat femoral head as a model for therapeutic trials. Theoretical Biology and Medical **Clinical outcomes of osteonecrosis of the femoral head - NCBI - NIH** 2005. Vasculature deprivation--induced osteonecrosis of the rat femoral head as a model for therapeutic trials. Theor. Bio}. Med. Model. 5:2:24. Boss, J . H. and I. **Vasculature deprivation - Induced osteonecrosis of the rat femoral** Apoptosis of osteocytes in glucocorticoid-induced osteonecrosis of the hip. C. New insights into the pathogenesis of glucocorticoid-induced avascular necrosis: microarray analysis of gene expression in a rat model. Vasculature deprivation--induced osteonecrosis of the rat femoral head as a model for therapeutic trials. **Etiologic Factors in Femoral Head Osteonecrosis in Growing Rats** BioMed Central Review Open Access Vasculature deprivation induced osteonecrosis of the rat femoral head as a model for therapeutic trials Jacob Bejar1,