One of the most common and challenging injuries for physicians to treat is cartilage damage in joints. The structure and function of articular cartilage leads to non-healing lesions or the formation of fibrocartilage after injury occurs. Well-established arthroscopic methods utilize controlled healing with marrow stimulation or transferring of non-injured cartilage to areas of injury. Historically, these arthroscopic methods as well as open and two-stage methods have shared common marginal outcomes. Recent study has investigated synthetic and biologic adjuncts to current methodology, including the use of: hyaluronic acid (HA), platelet rich plasma, mesenchymal stem cells (MSC) and peripheral blood progenitor cells (PBPC). Cell therapy has produced exciting results in animal models and has been shown to regenerate hyaline cartilage clinically in the knee joint. Our current method utilizes arthroscopic subchondral drilling of cartilage lesions in combination with a postoperative adjunct treatment involving: stimulation of the release of PBPC with filgrastim, harvest of PBPC with apheresis, and postoperative intraarticular injection of PBPC in combination with HA. Our early results lead us to the conclusion that cell therapy will have an integral part in the future treatment of cartilage damage as well as other components of the musculo-skeletal system.