

## Shoulder Injuries

Like any other joint, the shoulder joint consists of bones. There are three, ligaments, and muscles and a joint capsule.



The three bones in the shoulder are the clavicle, most commonly called the collarbone, the scapula, most call it the shoulder blade or wing, and the humerus, the

upper arm bone. Consequently, the shoulder is more than just one joint. Most people consider the shoulder just the upper arm bone rotating around on your body. In reality, key factors are the stability of your scapula, or wing, on your back, and the stability of your collarbone.

In this first part of the discussion of shoulder injuries, we are going to concentrate our discussion on the stability of your collarbone and shoulder blade.

Your collarbone is anchored to your breastbone, or sternum, by very strong ligaments. There is a very small but important muscle lying under the clavicle that runs from your sternum to your

collarbone that helps control the motion of your clavicle. This muscle is easily injured when you fall on your arm or reach back behind you as in getting some thing out of the backseat of the car. When it becomes injured, your clavicle then becomes unstable. Another way that this muscle becomes damaged commonly is in an auto accident. If you are driving and you are thrown forward against the steering wheel, your upper arm bone comes back into your shoulder joint straining this muscle as well as destabilizing your wing, or scapula.

There are four other major muscles that attach to your clavicle, and instability in the clavicle can happen because of injury to any these muscles. Unfortunately, sometimes the only symptoms of the injury to the muscles that attach to the clavicle are shoulder problems.



Your scapula has quite a few muscles attached to it that help stabilize it and move it over your rib cage. It is very common in the aging process and even in the teenage years to have poor development of these stabilizing muscles which not only cause shoulder problems but also cause a slumped over posture. One of the very common muscle weaknesses that are seen daily in the office are these muscles that go from the spine to our wing or scapula. When these are weak, they fail to hold the shoulders back and you end up with a slumped over posture. If you think of our life style, we are gatherers. We bring things in front of us

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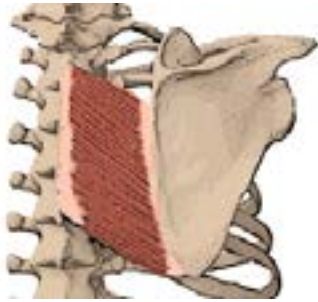
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all the time, we carry things in the house, pull things toward us, we pull the car door shut, we carry children in front of us, we carry briefcases, purses, and toolboxes. We however very seldom pull anything back behind us. The typical exercise for these muscles is called a row. It can be a bent over



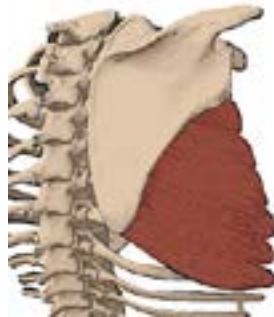
row or one done on a rowing machine. But think, how often do you do this motion in your daily or even weekly activity? It is one of the least used muscle

groups in our body.

One of the main stabilizers of the scapula is the serratus anterior. This muscle lies on our side and attaches to our ribs. The fibers go up and attach on the front surface of our scapula. Basically, this muscle locks the scapula against the rib cage when we lift or push. It is very easily injured when we fall, jerk or lift a weight that is too heavy or brace ourselves as in an auto accident.

The stability of the clavicle and scapula are essential for the integrity of the two bones that are found on top of the shoulder. If you look at most houses you'll see where the roof protrudes slightly over the outside wall. You have the same thing in your shoulder.

A portion of your wing known as the acromion process and the end of the collarbone, or clavicle, form to make a joint called the acromioclavicular joint. Injury to this joint is one of the most commonly misdiagnosed problems, and being missed, it in turn is one of the major causes of failure of therapy in shoulder problems.



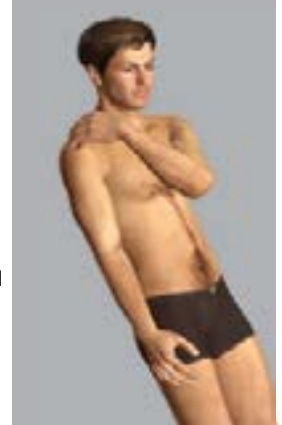
Everyone has heard of the rotator cuff which we will discuss in the next article. But if there is an injury to the acromioclavicular joint, then many times treatment to the rotator cuff is at best inadequate or is a complete failure. This is because the clavicle and the scapula must be stable to create a base for the motion of the upper arm.

The most common cause of instability of this joint is trauma to the supporting muscles that attach to the clavicle and the scapula. There is a ligament that runs from the acromion process to the clavicle. When this ligament is stretched there will be weakness, or inhibition, of some of the shoulder muscles that stabilize the upper arm. In addition, there will be an over-contraction and possibly pain in your upper trapezius muscle and on the side of your neck. If there is acro-



mioclavicular instability and you press together and stabilize the joint between the clavicle and the acromion process this tenderness is dramatically reduced.

To do this, place your feet about 18 inches from a wall or door. Lean back with the flat of your shoulder



blade against the wall and rub the muscle on the top of your shoulder to see if the tenderness is reduced. If it is, you need to have this joint treated. You should suspect that you have an injury to this joint if you fit one of the following descriptions:

- If you have unexplained tightness and soreness on one side of your neck;
- If you injured your shoulder either falling or holding onto the steering wheel as in an auto accident;
- If you injured your shoulder picking up a heavy object or have a repetitive stress injury as in throwing, painting, or sets of lifting weights;
- If you sleep on the side of the discomfort in the shoulder;
- If you have been to physical therapy and had poor results for either a neck problem or a shoulder problem.

If you have any of the above, it is easy for us to test the muscles surrounding and stabilizing your collarbone and your scapula and to determine if you have injured these.

If you have injured any of these, you need to have the muscles treated and potentially rehabilitated in order to stabilize your shoulder.

In the next installment, we will discuss injuries to the rotator cuff muscles. These are the muscles that allow you to have tremendous flexibility and rotation in your shoulder. We will discuss one of the reasons why the typical exercises that are prescribed in therapy are ineffective in strengthening the muscles injured in this.

# Shoulder Range of Motion Tests



A healthy shoulder should be able to move through all of these range of motions.

First, keeping your arm straight, bring it up to the side as far as you can. You should be able to get the arm almost straight in the air. The picture to the left shows an unstable shoulder.



With your arm hanging straight down by your side, bring your arm straight back behind you as far as you can. You should be able to go at least 30 degrees



Then, again with your straight arm by your side, bring your arm towards your opposite hip. Your hand should go almost to the front of your opposite leg.



Next, bring your arm in front of you as high as you can. Again, you should be able to raise it almost straight in the air.



The next test reveals adhesions and/or problems in the rotator cuff. Raise your arm and reach with your hand behind your head and try and touch your face. You can turn your head towards your hand. You should be able to touch your cheek.



For the next group of tests, place your arm as shown in the picture to the left.



Next, bring your hand up your back and see if both arms reach the same level. You should be able to reach just below your scapula or wing.



Rotate your shoulder bringing your forearm up. You should be able to get the forearm to 12:00. This is 90 degrees of rotation.



The last test is for the young. See if you can touch your fingers of both hands with the arms in the position shown.



Then rotate your forearm down. You again should be able to rotate it 90 degrees down or to 6:00.

If you cannot perform these motions, you may have problems in the shoulder that need to be addressed. All of the major muscles of the shoulder need to be tested properly and corrective measures taken before a severe injury occurs.

# Metabolic Syndrome

There is an increasingly common condition going on in our population that is known as metabolic syndrome.

This condition is estimated to occur in well over 25% of our population, and the incidence increases with the age of the patient. It is directly related to the overweight and obesity problem so commonly seen in our general population.

Metabolic syndrome is also known as syndrome X or insulin resistance. Over the last decade a new way of measuring weight and height has come into usage. This is known as the body mass index or BMI.

This system of measurement takes your height and your weight and comes up with a number. If that BMI index number is 30 or greater you are considered as potentially having this syndrome. It is a rather complicated computation that is done by dividing your weight in pounds by your height in inches squared and then multiplying by 705.

The other easy way of looking at this is if your waist measurement exceeds the measurement of the circumference of your hips. This is caused by abdominal fat which is consistently found with metabolic syndrome.

This syndrome of central obesity is accompanied by elevated triglycerides, reduced good cholesterol, elevated blood pressure, and an elevated fasting glucose or blood sugar.

The exact cause of this syndrome is not known. However, it appears to be a combination of diet, lack of physical activity, the normal aging process, stress, and insulin resistance.

Long-term stress is a contributing factor to this syndrome. Stress is monitored in the brain in organs called the hypothalamus and the pituitary gland. Excess stress affects the adrenal glands which results in a high level of cortisol, a hormone that elevates glucose and insulin levels. This affects the fat cells in your body and promotes the deposition of fat around your organs in your abdomen and leads to the insulin resistance and elevation of blood pressure.

Stress is something that is very hard to reduce in a person's lifestyle. But physical inactivity is one of the easiest things to change.

Inactivity leads to lower levels of good cholesterol, an increase in triglycerides, as well as increased blood pressure and elevation of blood sugar levels. Inactivity is probably the most predictive risk factor for metabolic syndrome. The first thing that should be done is to increase your daily activity. The minimum activity should be at least 30 min. of walking. The next is to reduce your intake of high glycemic index foods. These are foods that are quickly converted into sugar in your blood stream.

Let's start with an example of either having an orange for breakfast or drinking orange juice. Orange juice has the fiber removed and consequently the sugars in it are quickly converted in your body and absorbed and resulting in changes in the insulin levels. It is also easy to drink many more oranges than you could possibly eat.

If you peel and eat the orange you get all of the fiber in the pulp which slows down the assimilation of the sugars in the orange and this does not cause rapid adverse changes in insulin levels.

The major dietary change that needs to be made is to reduce your simple carbohydrate intake. This usually is caused by dramatically reducing fast foods and snacks as well as foods that have additional sugar added to them.

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Gohill, BC; Rosenblum, LA; Coplan, JD; Kral, JG; (July 2001). "Hypothalamic-pituitary-adrenal axis function and the metabolic syndrome X of obesity". *CNS Spectr.* 6 (7): 581–6, 589.

Volek JS, Feinman RD (2005). "[Carbohydrate restriction improves the features of Metabolic Syndrome. Metabolic Syndrome may be defined by the response to carbohydrate restriction](#)". *Nutr Metab (Lond)* 2 (1): 31

# Having trouble losing weight

We're going to discuss some of the common reasons that contribute to a failure of weight loss.

The first involves skipping meals or not eating enough. If you restrict your caloric intake below 1200 calories a day your body will slow its metabolism. This makes it very difficult to lose weight. This is especially true if you skip breakfast.

Historically, food was not always present. Consequently, we can make fat very easily and when we fail to eat, and our body then slows our metabolism to conserve that stored energy. The word breakfast comes from breaking the fast. If you haven't been eating for 12 hours and then skip breakfast your brain believes that you're going into a starvation state.

Your breakfast should consist of between 350 and 500 calories depending upon your size. Your breakfast protein intake should be somewhere between 12 and 20 grams, depending upon your size. Otherwise, your body slows its metabolism thinking that you're trying to starve it.

You should be trying to do some exercise to lose weight. Walking a mile will burn off about 120 cal. If you exercise and lose 300 calories and then reward yourself with a high calorie treat, you are just replenishing the calories that you burned off when you exercised.

Speaking of exercise, if you exercise for less than 40 minutes you get that time worth of increase metabolism, but exercise over 40 minutes or more and you get 50% more return on your time. Meaning that if you would exercise for 40 minutes. your metabolism stays up for 60 minutes.

An analogy would be going to the supermarket and being able to buy laundry detergent in a small size, but if you buy the larger size the

boxes will give you so much more for free. It's the same with exercise.

The next common problem is diet drinks. A study released back in 2011 showed that diet soda drinkers had almost a 200% greater increase in their waste circumference over 10 years than non-diet soda drinkers.

There are a number of factors at play here. The artificial sweeteners have been shown to raise insulin levels and lower your blood sugar, which then results in increased hunger and more calories converted into storage in your fat cells.

NutraSweet, a.k.a. Aspartame, also slows your metabolism and has an adverse effect on neurotransmitters in your brain.

On the other hand, high fructose corn syrup has been shown to block the mechanism where your stomach tells your brain that it's full. So the real answer is just to avoid soft drinks in the first place.

A 2010 study from Harvard showed that the more friends you have that have a weight problem, the more likely you are to have a weight problem. So choose the people you spend time with wisely!

One final trick is to list everything that you eat or drink for at least two weeks. It is surprising how many people are unaware of the hidden calories that sneak into their daily diet.

Writing down what you consume, and if possible, writing down your exercise routine will help you get to your goals. After all, goals are hopes and dreams that have been written down.

# Dietary suggestions

Most Americans diets are filled with processed foods. These are usually high in calories and low in nutrients that cause you to end up with many deficiencies and an excess of “empty” calories.

One of the common things that leads to a loss of energy and fatigue is potentially a B12 deficiency. This is very common in people who cut down on the amount of animal protein that they eat.

Another common cause of B12 deficiency is the use of antacids to relieve heartburn or gastric regurgitation. The antacids interfere with our normal absorption of vitamin B12. Vitamin B12 is one of the nutrients that is tough to get in a vegetarian diet.

If you have cut back on meat, dairy foods, and don't take a vitamin supplement and you're sleeping normally, fatigue suggests that you probably have a B12 deficiency. Aside from blood tests for B12 deficiencies we have found that there are certain muscle tests that we can do in the office to determine that you have a subclinical B12 imbalance that can easily be tested for.

## Becoming more forgetful?

The omega 3 essential fatty acids are part of the brain's building blocks. An inadequate intake of these natural oils will result in memory problems. We need to intake the omega-3 oils and balance them with the Omega 6 oils that are very common in our diets.

The more omega 6 oils you consume, like common cooking oils and the vegetable oils in most processed foods, the more omega 3 oils you need in your diet.

The major sources of these omega-3 oils are deep-water fish, like wild salmon, as well as walnuts, sesame seeds, and flax seeds.

There is an important relationship between

sodium and potassium. The more potassium you have in your diet, the more sodium you can have. If you have an excess sodium intake like with salt, you need to have more potassium.

If you don't do this, it can result in hypertension or high blood pressure. If you overeat salt your body will try to kick it out through your kidneys, and in doing so you lose even more potassium.

Luckily, potassium is found in many vegetables and fruits. The most famous potassium food is bananas, but most of the vegetables you consume contain potassium and it is easier to get it through diet than it is through pills.

If you have any of these symptoms, please talk to us. It's important to modify your diet with real foods first and take supplements to round out that good diet.

Remember they are called nutritional supplements. That means that they are there to supplement a normal diet, as it is difficult to successfully supplement a very poor diet.

## Coffee can be good for you!

In the journal *Circulation Heart Failure*, a study done at Beth Israel Deaconess Medical Center in Boston found that 8 ounces of caffeinated coffee helped to protect against heart failure.

As always, a little is good; too much is bad. Moderation is always the key.

# Adhesive Capsulitis or Frozen Shoulder

Severe restriction in the motion of the shoulder is known as adhesive capsulitis or a frozen shoulder.

The cause of the frozen shoulder is not well understood, and it often occurs for no known reason. What does occur is that the capsule surrounding the shoulder joint contracts and forms scar tissue that adheres it to the surrounding structures.

## What are the causes of a frozen shoulder?

Most often, the frozen shoulder occurs with no associated injury. Of course there are people who develop a frozen shoulder after a traumatic injury to the shoulder, but this is not the usual cause. Frozen shoulder is most common in people between the ages of 40 to 60. It is also more common in women than in men.

People who sustain a shoulder injury or have surgery on the shoulder can develop a frozen shoulder joint. This usually occurs if there is prolonged joint immobilization.

Studies have also shown that individuals with diabetes and thyroid problems are at an increased risk for developing a frozen shoulder.

## What happens in a frozen shoulder?

The cause is unknown, but the shoulder joint becomes stiff and scarred. The shoulder joint is a ball and socket joint. It is a bony ball at the top of the humerus and a muscular socket with cartilage. Surrounding this ball-and-socket joint is a capsule of tissue and muscles that envelops the joint.

Because of this unique design, the shoulder joint

allows more motion than any other joint in the body.

When a person develops a frozen shoulder, the joint capsule that surrounds the joint becomes contracted and forms bands of adhesions or scar tissue.

The adhesions cause the shoulder to become stiff and severely restrict the range of motion of the arm.

Typically, orthopedists divide the frozen shoulder into three distinct stages.

## The first is the Painful/Freezing Stage.

This is the most painful stage of a frozen shoulder. Here motion is restricted, but the shoulder is not as stiff as the frozen stage. This painful stage typically lasts 6-12 weeks. At this stage, proper treatment can prevent

progression to the next worse stage.

## Next is the Frozen Stage.

During the frozen stage, the pain usually eases up, but the stiffness worsens. The frozen stage can last 4-6 months unless proper treatment is initiated. The longer that you wait for care, the longer the phase of severe restriction.

## Finally, there is the Thawing Stage

The thawing stage is gradual, and motion steadily improves over a lengthy period of time. The thawing stage can last more than a year. Therapy for a frozen shoulder includes correcting any underlying muscle imbalance, reducing inflammation, stretching and loosening the joint capsule, and the active participation of the patient in their care.

As you can see, the sooner you start correcting the problem, the quicker you are back to normal. Unfortunately, untreated this condition can last up to 18 months or longer.



# Aging and Glucose (sugar)

Our body is made of millions upon millions of little cells. Each of these cells requires energy to function. Our brains have only one food source for energy and that is glucose or sugar. Here lies the problem: our brain requires sugar, but too much sugar causes severe abnormal functions and reactions.

Simply, when you eat a carbohydrate it is converted into glucose. Excess glucose in your blood stream can be converted by your liver into a substance called glycogen, a storage form of sugar. This glycogen can be stored in your liver or in your muscles, but just like your car, the amount that can be stored is limited like the gas tank has a limit.

Imagine that you had a deal with the gas station to buy 10 gallons of gas every day. You had to buy the gas, but you drove the car and only burned 5 gallons per day. Each day the attendant would top off your tank with 5 gallons and then give you a 5-gallon container to strap on your car and you would have to drive around with this extra 5-gallon can on your roof. The problem is that the next day you would add another 5 gallon can or you would have to increase your driving to burn off more gas each day – or make a new deal with the attendant to give you less. The excess glycogen is stored on your body as fat.

There is one other factor that differentiates us from the car analogy. Insulin is the factor that causes the glucose to be able to enter the cell and be burned off. A natural decrease in the ability of insulin to direct glucose into the cell begins in our mid thirties. As a result, we start to see increases in the “love handles” about this age in almost everyone. This condition is called insulin resistance and as a result the pancreas is told by our brains to produce more insulin to control the movement of the glucose

Unfortunately, this excess insulin has the effect of pro-aging from head to toe. Problems that have been associated with this include obesity, cardiovascular disease, diabetes, glaucoma,

high blood pressure, increased blood fat levels, Alzheimer’s and other forms of cognitive decline, and many other similar degenerative conditions.

We are seeing a growing epidemic of diabetes. It is increasing rapidly in our culture. Whereas in the past type II diabetes was called adult onset, we now have many teenagers coming down with it. This is because we have made a dramatic shift in the types of carbohydrates that we eat.

There are two types of carbohydrates. One way of describing them is high and low glycemic. This is based on how fast they are assimilated into our bodies. Low or slow glycemic foods usually have a lot of fiber like beans and most fruits. High glycemic foods are digested quickly and enter the blood stream in a rush. These are foods like white bread, and soda. Another way of easily defining these foods is processed and non-processed.

Basically, eat anything that is natural that man or woman has not played around with. If you follow that simple rule your diet will have almost all low glycemic foods and cause less stress to your pancreas which produces the insulin.

It wasn’t until the 16<sup>th</sup> century that refined sugars started to be added to the human diet, and it was in the 20<sup>th</sup> century that white pasta and breads became a staple.

Fat increases the rate of aging. Being overweight causes our joints to breakdown ahead of time. Obesity leads to an increase in free radicals – those devils that start almost all of the degenerative diseases. If you have too much fat on your body, you have too much fat in your vascular system. This causes changes in lung and heart function and inevitably heart disease, heart attacks or strokes.

One of the real problems is that many want to lose weight and can’t. They eat less and when they start to starve the body to lose weight, the brain responds by slowing down the metabolism. Remember, we evolved over centuries when food wasn’t always plentiful. When faced with food shortages, our bodies had to slow our metabolism to make it through the winters when



food was scarce. When food was plentiful, we had to pack it on to be able to make it through the tough times. The real problem is that our bodies have not adapted to having food available all year round. Consequently, harsh restrictive diets do not work for long. What is really needed are moderate diet changes coupled with an increase in activity to stimulate the body to keep up the metabolic rate and not think that you are starving and preparing for a long winter.

Finally, 1/4 of us have a condition known as Syndrome X, or Metabolic Syndrome. This condition is also known as insulin resistance and people with it usually have an apple shaped body. In males, you will see the abdomen falling over their belt. This is a severe problem and needs a special diet to reduce the need for excess insulin and at the same time give the patient a constant energy level. Nutritional supplementation is very critical to help this condition.

Controlling weight and insulin needs will help to slow the aging process. The tools that are used in this fall into two categories. The first is a good basic exercise program that is tailored to the needs of the patient. This program will depend on your current state of health, cardiac reserve and lung capacity. The second involves a dietary plan to give you the foods that will not stimulate insulin while supplementing your diet with nutrients that will assist your liver, pancreas and endocrine system to stabilize your insulin and glucose needs.

This is a balancing act but working together with your doctor you can have success with weight loss, more energy, and at the same time a slower aging process.

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## **In March**

**Rotator Cuff Injuries**  
**Tips on Weight Control**

## **Stress ages you**

Researchers at Brigham and Women's Hospital in Boston have studied the effects of stress. In a study of over 5,000 women between the ages of 49 and 62, they found that anxiety, a stress, caused changes in the cells of our body.

The changes occurred in telomeres. The telomeres protect the ends of the chromosomes in our cells.

Short telomeres are biomarkers of aging and are linked to chronic illnesses like cancer, heart disease, dementia, and mortality. Their research showed that chronic stress ages you by at least 6 years.

## **Stopping smoking?**

Studies done in France and Great Britain have shown that quitting smoking causes an average of 11 pounds of weight gain.

However, this modest amount of weight gain will not increase your death risk like smoking does.

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