# Music education and performing arts medicine: the state of the alliance

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## Introduction: The Disembodied Musician

A graduate level violinist at a major university school of music visits the student health center's physical therapist with pain in her back related to playing. She tells him, "I have to be sure that my teacher doesn't know that I'm hurting. I want him to keep pushing me just as hard as ever."

While conducting a clinic with a high school string group, a conductor asks the students how many of them hurt at times when they play. Over half of the hands go up. When asked how many hurt every day, one third of the students raise their hands.

The above scenarios are common among musicians of almost every age, as several chapters of this book have already established. As a group, they tend to be somewhat disembodied; their awareness of their whole selves extends almost exclusively to the parts involved directly with musical technique. Even though many consider musicians to be "small muscle athletes" [1, 2], it is highly unusual to see a group of beginning musicians working out or warming up on their "practice field", or having a trainer present to supervise their movements nor their mental performance orientation, as one would in sports. Several questions come to mind. How has this state of things come about? What do musicians know about the mental, spiritual, and physical attributes they bring to musicmaking? What do music teachers teach students about wellness? How can a collaboration of the fields of music education and rehabilitation medicine approach these issues? This chapter will attempt to address these questions

## Historical Perspective

Although treatises on musical technique appeared fairly early in the history of Western music, not until late in the 19th century did they address physiological and biomechanical issues in any systematic way [3]. This coincided with the rise of the virtuoso during the Romantic period. The technical demands put on performers by repertoire, and the instruments designed to handle it, undoubtedly made injury more common and thus more of a concern. In fact, the famous composer Robert Schumann's career as a pianist was cut short by such an injury, perhaps partially due to a machine he invented to strengthen his fingers.

The first text to treat technique as a function of the body was a piano pedagogical treatise written by Otto Ortmann, director of the Peabody Conservatory. He actually set up a research department at the school and based much of his writing on the most accurate physiological knowledge available at the time [3]. Around the same time, Friedrich Steinhausen, an amateur violinist and physician also wrote a detailed volume on the biomechanics of the violin bow arm [4]. Although such works are scattered through the first half of the 20th century, most pedagogues based their approaches on personal experience and subjective observations. For example, the great violinist Leopold Auer wrote that all pressure for the bow on the string comes from the wrist and fingers, demonstrating that he was not aware of the kinetic principle of summation of forces [5]. The fact that our whole selves do not necessarily perform in the way

that we think or feel that they do [6] creates a pedagogical paradox for teachers and students that, if unsolved, produces a fertile ground for injury.

With the explosion of knowledge that occurred in the movement sciences in the 1960's and 1970's, and the evolution of the subspecialty of sports medicine, there was a trickle of renewed interest among some musicians and music educators in the kinesiological and biomechanical issues involved in music making, though it was not nearly as strong as that in physical education. Rainbow decried the lack of research in "objective knowledge of what transpires mentally and physically when a person performs on an instrument" [6]. A few heeded the call. Rolland, for example, conducted a four-year study on the development of biomechanically sound group string teaching materials at the University of Illinois [7]; his work continues to have a profound impact on string pedagogy today. Bouhuys studied respiratory aspects of wind instrument playing, and Kochevitschy produced a respected pedagogical text, *The Art of Piano Playing: A Scientific Approach* [3].

In the 1980's, both the wide distribution of the ICSOM (International Conference of Symphony and Opera Musicians) study results [8] and the emergence of the subspecialty of performing arts medicine allowed musicians to unmask their health issues. Music trade and practice publications began to run articles fairly regularly on topics such as types of injuries, healthy technique, performance anxiety, and prevention strategies. Voice journals led the way due to of the nature of the instrument. Information on body use methods such as the Alexander Technique began to appear. Some publications, such as the International Musician and Flutist's Quarterly, regularly ran columns written by a medical expert. Janet Horvath, cellist with the Minnesota Orchestra, organized the first conference on musicians' health for musicians in 1987 called Playing Less Hurt [9] and large music education associations (Music Teachers National Association, Music Educators National Conference, and the American String Teachers Association) were soon to follow with workshop sessions at their national conferences.

Despite the interest evident in practice journals and a call for multidisciplinary study by performing arts health specialists [10], the body of research on musicians' health by musicians is as yet fairly small. The field of music education, which employs both quantitative and qualitative research methodology, would seem to be the natural locus for this type of inquiry. However, there is a perceived resistance in the music education research community to publication of this work. A few studies have been published in the top two journals, *Bulletin for the Council of Research in Music Education* and *Journal of Research in Music Education*, but more have been accepted in *Medical Problems of Performing Artists*, more multidisciplinary in scope. Paradoxically, both editions of *The Handbook of Research on Music Teaching and Learning* contain chapters on issues related to performance health--by a physician and scientist in the first [10], and physicians, scientists and a music researcher in the second [11, 12], but, only a few of the existing music education studies or treatises were included in either.

Although more musicians and music educators are now aware of wellness issues and try to integrate health-promoting behaviors into their practice, pushing the body, mind, and spirit to the limit for the sake of their art is still the norm in their culture. Some teachers still recommend that musicians "play through the pain," or demand that students practice an arbitrary number of hours without regard for their individual goals or limits. Also, a little knowledge can be

dangerous. This author has heard many music teachers recommend stretching exercises (provided to them by a health practitioner for a specific problem) to students for whom they are not necessarily appropriate. For example, it is not uncommon for a string teacher to tell a student with hyper mobility issues to squeeze a tennis ball in order to strengthen the "muscles" in his or her fingers.

In a similar vein, well-meaning teachers sometimes exceed the limits of their expertise by trying to diagnose and prescribe treatment for students' ills. Often they do not realize the liability of telling a student that he or she probably has tendonitis and should take an NSAID, or that beta blockers might be useful for his or her performance anxiety. They are usually unaware of the implications of HIPAA for what and with whom they discuss student medical issues. It seems obvious that more consistent guidance and education is necessary.

The Imperative for Paradigm Shift

In 2001, the National Association of Schools of Music, the accrediting body for all such schools in the US, added this statement to its general standards for undergraduate and graduate programs in music: "Institutions should assist students in acquiring knowledge from qualified professionals regarding the prevention of performance injuries [13]." Nothing more was specified. Questions remained: What is a qualified professional? How will this knowledge be delivered? Where will it fit in music curriculum?

Kris Chesky, co-director of the Texas Center for Music and Medicine at the University of North Texas, took up the challenge of addressing these questions. He organized the Health Promotion in Schools of Music Conference, presented by the University of North Texas and the Performing Arts Medicine Association, "designed to facilitate the development of health promotion materials suitable for music students attending NASM schools [14]." The event attracted a wide financial support base from the Scott, Grammy, and National Association of Music Merchants Foundations; the National Endowment of the Arts; and the International Foundation for Music Research. Twenty-five music, music education, and related professional organizations—from the Music Educators National Conference to the American Society for the Alexander Technique--partnered with the conference, each sending a representative. Each of the six hundred NASM schools was invited to send a delegate. This event was pivotal in the advancement of wellness education for musicians and in the collaboration of the fields of music and medicine.

Prior to the actual meeting, four working groups of experts in the areas of greatest musical health concern—hearing conservation, voice care, neuromusculoskeletal health, and mental health—assembled content they judged to be most important for music students. At the same time, a working group of music educators with concerns and/or knowledge in these four areas articulated the needs of musicians in each area. All gathered to present their recommendations at the conference in September, 2004, with the goal of coming to consensus and taking preliminary steps toward creation of curricular materials for national distribution. Following is a summary of the proceedings [15].

The voice committee, chaired by Stephen Mitchell, focused on knowledge students need for vocal injury prevention. Included were the anatomy and physiology of the voice—the structures of sound production and their functional characteristics. Strategies for maintaining

good general health and their specific implications for the voice were discussed. The most frequently-seen voice disorders and vocal problems, both organic and functional, were described, with a fair emphasis on the side effects of common medications on vocal health. The committee also gave criteria for resting the voice and for seeking professional care.

Miriam Henoch chaired the hearing health committee, which developed recommendations for educating music students to avoid irreversible noise-induced hearing loss. The group focused on the anatomy of the ear and the effects of detrimental sound exposure on its structures. The members presented several strategies for protection of hearing. The necessity of using hearing protection devices (earplugs), as well as the advantages and disadvantages of many different kinds, was discussed. The committee also presented the standards for sound exposure developed by the Office of Health and Safety Administration and gave examples of sound pressures generated in different musical situations—which are often too high for prolonged exposure.

An overview of neuromusculoskeletal health issues was presented by that working group, chaired by Ralph Manchester. Members described various muscle-tendon problems, such as tendonitis, and neurological problems like carpal tunnel syndrome, as well as risk factors for injuries and disorders. Anatomy and physiology of the affected body parts was also discussed. The committee described treatments and suggested preventive strategies. The group also advocated exploration of the patient-doctor relationship.

The mental health working group recommended issues such as psychological disorders and performance anxiety for inclusion in college music students' study. Members also addressed the effect of stress on musicians' health and performance, and emphasized the importance of the teacher's role in stress inoculation. Information about substance abuse was presented. Challenging career issues, including the scarcity of performance jobs, were discussed.

The music education working group, headed by Don Hodges, articulated musicians' educational needs in each of the four content areas. It also dealt with issues of curriculum. Fitting this information in the right place in already over-crowded programs, especially in pre-service teacher education, was discussed. The group suggested other avenues of dissemination to the music education profession, such as professional in-services, conferences, and journals. The imperative for multidisciplinary research on these aspects of music-making, and issues surrounding publication of that research were discussed.

The conference laid a foundation of knowledge that music students need for wellness. Chesky submitted curricular recommendations developed by HPSM to NASM for acceptance in January 2006; they were accepted and are now available to all accredited schools of music [16]. These curricular frameworks as well as conference proceedings are available on the HPSM website.

As Chesky stated in the introduction to the conference,
Educating college music students about health issues is a daunting task that requires involvement from several disciplines and perspectives. Success will depend on our ability to create and

sustain working collaborations that help challenge, redefine, and expand what is currently known and accepted. [15]

The paradigm in music making and teaching is beginning to shift in a healthy direction.

The Role of Medicine for the Musician

As the Music Education community works to heed the imperative for a paradigm shift toward an educational culture that will help students learn what they need to know to keep themselves healthy, the PM & R community can clearly be a valuable resource for this special population of highly trained and motivated artists and educators. With a focus on function and the structure of a team based approach already in place, physiatric practice is a place where musicians may be able to find the tools and resources they need for the shift to a more embodied approach to education and practice. However, the lessons needed for the music education culture are needed in medical education as well. It is ironic that even the profession entrusted with the task of healing the body is just as disembodied in its methods and practices as other professions. [17] Much time and effort is spent on "streamlining" guidelines for the treatment of various disorders and the development of procedures that offer a "fix" for the injured patient, when patients with the same disorder look so very different from one another and require different approaches to achieve the desired result: return to function, return to wholeness.

Where do the needs of musicians and the strengths inherent in an Integrative Physical Medicine and Rehabilitation approach intersect? Musicians need to be exceptional communicators, have the capacity and dynamic vitality to perform their work at a high level of ability over time, and depend upon their bodies as the vehicle for the expression of their vocational calling. They have need to be in close relationship with and possess detailed understanding of their bodies, the relationship between their thoughts, feelings, and physical functioning, and to be able to sustain health over time to remain competent in their field.

An Integrative approach to Medical Practice looks at health as a dynamic state that is dependent upon the ongoing support and nurturance of our person (mind/body/spirit), which possesses the ability to be self-organizing, and to heal when given the appropriate ingredients and environment. The ingredients can be organized within a conceptual construct that includes:

***Physical elements***
Nutrition, sleep, movement, rhythmic patterns of activity and rest, sunshine, shelter, and protection from harm.
***Emotional Elements***
A safe and consistent environment, meaningful relationships, meaningful work that is consistent with beliefs and abilities, community, and reliable access to trustworthy information
***Mental Elements***
Belief that work is meaningful and contributes to the world, ability to exercise our abilities and talents without censure, and creative interactions with others and with ideas.
***Spiritual Elements***
An evolving understanding of who we are, an evolving understanding of who we love, a sense of our purpose (what are we are doing here?), and being able to see how our contributions fit into a larger scheme that makes sense to us. [18]

The role of the Arts and of Arts education is of paramount importance in the well being of any culture. Our culture has lost its connection to history, place, and inherent values. A part of both medical and music education that has been omitted due to our current cultural model of reality is the teaching of how one learns to develop, test, and refine the ability to gain subjective knowledge about ourselves, especially out bodies. The disembodied musician is also the disembodied doctor. Teachers and students lack understanding and experience with how one obtains knowledge and an internal sense of balance, or reliably judges the "right relationship" of things. Most of us progress through tactile, auditory, visual, vestibular, and proprioceptive learning as infants and children without much difficulty. However, the degree to which we are able to achieve higher orders of cognitive, perceptual and sensorimotor integration as we mature varies considerably between persons and is highly important in the performing arts fields. Small losses mean huge impairments to musicians. These elements of the way we experience, interpret, and integrate our senses in order to function in the world are fundamental health skills. Though these more subjective elements of our internal state of health are harder to access, understand, and remedy, it remains for us to explore ways of acknowledging their powerful impact on the healing of persons. Medical practice inspires one to look for ways to help patients regain them when injury or illness creates disorganization and confusion in their physiological relationships. Motor planning without sensory integration is a lost cause, and yet much time and energy is spent putting the cart before the horse in therapy. [19, 20]

Case History

The story of a 20 year old female violinist who sought help for disabling pains in three different regions of her left upper extremity serves to illustrate. This young woman was at the time of evaluation (December 2002) in her third year of studies at the school of music majoring in performance. She had been playing the violin for 17 years without injury or impairment other than brief episodes of muscular fatigue at times of increased intensity during her high school years. She studied violin according to the Suzuki method beginning at age 3. In addition to regular weekly lessons, she attended several week-long summer institutes over the years, during which she was taught by several different teachers, as is the tradition in the Suzuki approach. She expressed that, by the time entered college, she knew that she was a "stiffer" player than many of her peers, but that because no teacher had ever spoken to her about tension in her playing, she assumed that was "normal." Once at school, she wondered why everything that she seemed to struggle with looked so easy for other students. She developed wrist pain after she participated in "scale boot camp" with her teacher and some other students, consisting of several hours a day of intensive technical exercises. Following that, her teacher insisted that she take her shoulder pad off and be willing to "play through the pain". However, he recanted when it was apparent that her pain became worse.

She went to the student health center for advice and help. She was seen by an orthopedic surgeon and then a physical therapist. She received instruction in stretches for wrist, arm, and shoulder, theraband exercises, and upper extremity movement on an ergonomic hand driven wheel three times a week for three weeks. She also took ibuprofen during this time, 800 mg po bid.

Unfortunately, her symptoms escalated and expanded during this three week course of what is considered "appropriate for the disorder" physical therapy, and by the latter part of the fall term, she had severe continuous pain in the lateral aspect of her elbow, in the dorsal aspect of her wrist, and in the anterior aspect of her shoulder. This created in her a sense of desperation, as her primary vocational goal and her source of income were being dramatically threatened. Her first two attempts to attend to the problem seemed to have backfired. Without previous experience in these matters, she had no reference for what to expect or how to judge her response to "treatment." Indeed, she felt her body had failed her when she needed it the most, creating a mind/body disconnect that escalated the intensity of her crisis at the crossroads of health and vocation.

Fortunately, she spoke with a professor knowledgeable about injuries in performing artists (JP) and agreed to see another doctor (DG) about the problem before giving up. It took a great deal of encouragement to get her to seek further assistance because her experience had thus far been noxious enough to lead her to contemplate a complete change in career path.

Her Past Medical History was not significant for any medical problems. She had tonsils and adenoids removed as a child, a broken right foot in high school, and a broken left 5$^{th}$ phalanx in grade school. The fractures had healed without sequelae. She had not experienced any chronic illnesses or infections during childhood. She met normal developmental and academic milestones throughout primary and secondary school years.

She was single, a non-smoker, did not use alcohol or illicit drugs, lived alone, and did all of her own self care and homemaking tasks. She averaged 2 cups of coffee per day, sleep was adequate without difficulty, and she was not overweight or deconditioned. Her self image did not, however, include a sense of confidence in her physical abilities or kinesthetic competency.

Medication: Ibuprofen 800mg bid. Allergy: NKDA, environmental: dust, ragweed.

Review of Systems: Neg. except occasional irregular menses, with dysmenorrhea, headache usually just before menses. Psych: Neg. Family History: mother and grandmother with obesity, DJD (Osteoarthritis of knees).

On exam, she was an alert, articulate young woman of average height. She had normal vital signs and no integumentary lesions. She wore glasses and is Caucasian. She is right hand dominant. She had the ability to perform the elements of a screening Neuromusculoskeletal exam without difficulty and with awareness, could stand and sit with apparently normal posture. There were only minimal, segmental restrictions in the spine at L4, T4, and T5. The primary findings were pain on palpation at the radial head, lateral epicondyle, biceps tendon at the bicipital groove, levator scapula insertion, and at several points within the upper trapezius, teres major, and upon the dorsal aspect of the distal forearm—all on the left upper extremity. Range of motion was reduced by approximately 15 degrees in supination of the forearm, at the end of range of elbow extension, and in upward rotation and external rotation of the scapulothoracic motions associated with abduction and horizontal abduction of the shoulder. Upper limb tension tests revealed a mildly positive median nerve bias, made moderately positive by adding scapular

depression on the left side only. [21] She had some apparent weakness of the anterior deltoid, appearing to be primarily related to pain.

As she played the violin, it was apparent that the pain was affecting her ability to maintain her usual posture, technique, and proficiency. She was visibly cringing with longer passages and bringing her left arm more medially and inferiorly with time. The lack of full supination at the forearm created difficulties for her with fingering, especially in the higher registers.

Initial treatment was to use an injection of procaine and triamcinalone in the regions of the lateral epicondyle and radial head, and manual therapy of myofascial, functional indirect, and muscle energy types to the areas of motion restriction. We continued the ibuprofen, and she obtained a new chin rest and shoulder pad for her violin. These measures together allowed some relief, and we moved into a more long term plan of care. How to prevent this from ever getting this bad again? What seemed most important was to help her address the issues of internal balance/postural awareness and to re-establish movement patterns that would be sustainable over time as a performer.

Convincing her that another trial of physical therapy was in order took some extended dialogue. Much thought went into deciding where to send her including knowledge of the experience, skill level, and ability of the chosen therapist to have interactive patience in teaching such things as physiological quieting and kinesthetic awareness. A very specific referral was made to a therapist with performing arts medicine experience and a personality that would allow a much more individualized approach to the problem. In such a case, the environment where care is delivered is also quite important. The context of care needs to be a place where the patient will be heard and given the time and space to literally learn to listen to their own body.

As they began, movement patterns of her upper extremity were assessed in the context of cervical, thoracic, clavicular, and scapular motions. As neural glide mobilizations and manual stretching were initiated, it was noted that she had difficulty with both abdominal and scapular stabilization, and a thorough plan of treatment was created for her that included therapeutic exercise detailed as follows: Instruction in physiological quieting (diaphragmatic breathing, awareness of movement of pelvis, trunk, and upper quarter stabilizing musculature), stretching of shortened musculature, joint mobilization at wrist, forearm, elbow, shoulder, spine, scapula, and hand, manual therapy of muscle energy, myofascial release, and indirect inherent force types, specific strengthening of abdominal and scapular stabilizers, iontophoresis, and occasional use of foam roller to assist with spinal extension in the thoracic region. Sessions combined these and lasted approximately an hour each for a total of 14 visits over 8 weeks. An integrated upper extremity movement awareness exercise done side lying was used during the whole time to allow her an opportunity to assess her movement capabilities, limitations, and become more confident in her ability to do the home exercise program that developed as they learned what worked best for her. Much effort was required to help the patient see the need to slow down and notice small differences in how she moved, become aware of the way the different movements felt, and develop a sense of internal “rightness” about posture and control of movement.

It was not until nearly the end of the treatment process that the patient was able to learn how to be subjectively aware enough to perform self assessment and be independent with specific exercises for balancing and restoring the correct relationships between the muscles and joints from core central axis to the hand. All members of the team agree in retrospect that this ability to be aware and sense the internal rightness of posture and position was the single most important aspect of this patient's successful outcome. Her improvements came in phases, and seemed to be especially related to when she was able to discontinue a holding of tension pattern within the postural muscles involved. This occurred first in the central musculature and moved to the periphery gradually. As the postural muscles relaxed, the pain decreased, and she became stronger without need for specific repetitive strengthening with weights or bands. The release of held tension in postural muscles appeared to allow a balancing of forces that created more efficiency in the dynamic muscles of the upper quarter.

As her ability to assess her own movement patterns and release the tension in the involved areas via self mobilizations and stretches using enhancers such as gravity and breathing improved, she was able to gradually increase her practice and performance times to previous levels of intensity by the end of the second month, and has remained pain free and fully functional since that time, now three years in length. The course of improvement continued for many months following the end of therapy. Her observation was that the improvements in posture and shoulder position and stability were the most important part of her recovery. An added benefit was more confidence in her own sense of internal control which then manifested as better posture. She relates that people started asking her if she had lost weight, which prompted her to then actually try and succeed in losing weight. Her internal state underwent a transformation that resulted in a clearly discernable change in her outward appearance.

Take Home Lessons

Looking retrospectively at this case, the element that seems most important is the importance of the relationships. This includes those between the musician, therapist, physician, and teacher as well as the ones within the patient's own body. The communication to the musician that she has a body that can heal, that there are many ways to get to the desired result, and that therapy needs to be individualized for her needs is absolutely essential. Her participation/ involvement is essential. The ability of the supporting cast to listen to the patient and each other and then adapt their therapeutic tools to fit her needs is important. There is not a simple answer to these problems because they involve the way the musician has or has not adapted to her environment. Adaptation involves changes in both sensory integration and motor planning. The take home point for the caregiver is to listen first, find out what has gotten in the way of the ability to support normal function, help the musician remove the obstacles to healing, and find their way back to the uniquely skilled ability they have to perform their art. Specific comments by the therapist about what seemed most important in this case were the time and patience required to help teach internal proprioceptive awareness. Progressing through as with children in neurodevelopmental sequencing, the patient is taught to listen for the subtle internal changes and little movement pattern changes until they finally get it……because their ability to sense this is the most important thing! Many patients don't get in touch with anything inside at first. To do this requires the use of smaller movement patterns, breathing techniques, letting go of older patterns, so that they can get a sense of something different going on. As an example, pelvic floor stabilization is often required in order for the patient to be able to have a foundation

for scapular stabilization, which is then in turn necessary for the normal muscular patterns needed for bowing with the upper extremity. People are so sympathetically driven, it is hard to slow them down enough to pay attention to small differences in movement, or learn how to use the breath to quiet oneself physiologically. As in pediatric rehabilitation, mid range movement patterns are emphasized and the therapist keeps the patient in mid range and cues with the hands. It is helpful to use visual metaphors to give them ideas about how to move and employ interactive patience, as when learning to dance.

Components of a Therapeutic Relationship with Musicians

To summarize for medical professionals what we are learning about the essential elements of a paradigm shift in educational culture for musicians toward a more embodied practice of their art, the authors suggest these components are of primary importance in caring for this special population:

- Validation: People need the caregiver to be able to see what it is they are experiencing and understand to some degree how it feels. That is the point of engagement, where the relationship is able to begin.
- Space: a place where the person can discuss without fear of exposure or retribution the physical and emotional aspects of their problem and be heard by someone that has the ability to assist them.
- Time: an individual needs to be given this in order to formulate a description of their experience of the problem, develop a sense of its meaning within the context of their life, and be allowed to hear their own version of the story. This requires silence on the part of the listener. Listening, really listening…is a practice that is difficult and sometimes even dangerous. Deep attentive listening has the power to draw us into the mystery called silence. Often in listening, we encounter other people and our own lives in new ways. [22]
- Understanding the problem. What is it? How does it cause a problem with the way the body works? This is more difficult than it sounds. First of all, what are the differences in the way it is perceived by the artist and how it is perceived by the physician? Are there barriers to them speaking the same language? The doctor has a better chance teaching the patient about the body and its route back to normal function if the doctor understands the way it feels for the musician to be in his body. That can be a beginning. It shifts the treatment of a condition from something out there administered by doctors to a perspective on how to work from within himself to best cope with a disease or disorder that has taken away his vitality. In the journey that follows, the artist needs to be able to see himself as a whole person capable of the return to normal function in order to negotiate the many steps which may be involved.
- The ability for the caregiver to provide and the artist to receive the needed treatment. Therapies are not just something given by one person and passively received by another. They are an interactive dance, much like the performance of an ensemble. Engagement and the presence of both persons are required. There is give and take of information, skills, transfer of knowledge both in the way of the mind and in the way of the body. What does it feel like to move ones' arm this way, and how is it different than that way, etc…

- The ability of the caregiver to initiate and negotiate referrals to other doctors, therapists, and treatment/test procedures if/as needed. This is a sensitive task that requires finesse. It is an art. Skill at it is developed over time as one practices within a community. For

each individual patient, trying to choreograph the interplay of personalities, sequence of events, balancing the patients' needs to participate and to receive, is a dance. It involves talking about what to expect, what might happen at the visit, how to prepare for it, and what possible options are available for treatment. If one knows the patient well, they can introduce him to the network of people available in the community that can best help him. The health care system is scary for patients. It is a foreign land, and it does not feel safe.

- The ability of music teachers to listen to, and respect the needs of, the music student in a holistic way, collaborating with others involved in the student's care. This requires that the teacher take the long view of a student's musical journey, He or she must help the student select short-term achievable goals for their musical growth while facilitating their recovery.

- The ability of the artist to assimilate and incorporate the effect and meaning of the treatment(s) into themselves and continue to be an artist. Healing from an illness can be tricky. Can the artist go from injury to impairment to understanding to engagement to transformation into something other than what was before, and yet reformulate them self in a way that allows them to continue to be an artist? Isn't that the way of Art? It takes hold of us, and we struggle to understand it, learn it, and become a part of it. Like the clay on the potters' wheel, we are formed into something new. In doing this, we become part of the body of work in our field, which in turn gives us the opportunity to offer something back, perhaps to create something new within our field. Sometimes seemingly unfortunate things like injuries change us in ways we can't predict, and we find the need to do our lives differently because we understand ourselves differently. Our context of understanding may have widened as a result of the illness, and so we see another way to be about or do our work that was previously not within our repertoire. This creative act can be a gift back to the community that changes its course for the better. This is the process by which paradigm shifts do in fact change the culture of a field of endeavor.

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18. The ideas within this framework, particularly the ones relating to spirituality, are inspired by the work of Wayne Muller, author of several books which include How, Then, Shall We Live? Four Simple Questions That Reveal the Beauty and Meaning of Our Lives, Bantam Books, New York, 1996; Legacy of the Heart: the spiritual advantages of a painful childhood, Simon and Shuster, New York, 1992; and Sabbath: Finding Rest, Renewal, and Delight in our busy Lives, Bantam Books, New York, 1999.

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