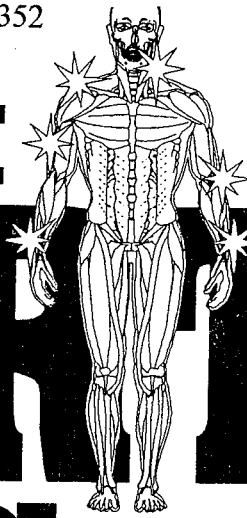


# When it HURTS to Play



by Catherine W. Britell, M.D.

Most autoharp players have experienced discomfort in their shoulders, arms, wrists, or hands at some time, and occasionally are bothered so much by pain in one or both upper extremities that their playing is severely impaired. It seems that holding the 'harp and performing rapid repetitive motions, such as picking/plucking/strumming or quickly depressing successive chord bar buttons, often make pre-existing problems more bothersome. Factors important in causing upper extremity pain include mechanical characteristics and support of the instrument, genetic makeup and bone structure, conditioning and strength, positioning and style of playing, and overall stress levels.

Conditions that I have seen in autoharp players and other musicians who perform similar upper extremity movements have included the following:

- ① *Trapezius muscle spasm*
- ② *Biceps tendinitis*
- ③ *Forearm tendinitis*
- ④ *Compartment syndrome of the forearm (pronator syndrome)*
- ⑤ *Carpal Tunnel Syndrome (median nerve entrapment at the wrist)*
- ⑥ *de Quervain's Syndrome (tendinitis of the thumb extensors)*

What do all these names mean? In the following, I'll explain what each of these conditions is, and review some ways of preventing and treating them.

## TRAPEZIUS SPASM

This is a spasm of the superficial muscles connecting the shoulder girdle and base of the skull to the backbone, and is generally the place where that backrub feels oh-so-good. This often happens in people who play under stress, who don't have the 'harp supported properly by a strap, and/or who assume awkward neck and shoulder positions when playing. One significant factor in causing trapezius pain is a "slouched" posture — curving the upper part of the spine forward to reach around the 'harp. (Fig. 1a) This tends to make the upper back and neck muscles work much harder than usual to hold up the significant weight of the head. As a result, the muscles have to maintain a hard contraction over a long period of time, thereby not allowing blood to circulate to the muscle adequately and causing a lack of nutrients and oxygen and a buildup of waste products. The result is muscle pain.

By straightening the upper spine, (Fig. 1b) the head becomes balanced and the neck and upper back muscles are allowed to relax, thereby allowing optimal circulation and maintenance of muscle nutrition and oxygenation. Probably the most important thing one can do to improve the posture and increase comfort of the neck and back muscles is to get a good strap that supports the 'harp in the most comfortable playing position. Some people really like the Slider® for its uni-

form support, while others feel that a plain leather or webbing strap is better.

It's also important to avoid bending the head and neck to the side when playing the 'harp (Fig. 2a). This is sometimes a challenge for short people who play the 'harps that are built without a curve toward the treble side. It's often a good idea to stand facing a mirror and check to see that your nose and your umbilicus line up in a straight line (Fig. 2b) while playing and to carefully adjust your strap to make your head position comfortable.

Another important factor in the development of trapezius spasm is tension while playing. Any time we become nervous or tense, we tend to contract the muscles in our upper back and neck into a hard mass. This may be a primitive protective reflex used by our ancestors to protect the spinal cord and other vital structures while being chased by large carnivorous animals. Since we seldom play the autoharp in the company of lions and tigers these days, this reflex doesn't do us much good. It's a good idea every now and then to shrug your shoulders, take stock of the tension in them, and make a conscious effort to keep them relaxed even while playing the most challenging tunes.

The best way, then, to avoid those upper back and neck pains is to make sure the body and head are well-balanced and that the 'harp is optimally supported, and to "stay loose" even during those fast fiddle tunes. It's better in the long run to

use some other excuse to get a backrub.

### BICEPS TENDINITIS

The biceps is the large muscle at the front of the upper arm that flexes the elbow (the one that pops up when Popeye eats spinach). Many times, pain and inflammation develops in the tendon where the muscle attaches to the shoulder. This seems particularly to be a problem for people who play hard using thumb lead, but has also plagued some famous finger players. The key here also seems to be support of the instrument. It's very important not to have to keep tension in the biceps for holding the instrument in place while at the same time doing the fine movements of picking or fingering the instrument. This combination seems to invite biceps tendinitis. The cause of tendinitis seems to be ischemia, or a decreased blood supply to the junction of the muscle and tendon. This happens when a muscle is kept under tension without relaxation for a long period of time. That area where the biceps muscle attaches to the tendon is not terribly well-vascularized, and this prolonged contraction causes buildup of carbon dioxide, increased acidity, and leakage of fluid and cells out of the pores of the blood vessels. This process is called "acute inflammation" and leads to soreness and swelling of the area. Then, of course, the swelling and inflammation cause the tendon not to slide in its sheath as well as it should, and there is more pain and more inflammation...a vicious cycle that can be devastating to a committed harper. Again, the best prevention of this problem is proper support of the instrument by a strap (or for some individuals on the lap), with the hands and arms entirely free of supporting the instrument. The treatment for biceps tendinitis includes rest, followed by strengthening, and most importantly correcting the mechanics of holding the instrument and playing. Usually the physician will prescribe a potent anti-inflammatory medication for a short time if not contraindicated by any other conditions. Sometimes deep heating with ultrasound hastens the healing process.

### TENDINITIS OF THE FOREARM

This is an inflammation of the tendons where the muscles insert into them and where they insert into the bone at the

Figure 1a



*A slouched posture (1a) while playing causes overwork and spasm of the muscles at the back of the neck and in the upper back. Bringing the head and shoulders into balance (1b) will allow the neck and back muscles to relax and increase playing stamina and comfort.*

elbow and is most usually seen on the extensor side of the forearm. It is often characterized by a sharp pain just below the elbow when extending the fingers and wrist under stress — a condition called "lateral epicondylitis" or "tennis elbow." The mechanism of injury is similar to that of biceps tendinitis; and

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**If it stops hurting,  
people tend to stop  
treating it.**

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instrument support and muscle strength are of major importance here. It seems that in this area, one can actually make the tendon insertions less vulnerable to injury by gradually strengthening the muscles and loading the tendons and tendon insertions. This probably has to do with orientation and cross-linking of the collagen fibers (the chemical building blocks) of the tendons. Rest, possibly a short course of anti-inflammatory medications, and a compulsive strengthening program work very well for this condition. The major problem I have in treating many of my patients is motivation to keep up with the exercise program. If it stops

Figure 1b



hurting, people tend to stop treating it.

Another thing that can be very useful in preventing tendinitis in the left forearm is maximizing the efficiency of action of the chord bar mechanism. Most mass-produced harps have chord bars that sit very high off the strings and require an unnecessarily long excursion of the bar in order to damp the strings. This problem is often compounded by sloppiness in the action and resultant variable angle of depression. In addition, worn or uneven felts require even greater pressure to effectively damp the strings. In an excellent two-part article (AQ, October '91 and January '92) entitled, "Bars — Where the Action Is," Dr. George Orthey tells you step-by-step how to make your bars maximally easy to work, no matter what kind of harp you play. Taking the steps outlined in that article will not only make your left hand and arm much more comfortable, but also will improve your playing immeasurably.

### COMPARTMENT SYNDROMES AND PRONATOR SYNDROME

As we have seen, overuse of any muscle will cause a decrease in blood supply and nutrients and buildup of waste products. If this is severe, the muscles will swell. Since many muscles

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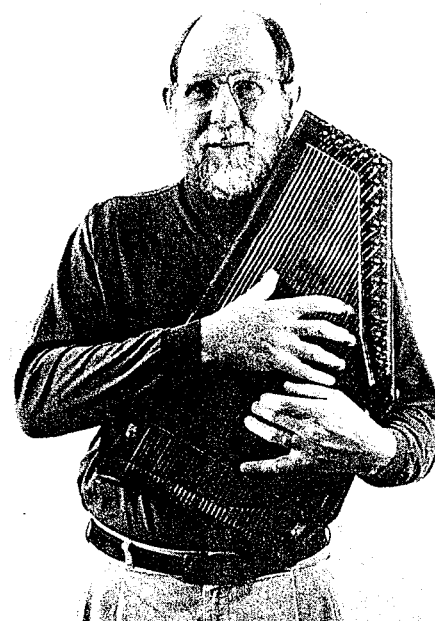
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Figure 2a



Figure 2b



Some players have a tendency to lean over the 'harp and bring the right shoulder up toward the ear; especially when playing something difficult or fast (2a). Keeping the shoulders relaxed and the body in a straight line (2b) will often make the neck and shoulder much more comfortable.

reside in firm connective tissue envelopes or "compartments," swelling can cause them to be choked in those compartments, causing pain, further decrease in blood flow, and also pressure on the nerves nearby, which leads to numbness and tingling. There are some muscles that, even though they aren't too tightly enclosed, lie in strategic positions in relation to the nerves, and swelling of them can cause some very uncomfortable nerve compression. One such muscle is the pronator teres (lying across the inside of the forearm just below the elbow). This muscle rotates the wrist and thumb in toward the body and comes into play a great deal when doing thumb lead playing.

Pronator syndrome is particularly common in people who don't play regularly and then go out and jam for an entire weekend. It can often be avoided by practicing regularly and knowing when to stop playing even though you're having a great time. Again, rest followed by slow controlled strengthening is the best way to treat this condition.

**CARPAL TUNNEL SYNDROME**

Carpal tunnel syndrome (CTS) is an entrapment of the median nerve as it passes through a ligamentous passage in the wrist formed by the wrist bones and

the transverse carpal ligament. It is characterized by numbness in the thumb, index, middle, and half of the ring finger, and is often associated with pain in the hand and wrist, sometimes radiating up the forearm. This is a common condition, mostly resulting from the genetically-determined size and shape of the bones and

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ligaments in the wrist. CTS seldom actually results from playing the autoharp — for the most part, it is a pre-existing problem which is aggravated on the left side by flexion of the wrist with added pressure over the left edge of the harp to reach the chord buttons. CTS in the right hand often becomes symptomatic while using the right thumb and fingers in a pinching motion with excessive wrist flexion. The unifying theme here is excessive wrist flexion. This is often caused by keeping the shoulders back while playing and flexing the wrists to reach the chord bars and strings (Fig. 3a) rather than allowing the scapulae (wing-

Figure 3a



Excessive flexion of the wrists "reaching back" toward the 'harp (3a) will sometimes aggravate symptoms of Carpal Tunnel syndrome. Playing with the wrists in a more neutral position (3b) may help prevent numbness and tingling in people who have this problem.

bones) to move forward to bring the arms around the 'harp and allow the wrists to remain in a neutral position (Fig. 3b).

If you have mild CTS, you can probably avoid symptoms by supporting and holding the 'harp properly. In general, hand and wrist splints are not useful, and will tend to alter the mechanics of the hand and wrist so as to significantly interfere with playing and cause discomfort in the shoulder and neck. People who have very severe CTS will probably experience numbness and tingling no matter how they modify their

Figure 4a



Hyperextension of the thumb while playing (4a) causes more stress in the thumb joints and tendons than playing with thumb slightly flexed (4b). Additionally, if the entire hand is kept in a relaxed, slightly flexed position (4b), the muscles of the forearm won't have to work nearly as hard, and the forearm tendons will incur less stress.

Figure 3b



'harp playing and body mechanics, and will have these same symptoms with many other activities and sometimes even at rest. Often the only thing to do in this case is to have the transverse carpal ligament surgically released by a skilled hand surgeon. This surgery, even when successful, is not completely benign, however. It is important to note that carpal tunnel release will decrease grip strength and if done on the left side will most likely make chording with the thumb difficult if not impossible for a number of months or possibly permanently. This may necessitate a chord bar

Figure 4b



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arrangement that minimizes thumb use. A right carpal tunnel release may also significantly hamper thumb-lead playing for some time. Most individuals, however, can expect to be playing as well a year after CTS surgery as they did pre-operatively, and hopefully with less discomfort.

#### DE QUERVAIN'S SYNDROME

This is a common condition, and is a tenosynovitis of the thumb, resulting from a narrowing of the common tendon sheath of the abductor pollicis longus and extensor pollicis brevis muscles. (Whew, that's a mouthful!) These are the muscles that pull the thumb out away from the rest of the hand. What one feels is a severe pain at the base of the thumb either on the right side with strumming or pinching, or less commonly on the left side if you use the thumb aggressively to push the chord buttons.

When de Quervain's Syndrome occurs in the right hand, one should first check the hand position. Hitting the strings with the thumb hyperextended (Fig. 4a) tends to transfer force directly to the base of the thumb, whereas when one

curls the fingers and flexes the thumb slightly (Fig. 4b), the flexor muscles will tend to support and protect the joint. De Quervain's Syndrome may sometimes be alleviated with a change in thumb picks. A pick that stores energy (flexes more) may reduce torque on the joints of the thumb. Also, keeping your strings clean and using Fast Fret® string lubricant can sometimes decrease the drag on your thumb pick, thus decreasing trauma to that area.

Rest, anti-inflammatory drugs for a short time if not contraindicated, and strengthening are often recommended for this condition.

#### GENERAL CONSIDERATIONS

There are some simple physical things, then, that one can do to prevent pain while playing. First, make certain your 'harp is supported comfortably in the best position for playing without using your hands or arms — you need those for playing. Second, check your posture and positioning, and see that

## Tension and stress...need to be minimized.

your back, neck, head, arms and hands are balanced and relaxed, and in a generally neutral position. Third, make your 'harp as easy to play as possible with clean, slippery strings and optimally functioning chord bars.

It's important, also, to develop a healthy pace of playing. Autoharp playing is a highly demanding athletic activity for the muscles you use, and it's important to warm up adequately. Specifically, it's probably not a good idea to jump into a lightning-fast fiddle tune when you first pick up the 'harp, but rather warm up with a few slow, gentle songs to get those muscles working. Along that line, it's important not to be a "weekend athlete" with the autoharp. If you like to play hard and long on occasion, you need to "keep in shape" by practicing at least 30-45 minutes at least every other day. If you stay away from playing for more than two consecutive days, you will lose strength and stamina in your muscles and need to slowly build up again. If you

simply can't practice on a regular basis, you need to be aware of your own tolerance for playing and fatigue level. This is when you pull out your pennywhistle, mouth-harp, or recorder, and use some different muscles for awhile.

Tension and stress while playing also need to be minimized. One often becomes stressed when trying to play a tune that is too difficult too fast and too early. Lindsay Haisley's article on practice (AQ, October '93) offers some excellent advice on how to approach the whole issue of practice and learning. Taking seriously the guidelines therein will help prevent "getting in over your head." It also helps to remember that you are doing this for *fun and enjoyment*.

What do you do if you're suffering from pain with playing? If you have addressed the issues outlined above and still hurt, you may need to stop playing altogether for a couple of weeks (now may be the time to learn how to play the pennywhistle). It might be a good idea to see your physician to determine whether anti-inflammatory medications, physical therapy, and an exercise program would be of benefit. Sometimes, anti-inflammatory or pain-relieving agents topically applied to the skin can be quite useful, and this should be explored with your physician. Some physicians recommend steroid injections into the affected area. In most musicians and others using their upper extremities vigorously, I advise strongly against this, because of the tendency of the steroid to weaken the tendon and make it more vulnerable to rupture — a disastrous complication.

In general, once the pain has subsided, specific exercises to gradually strengthen the affected muscles will be useful in preventing the problem from recurring. One last point: Never underestimate the power of a backrub. This friendly stress-fighter probably won't cure serious neck, shoulder, or arm pain, but it certainly makes people feel a whole lot better. ❖

*Dr. Britell works as a consultant in Physical Medicine and Rehabilitation and Occupational Medicine for the Washington Division of Vocational Rehabilitation and is a Clinical Assistant Professor in the Department of Rehabilitation Medicine at the University of Washington. She also plays and teaches autoharp and clarinet in the Seattle area.*

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