Playing without Pain: Strategies for the Developing Instrumentalist

By William J. Dawson

Adult instrumental musicians aren’t the only ones to develop painful problems that interfere with their practice and performance—young musicians are affected, too. In fact, some young instrumentalists are more likely than their elders to be bothered by these painful conditions. Health professionals who frequently see musicians in their offices recognize that their young patients participate in music as soloists and in all types of ensembles including jazz and marching bands, orchestras, and chamber and choral ensembles.

Central to working effectively with young musicians’ medical problems are proper diagnosis and treatment, followed closely by rehabilitation of the affected area of the body. Perhaps even more important to a young musician’s career, which may last sixty-five to seventy years, is prevention—how to avoid problems before they start, as well as how to minimize the development of additional difficulties following treatment. The physician and therapist form two sides of the triangle of prevention; the third side is the school music director or teacher (including private teachers). All music educators must be aware of their students’ potential for developing medical difficulties and have a layperson’s working knowledge of their causes, contributing factors, basic diagnostic elements, and principles of (nonmedical) treatment and rehabilitation.

For the collegiate music education student, help is on the horizon. In 2001, the National Association of Schools of Music (NASM) added a recommendation to its accreditation guidelines for member schools to provide students with health information that promotes awareness and prevention of performance injuries. The Texas Center for Music and Medicine at the University of North Texas, the Performing Arts Medicine Association, and the Office of Professional and Continuing Education at the University of North Texas Health Science Center are currently developing core curricula for health promotion. Many schools of music already have instituted programs to teach students about health problems and their effects on performing careers.

However, the working music educator must rely on other sources of health information. Many informative articles have been published since the late 1980s; I’ve named a few useful ones in the Suggested Reading list. In this article, I’ll provide an up-to-date look at six important factors relating to young instrumentalists’ physical problems: causes, types of difficulties, symptoms, diagnosis, treatment, and prevention.

Causes of Painful Problems

Whether or not directly caused by playing, painful disorders are the problems most likely to interfere with practice or performance. Playing-related problems are most often referred to as overuse. Overuse is defined as the practice or act that produces physical difficulties, not the difficulties themselves. Three major factors play into the development of overuse-related problems.

The first factor related to overuse involves indulging in any activity that exceeds the body’s physiological limits—asking more of our bodies than they are capable of. This occurs when a person engages in an activity too intensely for too long. For the instrumentalist, this happens most often when rapid changes are made in some facet of musical life. A new school, teacher, instrument, type of repertoire, or even the beginning of marching band camp after a musically inac-
tive summer can demand such rapid physical adjustments that the body cannot adapt. When
this occurs, physical difficulties may arise.

A second element is what I describe as technical factors, although some might call this misuse. Examples include improper playing techniques, such as using an unnecessary amount of
muscle force to move valves or keys or to wield sticks, mallets, or bows. Playing with excessive
physical tension may result in using more muscles than necessary. When opposing muscle
groups contract at the same time, making music becomes very physically inefficient; the instru-
mentalist's fingers cannot produce the necessary smooth, rapid motions, and continued use of
these co-contractions may lead to muscle strain.

Awkward body postures can be a technical factor, too, whether from playing an instrument
or from just holding or carrying it. Also included under this heading are physical mismatches
between the musician and the instrument. Orchestra directors should understand the difficul-
ty that can be caused by playing a viola that is too large for the performer's arms and hands, and
marching band directors need to be familiar with problems that develop from shouldering
and marching with a tuba that is too large and heavy for a young musician's small frame.

The third factor in overuse is one over which none of us has any control—a genetic condi-
tion known medically as hypermobility, or double-jointedness. This condition affects about
5 to 8 percent of people and is more common in females and in those under age twenty-five.
Hypermobile people have liga-

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Prevention of music-related problems can involve modifications in practice technique, instrument support, and seating.
ments that are looser than normal, allowing their joints to move in excessively large ranges (figure 1). Excessive joint motion in the hands is most pertinent to the instrumentalist. This condition can interfere with smooth and rapid playing; when players depress a string or a key, their muscles have to work harder to control the joints and keep them from being overly stressed.

Other problems may be equally troublesome. Some people have abnormally tight muscles, which may limit their range of motion. A good example is a trombonist who cannot reach seventh position without using compensating maneuvers in the spine and trunk.

Painful physical problems not related to making music consist primarily of acute injury or trauma. Among the common causes are participation in school and club sports, with all forms of ball sports being a major source of hand and wrist trauma. Falls, motor vehicle accidents, and household injuries also may limit musical activities for short or long periods.

**Types of Problems Produced**

Music-related conditions arising from playing, marching, supporting, or transporting an instrument principally involve the musculoskeletal system. Muscles that cannot adapt to rapidly increasing demands can become strained. In the most severe cases caused by overuse, as well as when the muscle is acutely injured, there may be microscopic tearing of some muscle fibers. The tendons that are part of many muscles also can be affected by repetitive forceful actions that require them to glide back and forth excessively. This action can produce inflammation of the tendon or its gliding coverings, conditions called *tendinitis* or *tenosynovitis*. These occur most
often in musicians’ hands, wrists, and shoulders.

Nerve problems are much less common but can occur in the neck and upper extremity; the wrist is probably the most common location where nerves can be irritated or compressed. Foot problems related to marching can include blisters, calluses, and muscle strain, most of which seem to develop early in the marching season. Environmental causes of painful conditions are also most often related to marching; among them are contact skin allergy to environmental substances, as well as sunburn and heat exhaustion.

Non-music-related conditions arise from acute trauma and include a broad spectrum of fractures, joint dislocations, lacerations, contusions (bruises), muscle strains, joint sprains, and damage to tendons and nerves. The nature and location of the problem usually depend on the site and type of injury. Two exceedingly common examples are sprained or fractured fingers, which frequently result from playing many types of ball sports, and broken wrists, which are most often caused by a fall on an outstretched hand (commonly from running or from navigating a slippery surface).

**Symptoms**

For all the conditions I’ve described above, the primary symptom is pain. Depending on the type of condition and its cause, pain can vary in nature, degree, location, and timing. Pain may be described as sharp, dull, persistent, or throbbing, or with myriad other adjectives. Pain in music-related conditions is usually low to moderate, unlike that which accompanies a broken bone. Pain usually occurs at the site of the problem but may appear at a location distant from the affected area (referred pain).

Other symptoms of overuse-related problems include feelings of weakness, tightness, fatigue, stiffness, tenderness, ache, heaviness, crumbling, and warmth. The perception and description are individualized; two performers with identical problems may describe them in entirely different terms. And these symptoms do not always indicate musculoskeletal problems. A physician may be able to help a student musician determine where the source of these problems lies.

Nerve symptoms are much less common than those of troubled muscles, tendons, and ligaments. When a nerve is compressed, the principal complaint is numbness or tingling, evidence that the nerve’s sensory function has been affected. Pain can also occur with these symptoms, but it is not always present. In more severe or long-standing cases of nerve compression, the motor function of nerves becomes affected, producing complaints of muscle weakness, clumsiness, or problems with coordination.

Symptoms of non-music-related problems depend on the nature of the problem. In the case of acute trauma, pain is certainly a most prominent and early symptom, especially with fractures, dislocations, or torn muscles or ligaments. Injured areas, especially in the extremities, often become swollen (think of a sprained ankle), and there may be deformity of the injured part when bones or bone fragments are out of line. While many patients with fractures can move the joints next to the broken bone, often some loss of function is noted. Skin problems are characterized by redness, rash, or hives; painful blisters on the feet may produce a limp.

**Diagnosis**

It doesn’t take a medical degree to recognize when pain is present. However, determining the source and precise cause of the pain often requires the expertise of a health professional. Finding one who is trained or knowledgeable in the musician’s special physical requirements and functional needs may ensure an even more favorable result. As performing arts medicine becomes better known throughout the health-care community, more physicians and therapists are learning the skills related to treating musicians and their needs (as well as those of dancers and actors). Similarly, musicians are becoming more aware of this specialized group of health professionals and are seeking them out more frequently for evaluation and care.

Paramount in making a correct and complete diagnosis is a thorough history and physical examination. When calling for an appointment, or talking in the hospital emergency department, it’s crucial for musicians or their parents to mention their music activities, including which instrument(s) they play. This should immediately alert the office staff to the patient’s special circumstances. When making an office visit, it’s extremely helpful to bring the instrument along; in many cases of musical overuse, the problem may only be noticeable while playing. During my years of practice as an orthopedic and hand surgeon, it wasn’t unusual for musicians to arrive for their appointments with a tuba or cello; some arts-medicine specialists even have pianos or keypads in their offices.

Discussion of medical history can help the physician identify painful areas in the instrumentalist, and the physical examination can locate them more precisely. Some areas are painful only on touch (palpation), while others may not hurt until the area is moved actively by the patient or passively by the examiner. Another symptom, loss of function, can be determined by examination as well. Physicians may order additional tests such as X-rays or computerized tomography (CT) scans to verify or localize the diagnosis more precisely, especially when acute trauma is the source of problems.

**Treatment and Rehabilitation**

Pain—the primary symptom that indicates something is wrong in the
body—should not be ignored or denied! The first thing a musician with a painful music-related problem should do is recognize that a problem exists; the second is to seek some kind of help for it. Even before calling a health professional’s office, it’s helpful to determine the cause of the pain, perhaps relating it to some change in recent practice or performance. Thinking through some of the causes and contributing factors I mentioned earlier may help a musician pinpoint a specific reason for the pain. Looking back at several days’ or weeks’ worth of previous musical (and nonmusical) activities may help in this regard.

For most problems, the primary treatment is rest—initially abstaining, avoiding, or modifying the activity that seems to be causing the pain. This may mean reducing the amount and intensity of playing, changing practice patterns, using a more effective type of instrument support, or avoiding difficult repertoire for a while.

Depending on the problem, the amount of rest needed will vary in both degree and duration. Some conditions will require a greater restriction of activity or longer period of rest. More severe restriction, including absolute rest of the affected body part, is only needed occasionally and then often for a short period of time only. The ideal duration of rest is at least long enough to relieve the pain. Splinting may be useful in putting a finger, wrist, or other body area at rest, or for maintaining proper position; a physician usually prescribes the splint and often will apply or adjust it. It’s generally best not to purchase splints from pharmacies without a physician’s recommendation.

Occasionally, medication to relieve pain or inflammation is needed, and in general this should be prescribed by a physician. Perhaps an exception would be the judicious, temporary use of mild, over-the-counter medications such as aspirin or ibuprofen. Of course, student musicians should ask their parents before taking any of these nonprescription medications. School music directors and their students should also be aware of their school’s policy on bringing these medications to school and consult the school nurse if problems arise during the school day. Musicians using over-the-counter medications should not take them longer than several days to one week without seeking medical advice. If the pain persists or worsens, it’s time to make an appointment with a physician.

Other helpful techniques may include correcting improper posture, Wind instrumentalists can maintain their “chops” by doing buzzing and tonguing exercises with just the mouthpiece or reed.

When the acute problem is coming under control, it’s time to obtain some form of early therapy to help restore lost functions and prepare for a return to music. Rest and decreased activity of a body part produces some stiffness (lost motion), muscle weakness, decreased endurance for specific functions, and changes in coordination. While formal physical or occupational therapy may address many of these deficits, working with one’s music teacher in what I call “musical therapy” (not to be confused with music therapy) also can help to regain playing skills. Teachers can devise specific musical technique exercises to use the unaffected parts of the musician’s body and to improve timing and coordination in both injured and uninjured areas. For example, a violinist with left-hand finger difficulties might practice fingering patterns over all four strings using all four fingers, developing a coordinated range of motion needed for normal playing.

When should an injured musician return to playing? Ideally, when the pain is gone and gentle, brief, uncomplicated playing is possible. For some, this may mean playing only five minutes at a time at first, and they may benefit from working out a formal playing schedule with the help of their physician and physical therapist. Musicians should attempt to increase their playing time only when they have regained appropriate muscle strength, endurance, and coordination. Returning to music should not produce a recurrence of the problem or allow new problems to develop. This mandates a gradual reentry and progression, stopping or reducing playing temporarily when (or if) pain returns. In some cases, prolonged changes in practice routines or techniques may be needed during the rehabilitation process.

Prevention

In an ideal world, painful problems affecting practice and performance would not occur. Perhaps the closest we can come to this ideal is attempting to prevent such difficulties, espe-
cially those music-related ones over which we have some control. The starting point in prevention is to remember the causes of music-related problems and find ways to avoid them. Applying logic and common sense can make this task easier.

Practice modifications are a good way to begin. Long practice times should be avoided, especially when they involve demanding material or require continued physical or mental intensity. For years I’ve advocated the 25–5 rule: practice twenty-five minutes at a time, then rest five minutes. Follow this schedule every half hour and get away from the instrument during breaks; mental rest is as important as physical rest. Other strategies include varying the practice schedule and repertoire, as well as decreasing the intensity of practice when possible. Practice sessions should minimize stressful repetition of passages, especially when little musical progress is being made.

Instrument modifications can decrease physical stress for many performers. Neck straps are available to support the clarinet, oboe, and English horn; they relieve pressure and stress on the musician’s right thumb. Bassoonists, on the other hand, should avoid neck straps and rely instead on seat straps while sitting and shoulder straps or harness when required to play while standing. Floor pegs (figure 2) can help support low clarinets, while harnesses and other body supports better distribute the weight of low saxophones and brasses, including orchestral tubas. This latter alteration may be especially helpful during marching season.

Environmental adaptations are important, too, although they may not be as helpful in preventing painful conditions. When marching, especially in hot weather, frequent breaks, accompanied by adequate and appropriate fluids, are mandatory. Marching, carrying an instrument, and playing are physically demanding, and students must replace fluids and electrolytes lost in high heat and humidity. Sunscreen, head and body coverings, and insect repellent for outdoor musical activities also should keep performers in better overall physical shape. Finally, proper footwear of the correct size will do much to prevent foot pain, blisters, and calluses while marching; growing musicians, even those in college, should have their feet measured at least once a year to ensure that their shoes fit correctly.

Proper seating minimizes the possibility of posture-related muscle strain. For all instrumentalists, the chair seat should not tilt backward; this position compresses the respiratory apparatus (in both chest and abdomen) and interferes with good breath support. A cellist’s seat should actually tilt forward slightly. Fortunately, several manufacturers of seating for musicians, including Wenger Corporation, Synapse Adaptive, and Soma Ergonomics, have addressed these concerns, and proper choices are plentiful.

Chairs should be placed so there is a clear line of sight between musician, music stand, and conductor; this avoids twisting of torsos and necks while trying to see both music and conductor at once. Seats should be separated appropriately so instruments can be placed without the performers having to assume cramped positions. Flutists should not have to hang their right arms over the backs of their chairs and turn their heads to the left to see both music and conductor properly. Saxophonists, French horn players, and bassoonists especially need increased right-side space.

Knowledge Is Power
Young musicians are at risk for developing physical difficulties that interfere with both practice and performance. Most of these involve the musculoskeletal system, and many are music-related. Both music teachers and students, along with parents and school nurses, play important roles in recognizing the causes and symptoms of such problems.

Early recognition can lead to early intervention to minimize or treat these conditions, and in many cases this may suffice, eliminating the need to consult a physician. Even more important and effective is the ability to prevent music-related problems, and both teacher and pupil will benefit from having some basic health knowledge in order to achieve this goal. ■

![Figure 2. Floor Peg](https://www.music-contact.com)