We will review the role of fat in the MSK system. Fat can generally be considered as either an energy store, a space holder, or a scar to repair prior injury. Increasingly fat, is being recognized as a metabolic organ. The different families of fat suppression will be reviewed. We will then discuss research questions where fat quantification would be useful. Review the use of this quantification in clinical trials. Discuss the options on MR for fat quantification. We will end with segmentation menthods.