It is well known that a fracture initiates a rapid bone healing response involving local and systemic inflammation, formation of a cartilage callus, mineralization, and remodeling of bone. Similarly, injuries to the soft tissues of a joint can cause inflammation, subchondral bone remodeling, and formation of chondrophytes and osteophytes. However, these injuries may also have further reaching effects that can negatively affect the entire skeleton. Our lab investigates injury-induced adaptation of bone in mice, and how joint injuries initiate degradative processes that ultimately result in post-traumatic osteoarthritis. Additionally, we are investigating systemic skeletal changes following bone fracture and other injuries in mice. We have shown that fracture initiates a systemic response that results in a loss of trabecular bone; this response is likely modulated by systemic inflammation and altered biomechanics following injury. Importantly, we have shown that the systemic loss of bone that occurs following a fracture likely also occurs following other types of injuries, including myocardial infarction and stroke. This suggests that ANY injury can potentially lead to systemic bone loss and increased fracture risk, particularly if the injury is severe. This may have wide-reaching clinical implications for patient care in all fields of medicine. Uncovering the etiology of this phenomenon will allow us to inform treatments aimed at preserving lifelong skeletal health for the aging population.