Joint Mobility and Stability

By Tracy Anderson

Often in the gym I see lifters trying to make a joint move in a way it was not meant to move, or move a joint so they will increase their mechanical advantage of an exercise. Such as elevating their shoulders during bench press or lat pulldowns. They are simply sacrificing form in able to complete the movement, not worried about the long term effect or even if they are working the correct muscles. Sometimes doing this will not cause injury immediately, so the lifter assumes that since it didn't hurt, it must be okay. Then over time they start to get shoulder, back or knee aches, and then they come and see me, asking why their joint hurts.

By this time they have done enough damage that it affects their workouts and they are in need of time off allowing their body too heal. Not to mention they are in need of learning new habits and the correct way to perform exercises. The joints of the body are meant to move certain ways, and when a joint is not moved its respective way, injury can occur. Every lifter should know how and what muscles move each joint, and how that joint should move.

Each joint in the body has a range of motion (ROM), through which the joint normally moves within. The ROM determines the joints mobility and is directly related to the joints stability. So lets start off defining what these words mean. Range of motion (ROM) is the range through which a joint can be moved, usually its range of flexion and extension, and is measured in degrees. Stability is the ability of a joint to maintain an appropriate functional position through its ROM. Mobility is its ability to move comfortably through the proper ROM.

The amount of allowable ROM is joint and person specific. Joints with the ability to move in more than one plane have ROM's specific to each particular plane. Such as the range of motion in shoulder flexion which moves in the sagittal plane and horizontal abduction which moves in the transverse plane. ROM's will vary from person to person, so individual measurements will vary, but should be within published averages, such as knee flexion with an average of 120°-150°.

Injuries often occur when a joint exceeds its natural range of motion. So the question must be ask, "What is the natural range of motion?" Limits are imposed on a joint by stabilizing factors such as 1) the shape of the joint surfaces and how they interact, 2) limits set by ligaments, joint capsules and other structures, and 3) the effect of the muscles on the joint. When these stabilizing factors are compromised, the normal ROM is violated and the joint may experience injury causing forces.

Each joint, and types of joints, have a natural amount of stability to resist injury. The more stable a joint, the more resistance to injury, hence the less stable a joint, the less resistance to injury. Also the more mobile a joint, the less stable the joint. Ball and socket joints, such as the shoulder and hip, have a high degree of mobility. So these joints have low stability and an increased opportunity for injury. Whereas hinge joints, such as the elbow and knee, have less mobility than the shoulder and knee, are considerably more stabile.

One exception to this rule is the hip joint. The hip joint is very mobile, having motion in all three planes, but is also very stable, due to the six deep rotator muscles,

strong fibrous joint capsule and the three ligaments that reinforce the capsule. This explains the rarity of hip joint dislocations.

In everyday circumstances, outside the gym, most people move correctly. But for some reason, once they hit the gym, some weird force takes them over and they start moving in weird ways. If they would relax and let the body move naturally, they would be fine. The body's joints know what they are supposed to do, most just don't allow them to do it.

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