

This may sound silly, but you CAN get injured animating!

Believe it or not, repetitive stress injury is very common in 2D and 3D animators. It's the damage done to the muscular/nervous systems caused by repetitive tasks.

Gripping the Wacom and drawing for 50+ hours per week can lead to soreness in your wrist and arm.

The following pages have techniques to prevent injury.



Preventing Tendonitis

Tendonitis occurs when there is unnecessary constant stress passing from the muscle through the tendon, irritating it. The key to recovering from tendonitis is to restore those muscles back to their normal loose and relaxed state.

So, how do we accomplish this? Stretching, stretching and more stretching - gentle stretching that is. Remember that muscle in this condition does not respond to stretching in the same way that a perfectly normal muscle would.

It is important to remember this when you are stretching. If you are experiencing symptoms of wrist or forearm tendonitis, then you should stretch all the muscles that cross the wrist and forearm. If you are experiencing symptoms of elbow tendonitis, then you should stretch all the muscles that cross the elbow.

Go slowly, pay attention to the sensations you feel as you stretch and make sure that your stretching is never painful. Stretches that incorporate a twisting motion can be especially helpful for restoring muscles and tendons back to their normal state when dealing with Tendonitis.

Hand, Wrist & Forearm Stretches

(To Prevent Repetitive Strain Injuries)



10 times
clockwise & counterclockwise



10 sec
each position

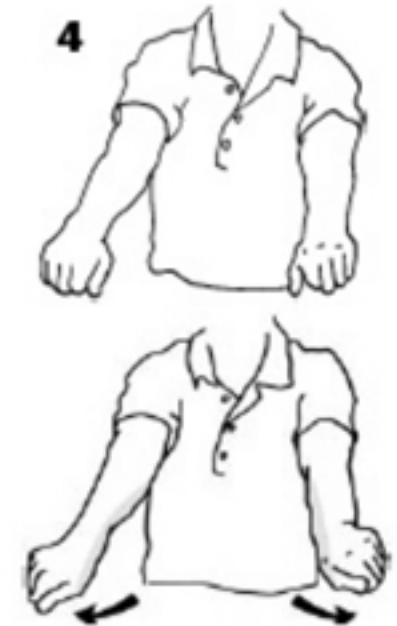
Gently and slowly twist the wrists and pull the hands back and hold to feel a slight stretch.



pull each finger & thumb gently
4 times each direction, do both hands



rotate each finger & thumb gently
4 times each direction, do both hands



5 sec
2 times

Hand, Wrist & Forearm Stretches

5



5 sec
each arm

6



10 sec
shake hands

7



10 sec

Hand Spreads: Place your forearms on your armrests with your hands extending past the armrests, palms facing down. Inhale / Exhale and slowly close your hands into a loose fist. Slowly open your hands. Repeat ten times, continuing to breathe.

Double Wrist Circles: Clasp your hands in front of you, interlacing your fingers. Inhale / Exhale and rotate your wrists clockwise. Repeat ten times, continuing to breathe. Repeat ten times counterclockwise.

It is equally important to figure out how you use your muscles in ways that create physical stress. Pay attention to how you hold your hands when they are not doing anything, how hard you grip the Wacom pen, and how much tension you hold in your hands and fingers. Do you keep your wrists bent for no reason? Any of these habits can contribute to stress in muscle and fascia, leading to Tendonitis. Evaluate how you use your muscles to see if you can identify sources of stress that affect your muscles and tendons. Stretch your hands and wrists **EVER DAY!**

Hand, Wrist & Forearm Stretches

Hand Pushes: Place your hands together, palm to palm at chest height. Inhale. Exhale and push your right palm against your left palm until you feel a mild stretch. Hold for fifteen seconds, continuing to breathe. Release your right palm. Repeat, pushing your left palm against your right palm. **Alternative:** Place your hands together, palm to palm at chest height. Inhale / Exhale and press your hands together, moving them downward towards your belly button until you feel a mild stretch. Rotate your palms until your fingertips point towards the floor. Don't worry if your wrists won't rotate all the way down, just go as far as you feel comfortable. Hold for fifteen seconds, continuing to breathe.

Wrist Grabs: Extend your right hand to shoulder level, palm facing the ceiling. With your left hand, reach under your forearm and hold your right thumb and palm. Inhale. Exhale and slowly turn your right wrist and forearm out and down with your left hand until you feel a mild stretch. Hold for fifteen seconds, continuing to breathe. Repeat with your left arm, assisting with your right hand.

Wrist Circles: Sit in neutral position with your arms resting on your armrests. Slide your forearms forward slightly and make loose fists with both hands. Inhale. Exhale and slowly rotate both wrists outwards, letting your forearms follow the movement. Rotate outwards ten times, continuing to breathe. Keeping your hands in loose fists, rotate inwards ten times, continuing to breathe. You should feel a slight stretch in your wrists during the rotations. Increase the range of the circles slightly if you don't feel a stretch.



Hand, Wrist & Forearm Stretches

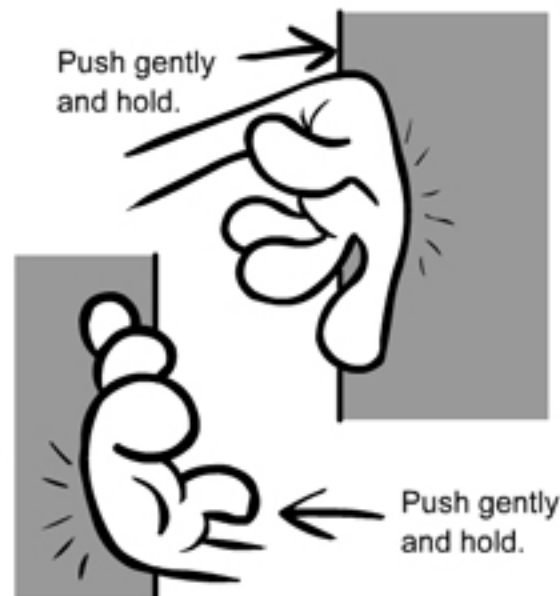
Extend your right arm. Using your left hand, pull your finger tips back toward your body until you feel the stretch in your forearm. Hold the stretch for 10-30 seconds. Repeat using the other arm. Straighten your right arm in front of you at shoulder height, palm down. Bend your right wrist back, fingers pointing to the ceiling. Inhale. Exhale and, with your left hand, gently pull back your right fingers, stretching your wrist. Hold for ten seconds, continuing to breathe. Repeat five times. Repeat five times with your left wrist, assisting with your right hand.

*Strengthening your wrists, forearms and shoulders will allow you to go longer without experiencing fatigue and stiffness in these areas.



Stretch out your fingers every hour, spread and hold for 10 seconds.

At least once a day: Push the back of your hand up against a wall. Then switch sides and hands. Use 30 seconds as a maximum time of press for each.



Don't press too hard on your tablet.
If you want a cleaner line, use a thicker brush, zoom in more.



Don't squeeze your Wacom pen.
Tendonitis can be caused by long term pinching/squeezing like this. Relax your grip!

Wrist/Forearm Strengthening Techniques

Effective strengthening exercises without weights can be done with a thick rubber band and a tennis ball. Do these exercises first with your elbow bent at your side, then progress over time to doing the exercises with your arm out straight front.

To do the hand squeeze, hold a tennis ball in your palm. Squeeze the ball firmly and hold for 3 seconds, then relax. Repeat until your muscles grow tired. Instead of a tennis ball, you can regularly squeeze a stress ball or foam ball.

Exercises with weights.

Begin with no weight, and do a set of 10 to 15 repetitions (reps) daily. Once you can comfortably do 30 reps for two consecutive sets, use a 1-pound weight and go back to 10 to 15 reps.

Work up to 30 reps.

Over time, increase the weight in 1-pound increments to 3 pounds, then in 2-pound increments to 5 to 7 pounds. But work up to only 20 reps with 3-pound weights and above. At the 3-pound level, gradually work toward straightening your elbow (but not locking it) and not supporting your arm.

For the finger extension exercise, place a thick rubber band around your fingers and thumb near the base of your fingers. With your palm facing the floor, spread your fingers apart as much as possible. Hold for 3 seconds, then release. Repeat until your fingers and forearm grow tired. After this becomes easy, slide the rubber band closer to your fingertips. When you can readily do the exercise from the fingertips, graduate to a thicker rubber band.

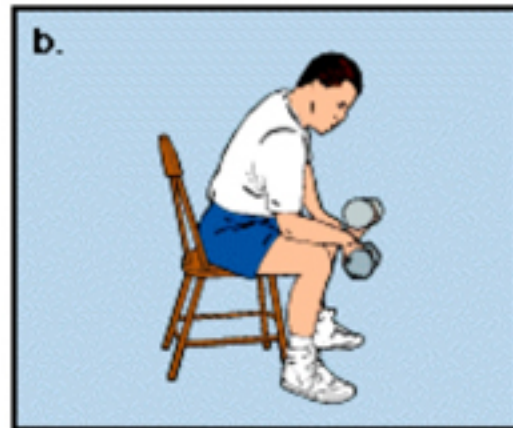
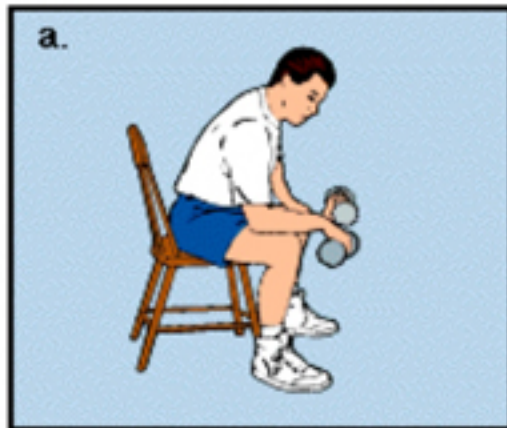


Figure 1. To do wrist curls, sit in a chair with your forearm resting on your thigh (or on a table). With your palm up (a) and holding a dumbbell, slowly bend your wrist up as high as possible and hold for 2 seconds before slowly lowering it. Repeat in a similar fashion but with your palm down (b), extending your wrist up. A more advanced technique is to do wrist curls with your upper arm held horizontal and not supported.

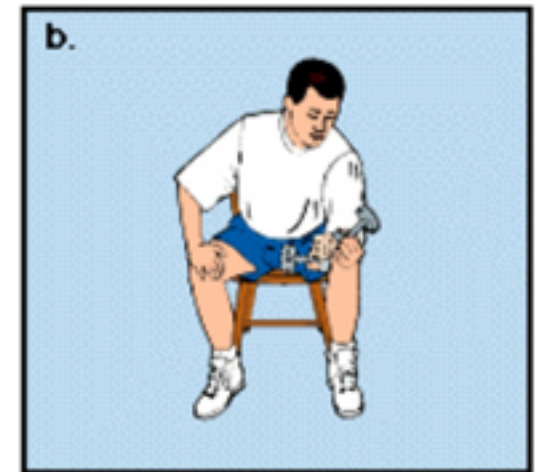
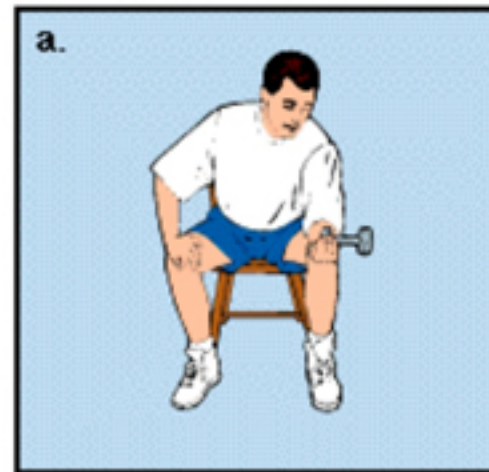
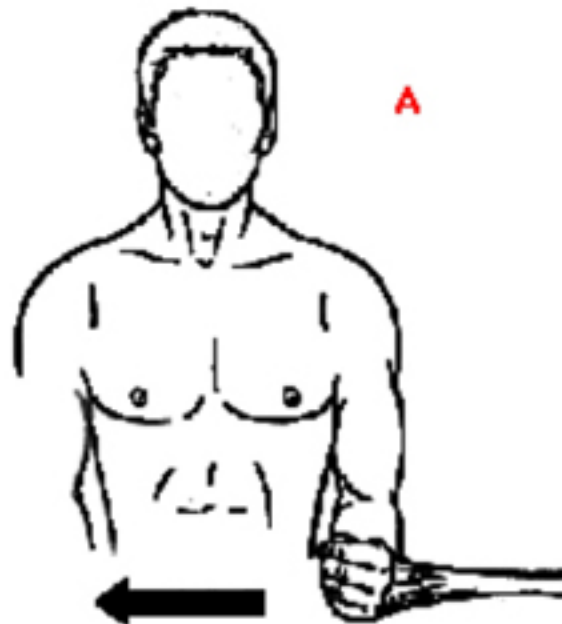


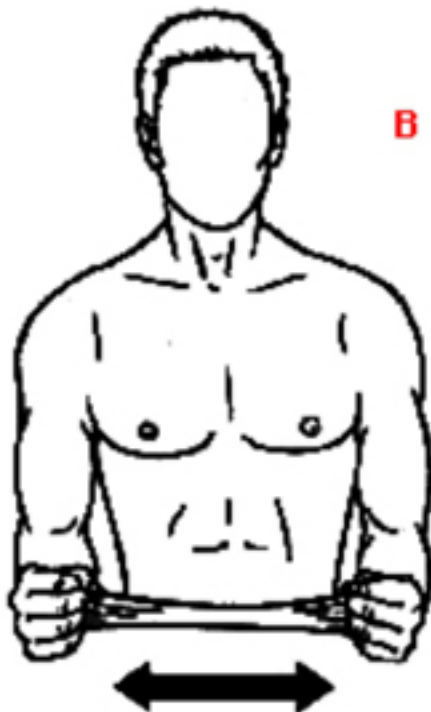
Figure 2. To do the forearm rotation exercise, sit with your elbow resting as in figure 1 and palm facing up (a). Hold a dumbbell by one end (not in the middle). Slowly rotate your forearm until your palm is facing down (b). Hold for 2 seconds, then slowly return to the starting position.

Shoulder Strengthening Techniques



Strengthening exercises for the rotator cuff tendons

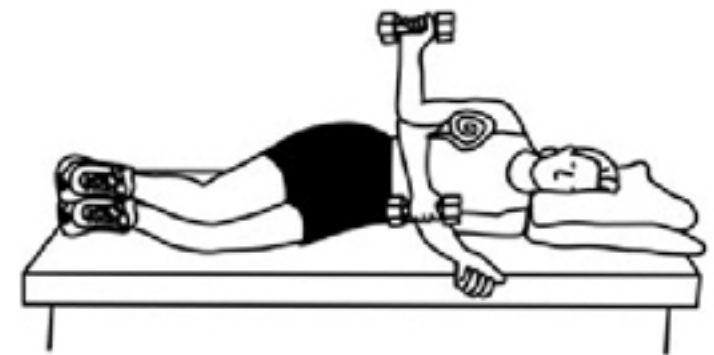
Part A: The inward rotation isometric exercise is performed by holding your elbow at 90°, close to your side. The rubber band is hooked onto a door handle and grasped with your hand. Your forearm is rotated inward only two to three inches and held for five seconds. Your forearm swings in like a door.



Part B: The outward rotation isometric exercise is performed with the elbows at 90°, close to your sides. The rubber band is grasped with your hands. The forearms are rotated outward only two to three inches and held for five seconds. Your forearms swing out like a door.

Sets of 15 to 20 exercises, each held for five seconds, should be performed daily.

Alternative method.



Progress in each exercise at its own rate. You will achieve heavier weights faster on some than on others.

If you are sore or have slight pain in these areas before you exercise them, or if it tends to burn or get sore after exercising; make sure to ice your elbow, wrist or shoulder for 10 to 20 minutes after each session.

Most important, do not cause pain. If any exercise causes pain, modify it by decreasing the weight, decreasing the number of reps, or reducing the range of motion. If you still feel exercise-related pain after taking one or more of these steps, check with your doctor or physical therapist.

If you're feeling that pain, ache, or weakness in your wrist or forearm, that means you've already got some tendentious or repetitive stress.

The first thing you need to try and be aware of is the grip you have on the Pencil/Wacom/Stylus pen. Whether it's for the Tablet or the Cintiq/Monitor, if you've got a continually tight grip on the pen, this can cause some RSI to develop.

It's important to realize that you do NOT need a death grip on your pen, it won't make you draw or animate better, not even for the pressure-sensitive brush inking you do. Relax your grip! There's no need to be pressing down hard or pinching that stylus pen hard at all. Be mindful of keeping it loose.

This was my problem many years ago, and it took me a while to realize it, but once I did, the muscles could relax and the quality of the linework you do won't suffer.

If you're feeling some pains, tingles, numbness in the wrist/forearm; one of the best ways to heal quickly are 'Contrasting Baths'.

What crazy voodoo am I speaking of?

A couple different physiotherapists and massage therapists had recommended this technique to me several years ago, and for anyone I knew that tried it, they all say the results are fast and effective.

Commonly used by carpal tunnel sufferers, it's a method of treating muscle soreness, swelling and inflammation, it's also known as 'Hot/Cold Immersion Therapy'.

You can use the double sink in your kitchen at home, if you don't have one, then get your hands on two very large identical bowls, it needs to be big enough to submerge your entire forearms from wrist to elbow.

Fill one up with ice cold water (with a couple dozen ice cubes floating in there). The other with very warm water, not tea-kettle boiling hot water, just hot tap water, or as warm as you can handle, no sense in burning yourself of course.

Have a stop watch or analogue clock ready, and submerge your arms for 30 seconds in the hot, then switch to doing 30 sec. in the cold, and repeat a few times back and forth, 30 sec. a piece. After only a few times you'll notice the hot water getting cooler and the cold water getting warmer, so then the technique grows to be less effective, but by then, the job is done.

The idea is that the extreme heat and cold contracts and expands your blood vessels, promoting greater blood flow to circulate and flush through your arms, and increased blood flow is what aids in healing faster!

Enjoy.

