

Get The Most Out Of Your Pushup

Pushups are a great exercise, and they work almost every muscle in your body from the neck down. But chances are, you could be missing out on some of the benefits of this great exercise. In this article I am going to show you some common mistakes when doing pushups and how to tighten up your form. This will not only help improve your physique and your strength, but also help you avoid injury and pain (bonus!). I will also tell you specifically what muscles the pushup is working. This will illustrate how much you can get done with this one simple, effective exercise.

Alright first things first, what are we trying to train with a pushup? I view pushups as not just a chest and arm exercise, but also as a core exercise. It is very difficult to do pushups correctly without engaging your abs, and you should be doing this anyway to protect your lower back. Now for some anatomy, bear with me.

The pushup does a great job of training:

- the chest, (pectoralis major)
- the shoulders, (anterior deltoid)
- back of the arms, (triceps brachii)
- the core, (rectus abdominis, abdominal obliques, transverse abdominis, even the spinal erectors of the low back)
- hip flexors and quads in an isometric contraction (psoas major, iliacus, rectus femoris, and the vasti muscles)
- upper back also works isometrically to stabilize the spine (trapezius and rhomboids mainly)
- lastly, "the boxers muscle" the serratus anterior

So as you can see, we get a lot of bang for our buck with this movement.

The pushup has many variations but for the purpose of this article I am going to focus on the standard military pushup. The ideas presented in this article can still apply to other variations of pushups, for example: spidermans, hindu, divebombers, plyometric, and so on.

First Principle: Alignment

Here's someone with really messed up form.



And here's someone with solid form.



Let's break down what is going on here.

-Neck Alignment

You want to make sure that the head is not thrust forward, like this.



Some people do this when they get tired and don't even realize they are doing it. Some people with drop their head on every rep, giving the illusion that they are getting more range of motion than they really are. The first step to correcting this is realizing you are doing it, so pay attention to where your head is next time you are doing pushups. If you can, I highly recommend setting up a video camera and recording your form in motion from the side (like in my pictures). This will give you a much better idea of what you are really doing. Sometimes what we think we are doing and what we are *actually* doing is further apart than we think. So make sure your head and neck are in alignment with your spine, don't look up either as this can put undue stress on the neck and adds no benefit to the exercise. Thrusting the head forward reinforces a bad postural habit by shortening the sternocleidomastoid, two muscles on the front of the neck. This position over time can cause muscle strain in the back of the neck and even nerve impingement, so it is best to avoid this position.

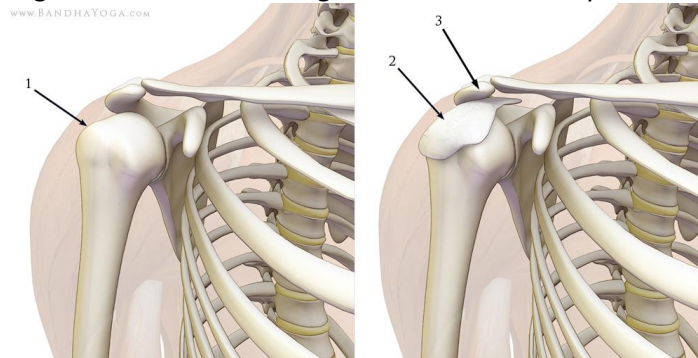
-Arm Alignment

Something else to think about is the angle of the arm in relation to the body. You want to have elbows as close to the ribs as possible, alternatively you can go out as far as 45 degrees. Doing so will give your triceps much more work to do, and is also the safest position to press from for the shoulder joint. But you want to avoid making a T shape (90 degrees) at the shoulder.

You want to avoid elbows flaring out wide like this.

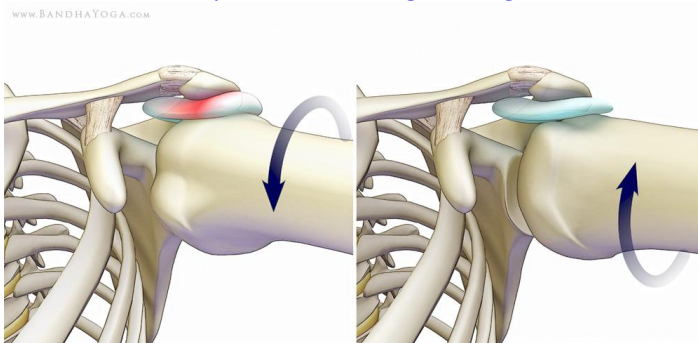


The reason is, this position destabilizes the shoulder and puts most of the emphasis on the anterior delt, which is a relatively small muscle and forces it to work extra hard to keep the shoulder stable. This angle also has more risk of impingement of soft tissue and nerves. This happens when the greater tubercle of the humerus starts running into the acromion process of the scapula, ouch. So keep the angle of the arms to 45 degrees or even closer if you want.



Lots of room for stuff to move, happy shoulders.

Photo Source: http://www.allthingshealing.com/Portals/2/Stock-Photos/Yoga/shldr_bursa2.jpg



See how the space gets tight with the arm out to the side?

Photo Source: <http://www.eco-diva.com/wp-content/uploads/2012/01/Yoga-Shoulder-pinch.jpg>

-Spinal Alignment

This is probably the most common problem with pushups, sagging in the middle. Or put more scientifically, hyper extending the lumbar spine, that sounds smarter doesn't it? Why is this bad? Well it puts a lot of extra stress on the intervertebral disks. Basically there are small cushions between each vertebra (back bone) and they are pretty squishy and deal with compression, flexion and twisting pretty well. But when we repeatedly place these stresses on them under load, eventually we can have herniation's and ruptures, not good. So we avoid this by maintaining our neutral curve or you can even slightly tuck the pelvis underneath.

Avoid This.



And keep the lower back in neutral alignment like this.



This is good because it gives you a safety net for proper alignment when you start to tire out, if you start to extend the low back you won't be immediately moving into hyper extension. I also like this position because it helps me keep the abs engaged and works them a little harder (remember how this is a core exercise too?) So try this tucked position out and see if you like it, but even if you don't, always keep a flat back and don't be saggin'.

Second Principle: Range Of Motion

-Engaging The Serratus Anterior

When I came up with the idea to write this article, this was the first thing I thought about for improving people's pushup. Most people have never heard of this muscle, so I thought this was a must to include.

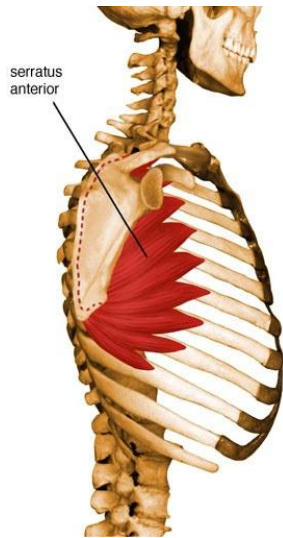


Photo Source:

<http://www.rad.washington.edu/academics/academic-sections/msk/muscle-atlas/upper-body/serratus-anterior/atlasImage>

So as you can see, these muscles originate on the ribs and insert on the medial and anterior surface of the scapula. So when these contract, they bring your shoulders forward which is called protraction, isn't that cool?! "Ok, big deal Jared, why do I care about this suratas anteater?" Well I will tell you, this muscle is very important for scapular stability. If this muscle is weak, you will not be able to hold your shoulder blade firmly in place on your rib cage. And if you can't do that, guess what? You have no ability to generate real force through your arms. If you can't hold the shoulder in place, and try to press a heavy weight, your body will not let you express your full strength in your arms and chest. It's like firing a cannon from a canoe or trying to punch when you are sitting on a swing.

Normal end of a pushup for most people, not bad but we can do better.



And protracted shoulders, engaging the serratus anterior



So what we want to do is take advantage of the time we are on the ground doing pushups by adding in shoulder protraction at the top of the movement. Some people call this a pushup plus, but I say do it on all your pushups, why not? You won't be able to get as many reps probably because your serratus will tire out first, but you will be stronger for it.

-Should I Lock Out?

So should you lock out your elbows? I say no and I'll tell you why. Unless you are doing a fitness test or trying to set some kind of record, locking the elbows serves you no purpose. When you lock out, you take the load off the muscle and shift it to the bones and connective tissue. This gives you a brief rest and might allow you to get a few more reps but if you want to get stronger, keep a slight bend in the elbows. This will keep tension on the muscles which will give you a better workout in less time, with more efficiency. Time under tension is a key variable for increasing size and strength in training so keep this in mind for all of your exercises.

Third Principle: Progression

-Decreasing Leverage

There are many ways to decrease our leverage with the pushup, but why would we want to do that? Well eventually, you will get strong enough to do many regular pushups and to keep getting stronger you will need to either add weight to your body, decrease leverage or both. Adding more and more reps is one option but this primarily builds endurance. It's not that endurance is useless by any means but if you want to keep getting "brute force" stronger (maximal strength), then you need to make the exercise more challenging on a rep for rep basis.

You can do this by starting from the knees, then progressing to the feet.

Then elevate the feet.



Then start working one arm assisted pushups.



Then you can play with one armed variations, even adding instability to the mix (which I will get to in a moment).



These are just some of the ways to decrease leverage, making the working muscles, work harder. And of course you can also add weight to these variations which will make the exercise even tougher.

-Decreasing Stability

Decreasing stability will take the exercise to another level. You will receive benefit to your core strength, rotator cuffs, balance, and all the muscles involved will have to work just a little bit harder. You can decrease stability several ways, by placing the hands or feet on something unstable, removing a point of contact with the ground, or some combination of those.

Rings or straps make pushups much more effective



Conclusion:

The main thing to do is work on the basics first before you get into the fancy stuff, always build your foundation first. So work on your alignment and get that solid, then start to play with progressions of pushups. If your alignment is off, adding more difficult variations will only increase your risk of injury. Progress slowly and explore, training should be a fun and creative process, don't limit yourself but be smart.

Train hard, stay safe.

Disclaimer

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