

muscle physiology lecture 14

biomechanics and injuries

loads on the upper body are transmitted through the spine to the legs. musculature in the back @ mechanical disadvantage because it produces more force internally than it generates externally. - causes discs to get compressed because of this, it is important that your form is correct when doing movements/ exercises that put your spine under pressure. for example, during squats, leaving your back flat or in a slight lordotic curve minimizes the compressive forces that are loaded onto your lumbar spine. intraabdominal pressure can reduce compressive forces on the discs as well (keep a strong core) lifting belts effect on spine compression while lifting. - inhaling while wearing a lifting belt can reduce spinal compression by about 10%. "lifting with your legs" robin burges limerick argues that a halfsquat is better since a full squat does not eliminate compression - it merely shifts it so what is getting compressed changes. the research paper was flawed though. secondary cellular death - inflammatory response to skeletal muscle injury. takes time (sometimes) for bruises to show. the inflammatory response depends on how severe the injury was and the degree of vascularization of the tissue @ the time it was injured. a very severe injury that occurs @ a site of high vascularization will lead to a larger inflammatory response. skeletal muscle injury - mechanical damage to cells, contusion injuries - capillary rupture, infiltrative bleeding, edema, inflammation. shoulders - have largest ROM of any joint. stabilized by glenoid labrum many shoulder injuries are from strains (over time) overhead sports (tennis, etc) give the shoulder a higher risk of injury because similar motions are being constantly repeated. repeated patterns lead to predictable adaptations.