

## Shoulder Basics

- Our seemingly simple shoulder joints are actually a quite complex balancing act.
- The shoulder joint combines many bones (shoulder blade, arm bone, collar bone, ribs) and muscles (rotator cuff, chest muscles, mid and upper back muscles, muscles covering shoulder).
- Even though there are many moving parts, the arm bone and the shoulder blade (scapula) are primarily connected by soft tissue. This results in a lot of **mobility** but not a lot of **stability**.
- When our work or play overloads the shoulder in an unstable position, an injury can easily occur.
- When you consider all of the positions and forces we put on our shoulder during a workday it should be no surprise that shoulders are one of the most frequently injured joints at work.

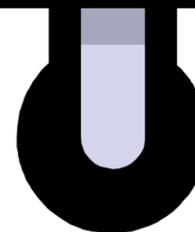
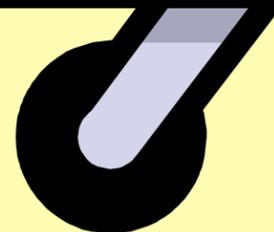


## The One Minute Shoulder Test

- Shoulder injuries can creep up on you. Sometimes our ability to move our shoulder decreases **without** pain or with minimal pain. The following are simple questions for you. These are all simple movements and action that shouldn't be painful.
  1. Is your shoulder comfortable when sitting in your easy chair or when driving with your arm at rest by your side?
  2. Does your shoulder allow you to sleep comfortably?
  3. Can you reach the small of your back to tuck in your shirt with your hand (painless)?
  4. Can you place your hand behind your head with the elbow straight out to the side (painless)?
  5. Can you lift a one pound (a full pint) to the level of your shoulder without bending your elbow (painless)?
  - Don't forget to check both shoulders!
  - If you have any symptoms, seek help from a professional before you put your shoulders in a situation they can't handle.

## Stability vs. Mobility

- The shoulder joint can move a lot due because of its structure (ball and socket) and due to the lack of bony connection points.
- Shoulder stability comes from the muscles that attach the shoulder blade to your back and from the 'rotator cuff' muscles that help to hold the arm bone tightly in the socket joint of the shoulder blade.
- One of the reasons shoulders are frequently injured are that the muscles adapt to our poor habits. Poor posture can lead our shoulders muscles to become imbalanced (e.g. chest muscles become too strong, pulling the shoulder forward).
- If our muscles don't hold the bones in the right position, the shoulder joint is less strong, less stable and at greater risk of injury.



## Put your shoulder in 'neutral'

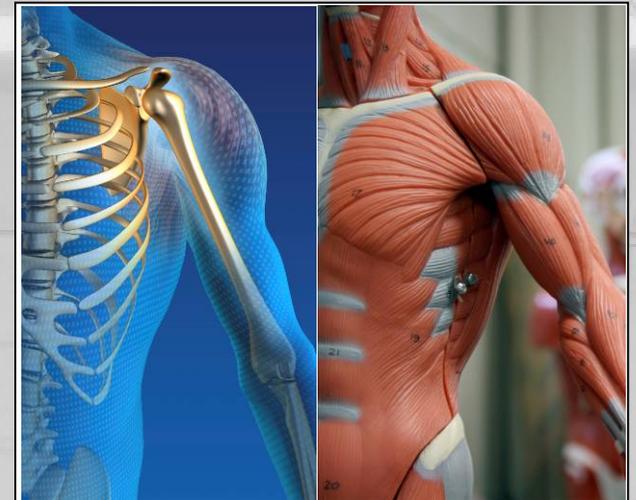
- Even old Blacksmith manuals provide ErgoTips on how to maximize productivity and power while making sure the anvil was in the best position to minimize stress on the shoulder.
- 100 years later - do **YOU** take the time to fit your work area to you? If your work is too high or too far away, your shoulder can suffer.
- Look for opportunities to position your work so your elbows are close to the body.
- Always try to **avoid** working with your hands above shoulder height or with your elbow away from the side of the body.
- It's also important to understand that the shoulder stabilizers are quite small and can get fatigued easily. Respecting your limitations can keep your shoulders healthy for years to come.

## Strong Shoulders (part 1)

### Shoulder Basics

Our seemingly simple shoulder joints are actually a quite complex balancing act. Here how this highly mobile 'Ball and Socket' joint is put together:

- Our Shoulder Blade (a.k.a. Scapula) provides the Socket portion, and the top end of the upper arm bone (a.k.a. Humerus) provides the Ball portion of the joint.
- The shoulder blade floats over the ribs of our upper back moved by connections from various muscles. These muscles attach to the spine, ribs and base of the skull and can move the shoulder blade in many different directions. The strength and coordination of these muscles is critical to a healthy and mobile shoulder.
- The 'ball' of the upper arm bone is kept snug to the 'socket' of the shoulder blade by the 'Rotator Cuff' muscles. The shoulder is the most flexible joint in the body which is why we have such great shoulder movement; HOWEVER, this also means this is one of the least stable joints in the body so it's important that we keep the supporting muscles strong!
- If you want to avoid discomfort, you need to understand how the lever principle, safe upper back posture and neutral joint positioning affect the shoulder joint...stay tuned for our next few issues.



## Strong Shoulders (part 2)

### Stability vs. Mobility

- The shoulder joint can move a lot because of its structure (ball and socket) and due to the lack of rigid, bony connection points to the rest of the body. This unique structure of the shoulder allows us to move our hand into many positions. Think of all of the things that you do with your shoulder – from throwing a fastball to slicing your opening golf shot. The only downside of the mobility is that it comes at the price of stability.
- As with our back, the best strategy for keeping the shoulder safe is to keep it in a 'neutral' and stable position, well protected by muscles and ligaments. Your shoulder is strongest and safest when your elbow is close to the side of your body and your hands are below shoulder height.
- There are two key building blocks that help keep our shoulders stable. The first comes from the muscles that attach the shoulder blade to your back and the second are the 'rotator cuff' muscles that help to hold the arm bone tightly in the socket joint of the shoulder blade (keeps the ball in the socket).
- One of the reasons shoulders are frequently injured is that our shoulder muscles adapt to our poor habits. Poor posture, such as slouching forward, can lead our shoulder muscles to become imbalanced (e.g. chest muscles become too tight, and muscles in back of shoulder become weak, resulting in the shoulder being pulled forward).
- If our muscles don't hold the bones in the right position, the shoulder joint is less strong, less stable and at greater risk of injury.



## Strong Shoulders (part 3)

### The One-Minute Shoulder Check-up

- Shoulder injuries can creep up on us. Typically, they result from shoulder muscles that become imbalanced because we repeatedly use and overload them the same way, day after day. If the muscles supporting our shoulder become imbalanced, this can lead to poor shoulder mechanics. If poor mechanics, fatigue, and awkward postures or overexertion (work) continue, the muscles on the back of our shoulder can get overstrained (long and weak). This process is gradual and frequently occurs over time **in the absence of pain**.
- Are you at risk for a shoulder injury? Here are 5 simple questions for you\*. These are all simple movements and positions that should be easy and **painfree**.
- Don't forget to check both shoulders!
  - Is your shoulder comfortable when sitting in your easy chair or when driving with your arm at rest by your side?
  - Does your shoulder allow you to sleep comfortably?
  - Can you reach the small of your back to tuck in your shirt with your hand (painfree)?
  - Can you place your hand behind your head with the elbow straight out to the side (painfree)?
  - Can you lift a one pound (a full pint) to the level of your shoulder without bending your elbow (painfree)?
- If you have any pain, seek professional help before you put your shoulders in a situation they can't handle.



\*Excerpts from the 'Simple Shoulder Test', Orthopaedic Surgery and Sports Medicine at the University of Washington

## Strong Shoulders (part 4)

### Put your shoulder in 'neutral'

- Even old Blacksmith manuals provide ErgoTips on how to maximize productivity and power by making sure the anvil was in the best position to minimize stress on the shoulder.
- So now, it's 100 years later and we've continued to build on the experience and knowledge of our elders – RIGHT? I'm sure that **YOU** take the time to fit your work area to you – RIGHT? If your work is too high or too far away or awkwardly positioned, your shoulder can suffer.
- Look for opportunities to position your work so your elbows are close to the side of your body and you don't have to reach or twist to access your work.
- Always try to **avoid** working with your hands above shoulder height or with your elbows away from the side of the body, however, when you must reach, keep the rule of 20 degrees in mind.
  - From hanging at the side of your body, swing your arms 20 degrees forwards and 20 degrees sideways. Try to keep your work within this range.
  - Never reach across your vertical midline, keep your hands on their respective sides, keep the elbows pointing to the ground, and as much as possible avoid using overhand grip.
  - Never reach behind your body, turn to face what you are doing. **YES**, the back seat of your car is behind your body!
- It's also important to understand that the Rotator Cuff muscles are small and not very powerful, yet they must put up with a potential 2 foot long lever (your arm) that may extend at any time without notice, while sometimes holding onto something! Holding a 5lb weight at arms length can put up to 10x (50lbs) of force on the shoulder joint. Respecting our limitations can keep our shoulders healthy for years to come.

