

References:

1. **Harley CB, Gearhart J, Jaenisch R, Rossant J, Thomson J:** Pluripotent stem cells: Biology and applications. Durango Publisher Co: 2001; 19; 155-160.
2. **caplan AL.**Review:mesenchymal stem cells: cell-based reconstructive therapy in orthopedics .Tissue Eng 2005
3. **Vats ATolley NS, Buttery LD, Polak JM.**The stem cell in orthopedic surgery .J Bone joint surg Br.2004;86:159-64
4. **Hungerford M, Eric S, Paul K, et al:** Osteotomies as Treatment for Osteonecrosis. Current Opinion in Orthopedics. 2003; 14: 17–22.
5. **Lieberman JR, Conduah A, and Urist MR:** Treatment of Osteonecrosis of the Femoral Head with Core Decompression and Human Bone Morphogenetic Protein. Clinical Orthopedics and Related Research. December 2004; 429: 139- 145.
6. **Bailey AS, Jiang S, Afentoulis M, et al.** Transplanted adult hematopoieticstems cells differentiate into functional endothelial cells.Blood 2004; 103:13–19.
7. **Roberts N, Jahangiri M, Xu Q:** Progenitor cells in vascular diseases. J Cell Mol Med 2005; 9:583–591.
8. **Hernigou P, Beaujean F:** Bone marrow activity in the upper femoral extremity in avascular osteonecrosis. Rhum (Eng Ed) 1993; 600:610.
9. **Thieme Atlas Of Anatomy :**general anatomy and muscloskeletal system .Thieme 2006
10. **Aiello RM, David SL, Bernard DC, et al:** A vascular Necrosis, Femoral Head. www.emedicine.com. Jun 2007.
11. **Elizabeth OJ, Konstandinos S, Panayotis NS:** Vascular Anatomy and Microcirculation of Skeletal Zone Vulnerable to Osteonecrosis: Vascularization of the Femoral Head. Orthopedic Clinics of North America. 2004; 35: 285– 291.
12. **Kelly JD, David W, Gerard AM:** Femoral Head A vascular Necrosis. Wwww.eMedicine.com. August 2006.

13. **Schmidt HA:** Femoral Neck Fractures. www.medscape.com. December 2001; 137.
14. **. Theodorou DJ, Stavroula JT, Parviz H, et al:** Distinct Focal Lesions of the Femoral Head: Imaging Features Suggesting an Atypical and Minimal form of Bone Necrosis. *Skeletal Radiol.* 2002; 31:435– 444.
15. **Aaron RK and Ciombor DM:** Orthopedic Complications of Solid-Organ Transplantation. *Surgical Clinic of North America.* 2006; 86: 1237–1255.
16. **Nishii T, Sugano N, Miki H, et al:** Does Alendronate Prevent collapse in osteonecrosis of the femoral head? *Clinical orthopedics and related research.* February 2006; 443:273-273.
17. **Donohue PJ:** Osteonecrosis (A vascular Necrosis of Bone).[www:/uptodate.com](http://www.uptodate.com). 2006
18. **Sugano N, Kubo T, Takaoka K, et al:** Diagnostic Criteria for Non traumatic Osteonecrosis of the Femoral Head: A Multicentre Study. *Journal of Bone and Joint Surgery – British.* July 1999; 81-B (4):590-595.
19. **Jackson SM and Nancy MM:** Pathologic Conditions Mimicking Osteonecrosis. *Orthopedic Clinic of North America.* 2004; 35: 315-320.
20. **Steinberg ME and Steinberg DR:** Classification Systems for Osteonecrosis: An Overview. *Orthopedic Clinic of North America.* 2004; 35:273- 283.
21. **Levine M, Rajadhyaksha A, and Mont A:** Osteonecrosis Hip. www.eMedicine.com October 2006; 18.
22. **Lieberman JR:** Core Decompression for Osteonecrosis of the Hip *Clinical Orthopedics.* January 2004; 418: 29-33.
23. **Khanuja HS, Mont MA, Etienne G, et al:** Treatment Algorithm for Osteonecrosis of the Hip. *Techniques in orthopedics.* March 2001; 16(1): 80-89.
24. **Massari L, Fini M, Cadossi R, et al:** Biophysical Stimulation with Pulsed Electromagnetic Fields in Osteonecrosis of The Femoral Head. *Journal of Bone and Joint Surgery -American.* November 2006; 88-A (3): 56-60.

25. **Martini L, Giavaresi G, Fini M, et al:** Early Effects of Extracorporeal Shock Wave Treatment on Osteoblast-like Cells: A Comparative Study between Electromagnetic and Electro hydraulic Devices. *Journal of Trauma Injury, Infection and Critical Care*. November 2006; 61(5):1198-1206.
26. **Lai KA, Shen WJ, Yang CY, et al:** The Use of Alendronate to Prevent Early Collapse of the Femoral Head in Patients with Non traumatic Osteonecrosis: A randomized Clinical Study. *Journal of Bone and Joint Surgery-American*. 2005; 87:21-55.
27. **Mistlin A, and Gibson T:** Osteonecrosis of the Femoral Head Resulting From Excessive Corticosteroid Nasal Spray Use. *Journal of clinical Rheumatology*. February 2004; 10(1): 45-47.
28. **Reis ND, Schwartz O, Militianu D, et al:** Hyperbaric Oxygen Therapy as a Treatment for Stage-I Avascular Necrosis of the Femoral Head. *Journal of Bone and Joint Surgery- [Br]*. 2003; 85- B: 371-375.
29. **Song WS, Jeong JY, Kim Y, et al:** Results of Multiple Drilling Compared with Those of Conventional Methods of Core Decompression. *Clinical Orthopedics and Related Research*. January 2007; 454:139-146.
30. **Mont MA, Phillip SR, and Etienne G:** Core Decompression of the Femoral Head for Osteonecrosis Using Percutaneous Multiple Small-Diameter Drilling. *Clinical Orthopedics and Related Research*. 2004; 429:131-138.
31. **Veillette CJH, Mehdian H, Schemitsch EH, et al:** Survivor ship Analysis and Radiographic Outcome Following Tantalum Rod Insertion for Osteonecrosis of The Femoral Head. *Journal of Bone and Joint Surgery, American*. November 2006; 88-A (3): 48-55.
32. **Chen W, Feng Z, Shi-Min C, et al:** Microsurgical Fibular Flap for Treatment of Avascular Necrosis of the Femoral Head. *Journal of the American College of Surgeons*. February 2006; Vol. 202, No. 2.
33. **Rijnen WHC, Jean WMG, Pieter B, et al:** Treatment of Femoral Head Osteonecrosis Using Bone Impaction Grafting. *Clinical Orthopedics and Related Research* December, 2003; 417: 74-83.

34. **Grecula MJ:** Resurfacing Arthroplasty in Osteonecrosis of the Hip. Orthopedic Clinic of North America 2005; 36:231 – 242.
35. **Ivankovich DA, Rosenberg AG, Malamis ABS:** Reconstructive Options for Osteonecrosis of the Femoral Head. Techniques in Orthopedics. March 2001; 16(1): 66-79
36. **Amstutz HC, Scott TB, Le Duff MJ, et al:** Resurfacing THA for Patients Younger than 50 Years Results of 2- to 9-years Follow up. Clinical Orthopedics and Related Research January 2007; 31:1-6.
37. **Xenakis TA, John G, Theodosios AK, et al:** Cementless Hip Arthroplasty in the Treatment of Patients with Femoral Head Necrosis. Clinical Orthopedics and Related Research, May, 2001; 386: 93-99.
38. **Anderson DJ, Gage FH, Weissman IL:** Can stem cells cross lineage boundaries? Nat Med 2001; 7:393-395.
39. **Joanna E.Grove, Emanuela Bruscia, Dianes. Krause:** Plasticity of bone marrow-derived stem cells. Stem cells 2004; 22:487-500.
40. **Bianco P, Riminucci M, Gronthos S, Robey PG:** Bone marrow stromal stem cells: Nature, biology and potential applications. Stem Cell: 2001; 19:180-192.
41. **Kuznetsov SA, Mankani MH, Gronthos S, Satomura K, Bianco P, Robey PG. H:** Circulating skeletal stem cells. Cell Biol 2001; 153:1135-1140.
42. **Caplan Al:** The mesengenic process. Clin PlastSurg, 1994; 21: 429-435.
43. **Clive N. Svendsen, Allison D.Ebert:** Encyclopedia of stem cell research, QU 13 E565, 2008; 366-390.
44. **Verfaillie CM:** Multipotent adult progenitor cells an update Haematopoietic and stromal cell differentiation Nonrvatis Found Symp, 2005; 26:555-561.
45. **Friedenstein AJ, Deriglasova UF et al:** Precursors for fibroblasts in different populations of hematopoietic cells as detected by the in vitro colony assay method". Exp Hematology 2, 1974; 83-92.

46. **Friedenstein AJ, Gorskaja JF, Kulagina:** Fibroblast precursors in normal and irradiated mouse hematopoietic organs. *Exp Hematol.* 1976; 267-274.
47. **Adewumi O, Aflatoonian B, et al:** Characterization of human embryonic stem cell lines by the International Stem Cell Initiative. *Nat. Bio technol.* 2007; 25 (7): 803-816.
48. **Bongso A, Fng CY, and Ng SC, Ratnam S:** Isolation and culture of inner cell mass cells from human blastocytes *Hum Beprod*, 1994; 9:2110-2117.
49. **Colby D, Robertson M, et al:** Culture of Human Embryonic Stem Cells (hESC) and Functional expression cloning 2003; 5:494-501.
50. **Chambers I, Colby D, Robertson M, et al:** Functional expression cloning of Nanog, a pluripotency sustaining factor in embryonic stem cells. *Cell* 2003; 113 (5): 643-655.
51. **Boyer LA, Lee TI, Cole MF, et al:** Core transcriptional regulatory circuitry in human embryonic stem cells. *Cell* 2002; 122 (6): 947-956.
52. **Gardner RL:** Stem cells potency, plasticity and public perception. *Journal of Anatomy* 2003; 277-282.
53. **Takahashi K, Yamanaka S:** Induction of pluripotent stem cells from mouse embryonic and adult fibroblast cultures by defined factors. *Cell* 2006; 126(4):663-676.
54. **Tuan RS, Boland G, Tuli R:** Adult mesenchymal stem cells and cell-based tissue engineering. *Arthritis Res Ther* 2003; 5:62–75.
55. **Tse W, Laughlin MJ:** Umbilical cord blood transplantation: A new alternative option. *Hematology (Am Soc Hematol Educ Program)* 2005; 377-383.
56. **Beckmann J, Scheitza S, Wernet P, Fischer JC, Giebel B:** Asymmetric cell division within the human hematopoietic stem and progenitor cell compartment: identification of asymmetrically segregating proteins". *Blood* 2006; 109 (12): 5494-5501.

57. **Song L, Tuan RS:** Tran's differentiation potential of human mesenchymal stem cells derived from bone marrow, *FASEB J*, 2004;18:980-982.
58. **Xie T, Spradling A:** decapentaplegic is essential for the maintenance and division of germ line stem cells in the Drosophila ovary. 1998; 2: 251-260.
59. **Wykis May2007 stemcells division URL:** http://en.wikipedia.org/wiki/Image:Stem_cell_division_and_differentiation.svg(accessed on 15 February 2008).
60. **Shostak S:** Redefining stem cells. *Bio essays* 28- 3-2006. 3:301-308.
61. **Mitalipov SM, Zhou Q, et al:** Reprogramming following somatic cell nuclear transfer in primates is dependent upon nuclear remodeling". *Hum Reprod*. 2007; 22 (8): 2232-2242.
62. **Foucar K:** Bone Marrow Pathology. ASCP Press, Chicago, 1995.
63. **Hernandez-Garcia, M.T, Hernandez-Nieto, and L:** Bone marrow trephine biopsy: anterior superior iliac spine versus posterior superior iliac spine. *Clin. Lab. Haematol* 1993; 15(1): 15-19.
64. **Reid, M. M:** Bone marrow biopsy: a haematologists view. *Acta Pediatric* 1993; 82(6-7): 599-601.
65. **DiGirolamo CM, Stokes D, Colter D:** Propagation and senescence of human marrow stromal cells in culture: a simple colony-forming assay identifies samples with the greatest potential to propagate and differentiate. *Br J Haematol* 1999; 107:275-281.
66. **I Pountos, C Tzioupis, D McGonagle, P.V Giannoudis:** Growing bone and cartilageThe role of mesenchymal stem cells. *J Bone Joint Surg [Br]* 2006; 88-B-.42U6. VOL. 88-B, No. 4.
67. **Zhu M, Zuk PA, Mizuno H:** Multilineage cells from human adipose tissue: implications for cell-based therapies. *Tissue Eng*. 2001; 7:211-228.

68. **Bruder SP, Jaiswal N, Haynesworth SE:** Growth kinetics, selfrenewal, and the osteogenic potential of purified human mesenchymal stem cells during extensive subcultivation and following cryopreservation. *J Cell Biochem.*1997; 64:278-94.
69. **Christophe M, Claire V, Johann C, Sylvia CJ, Pierre W, Jerome G:** Adipose-derived mesenchymal stem cells and biomaterials for cartilage tissue engineering. *Joint Bone Spine* 2008; 75: 672-674.
70. **Johnstone B, Hering TM, Caplan Al:** In vitro chondrogenesis of bone marrow-derived mesenchymal progenitor cells. *Exp Cell Res* 1998; 238:265-272.
71. **Vacanti, JP, Langer R:** Tissue engineering and design and fabrication of living replacement devices for surgical reconstruction and transplantation. *The Lancet.* 1999; 354 (suppl 1): 132-134.
72. **Acurio MT, Friedman RJ:** Hip arthroplasty in patients with sickle-cell haemoglobinopathy. *J Bone Joint Surg Br.* 1992; 74:367-371.
73. **Hernigou P, Habibi A, Bachir D, Galacteros F:** The natural history of asymptomatic osteonecrosis of the femoral head in adults with sickle cell disease. *JBone Joint Surg Am.* 2006; 88:2565-2572.
74. **Al-Mousawi F, Malki A, Al-Aradi A, Al-Bagali M, Al-Sadadi A, Booz MM:** Total hip replacement in sickle cell disease. *Int Orthop.* 2002; 26:157-161.
75. **Friedenstein AJ, Shapiro-Piatetzky, II, Petrakova KV:** Osteogenesis in transplants of bone marrow cells. *J Embryol Exp Morphol* 1966; 16:381–390.
76. **Goujon E:** Recherches expérimentales sur les propriétés du tissu osseux. *Journal de l'Anatomie* 1869; 6:399–421.
77. **Srivastava D, Ivey KN:** Potential of stem-cell-based therapies for heart disease. *Nature.* 2006; 441:1097-1099.
78. **Hernigou P:** Autologous bone marrow grafting of avascular osteonecrosis before collapse. *Rev Rhum (Eng Ed)* 1995; 66:650.

79. **Conway EM, Collen D, Carmeliet P:** Molecular mechanisms of blood vessel growth. *Cardiovasc Res* 2001; 49:507–521.
80. **Jain RK:** Molecular regulation of vessel maturation. *Nat Med* 2003; 9:685– 693.
81. **Dohmann HF, Perin EC, Takiya CM, et al.** Transendocardial autologous bone marrow mononuclear cell injection in ischemic heart failure: postmortem anatomopathological and immunohistochemical findings. *Circulation* 2005; 112:491–506.
82. **Steinberg ME, Hayken GD, Steinberg DR.** A quantitative system for staging avascular necrosis. *J Bone Joint Surg Br.* 1995; 77:34-41.
83. **Ficat P, Arlet J:** Pre-radiologic stage of femur head osteonecrosis: diagnostic and therapeutic possibilities. *Rv Chir Orthop Reparatrice Appar Mot.* 1973; 59 :(Suppl 1):26-38.
84. **Harris WH:** Traumatic arthritis of the hip after dislocation and acetabular fractures: treatment by mold arthroplasty. *J Bone Joint Surg Am.* 1969; 51: 737-755.
85. **Hernigou P, Beaujean F:** Treatment of osteonecrosis with autologous bone marrow grafting. *Clin Orthop Relat Res.* 2002; (405):14-23.
86. **Bruder SP, Kurth AA, Shea M, et al:** Bone regeneration by implantation of purified, culture-expanded human mesenchymal stem cells. 1998; 16:155–162.
87. **Nishii T, Sugano N, Kenji O, et al:** Progression and Cessation of Collapse in Osteonecrosis of the Femoral Head. *Clinical Orthopedics and Related Research.* Number 2002; 400: 149-157.
88. **Gangji V, Hauzeur JP, Matos C:** Treatment of osteonecrosis of the femoral head with implantation of autologous bone-marrow cells: a piloted study. *J Bone Joint Surg Am* 2004; 86:1153–1160.

89. **Hernigou P, Bernaudin F, Reinert P, et al:** Bone marrow transplantation in sickle cell disease: effect on osteonecrosis. *J Bone Joint Surg Am* 1997; 79:1726 –1730.
90. **Hernigou Ph, Beaujean F:** Abnormalities in bone marrow of the iliac crest in patients with osteonecrosis. *J Bone Joint Surg Am* 1997; 79 –77:1047–1053.
91. **Gangji V, Hauzeur JP:** Teatment of osteonecrosis of the femoral head with implantation of autologous bone-marrow cells. Surgical technique. *J Bone Joint Surg Am* 2005; 87:106 –112.
92. **Yan ZQ Chen Ys Li,WJ,Yang Y,Hou JZ,Chen ZR et al:** the treatment of the femoral head osteonecrosis by percutaneous decompression and autologous bone marrow stem cells infusion.Chen *J traumatol* 2006;9:3-7.
93. **Daltro GC,Fortuna VA,Salvino de:** Femoral head necrosis treatment with autologous stem cells in sickle cell disease 2008.
94. **Azadeh F, Charles Y. Liu, James BE, Iver AL, Michael L.J. A:** Foundations and landmarks in stem cell.www. Neurosurgery-online.com 2009; 64:15–39.