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Publisher: Routledge

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Journal of Occupational Science

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rocc20>

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Available online: 08 May 2012

To cite this article: Christine Guptill PhD, OT Reg. (Ont.) (2012): Injured Professional Musicians and the Complex Relationship between Occupation and Health, Journal of Occupational Science, DOI:10.1080/14427591.2012.670901

To link to this article: <http://dx.doi.org/10.1080/14427591.2012.670901>



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Injured Professional Musicians and the Complex Relationship between Occupation and Health

Christine Guptill

This mixed format (research and discussion) article addresses the relationship between occupation and health. The conceptual discussion is deepened by including findings from a phenomenological study of the lived experience of professional musicians with playing-related injuries. Participants described decreased awareness of time and of their bodies when they were healthy, particularly when experiencing flow. Participants described flow as detrimental to their health, and used strategies to disrupt flow in order to continue in their chosen occupation. This choice can be seen as unhealthy, particularly in cases where the musician has been advised to decrease or stop playing for health reasons. However, occupational science theories favour individual choice in occupations. This apparent contradiction can be resolved if the definition of health is broad and includes justice and freedom to choose.

Keywords: Occupation, Health, Flow, Occupational justice, Musicians

Occupational science asserts that occupation is an innate need (Wilcock, 1993) and that as human beings we are, by nature, occupational beings (Yerxa, 1998). It has also been argued that engaging in occupation improves health. Indeed, occupational science as a discipline, and occupational therapy as a practice, were founded on this concept (Jackson, Carlson, Mandel, Zemke, & Clark, 1998; Law, Steinwender, & Leclerc, 1998; Molineux, 2004; Wilcock, 1998, 2005; Yerxa, 1998). The founders of occupational science felt that demonstrating the importance of occupation for well-being would justify the profession of occupational therapy (Clark et al., 1991). This is most powerfully illustrated by a paper informally known as the 'well-elderly study' (Clark et al., 1997), as discussed by Jackson et al. (1998) in a follow-up publication in

the American Occupational Therapy Journal.

The concept of 'flow' was first introduced in this journal in 1993 by Yerxa and colleagues, as a means of understanding the relationship between occupation and health. Proposed by psychologist Csikszentmihalyi (1975, 1993), flow has been defined as "a subjective, psychological state that occurs when people become so immersed in an occupation that they forget everything except what they are doing" (Wright, 2004, p. 66). Flow experiences are characterized by clear goals the person wants to achieve; a high degree of concentration; loss of the feeling of self-consciousness, the merging of action and awareness; a distorted sense of time, one's subjective experience of time is altered;

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Journal of Occupational Science
2012, iFirst, pp 1–13.
ISSN 1442-7591 print/
ISSN 2158-1576 online
<http://dx.doi.org/10.1080/14427591.2012.670901>

direct, unambiguous and immediate feedback; a balance between ability level and challenge (the activity is neither too easy nor too difficult); a sense of personal control over the situation or activity; the activity is intrinsically rewarding, so there is effortlessness of action; and becoming absorbed in the activity (Wright, 2004). All of these characteristics do not need to be present in order for flow to be experienced. Those most relevant to participants in the study reported here were the level of concentration, losing consciousness of self, an altered sense of time, feedback, intrinsic reward and being absorbed in the occupation.

In the occupational science literature, flow was introduced to support the notion that pleasure and happiness are powerful evolutionary forces, thereby supporting the premise that occupation is a basic human need (Yerxa, 1993). More recently, Wright (2004) described that within occupational science “flow can be viewed as a phenomenon that can help us to understand how occupations may help people attain the highest level of well-being” (p. 73). As demonstrated by this statement, the occupational science literature has associated flow with a positive, desired state related to health and well-being. However, as Wright acknowledged, negative potential impacts have been alluded to, and a few studies have explored negative aspects of both occupation and flow. In particular, occupations that might cause harm (e.g. addiction) or are considered ‘risky’ (e.g. participating in extreme sports) have been explored (Golledge, 1998; Haines, Smith, & Baxter, 2010; Helbig & McKay, 2003; Lyng, 1990; Russell, 2008; Willig, 2008). A new perspective on occupational risk as value-laden and normalizing has been developed by Dennhardt and Rudman (2012).

Jonsson and Persson (2006) also explored the negative consequences of flow, specifically mentioning a study by Ware and Kleiman (1992) who examined flow experiences in information technology, as the Internet evolved at the beginning of the 1990s. Some users of this new technology were found to have insufficient sleep. Jonsson

and Persson’s paper highlighted the potentially destructive effects of flow experiences, noting that they “could become too energy demanding and even addictive, possibly leading to overload” (69).

Playing a musical instrument is not generally viewed by society as a ‘risky’ occupation. Nevertheless, the risk for professional and aspiring professional musicians of sustaining a playing-related injury (PRI) is significant. Conservative estimates indicate that the prevalence of PRI is between 39 and 47%, similar to supermarket checkers and assembly line workers (Zaza, 1998). The largest study in North America to date reported that 76% of professional musicians had current physical problems that interfered with their playing (Fishbein, Middlestadt, Ottati, Straus, & Ellis, 1988).

Musculoskeletal injuries comprise the majority of injuries typically experienced by musicians, and include tendonitis, epicondylitis, and arthritic changes (Brandfonbrener, 2003). Upper extremity and back injuries are most common, and occur more frequently in violin, viola and piano players (Zaza, 1998). These injuries are reported more frequently in women (Zaza, 1998), although this may represent likelihood to seek treatment rather than a higher frequency of injury (Brandfonbrener, 2009).

Injuries in musicians can be difficult to diagnose, as they often present in the chronic phase, and presentation can be atypical. Additional complicating factors make the diagnosis, treatment and prognosis of PRI challenging (Brandfonbrener, 2003). These include psychological factors, including a close connection between the occupation and the individual’s identity and sense of self-worth, and high rates of anxiety and depression in this population (Chesky & Hipple, 1997; Fishbein et al., 1988; Langendorfer, Hodapp, Kreutz, & Bongard, 2006). Some clinicians have also noted a tendency for these patients to somatize (Brandfonbrener, 2003; Spahn, Ell, & Seidenglanz, 2000).

Risk factors for PRI in musicians include the use of repetitive movements (Hagberg, Thiringer, &

Brandström, 2005), awkward body positions (Brandfonbrener, 2000), and stress and anxiety (Lockwood, 1989; Zaza & Farewell, 1997). An important temporal risk factor is a sudden increase in the amount of practice time, which can occur when preparing for a performance, or when music students enter new or intensive educational or training settings (Hoppman, 2001; Newmark & Lederman, 1987). Mitigating factors include taking breaks and performing a physical warm-up (Lockwood, 1989), and teaching students more efficient practice techniques (Fry, 1987). Finally, it has been noted that musicians tend to have low fitness levels compared to their peers (Brandfonbrener, 2003, 2009).

As can be seen, an epidemiologic understanding of playing-related injuries has been established in the performing arts medical literature. However, this understanding has thus far not included the lived experience of musicians who sustain the injuries. I therefore conducted a phenomenological study with the goal of understanding the lived experience of professional musicians with playing-related injuries. Selected findings from this study are presented here, to deepen the discussion of the relationship between occupation and health.

Methodology

As an occupational therapist and semi-professional musician, I was interested in understanding the lived experiences of professional musicians who have experienced playing-related injuries. This question lends itself well to a qualitative, phenomenological approach, which “aims at gaining a deeper understanding of the nature or meaning of our everyday experiences” (van Manen, 1997, p. 9). In healthcare, phenomenology often answers questions about how individuals experience particular health concerns (Doherty & Scannell-Desch, 2008; Goldberg, 2008; Ingadottir & Halldorsdottir, 2008; Parsons-Suhl, Johnson, McCann, & Solberg, 2008; Russell, Thille, Hogg, & Lemelin, 2008; Toombs, 2001). The methodology for this

research was influenced by van Manen’s phenomenology of practice, which he defined as “the employment of phenomenological method in applied or professional contexts such as clinical psychology, medicine, education or pedagogy, nursing, counseling” (van Manen, 2002, 10).

The methodology also draws from the philosophies of Martin Heidegger (1927/1962), Maurice Merleau-Ponty (1945/2002), and Hans-Georg Gadamer (1960/1989). Heidegger’s views on hermeneutics and Gadamer’s dialogic views influence this methodology, in that the researcher is an active participant in describing and interpreting the phenomenon. This work acknowledges the importance of the experiences of the participants, but does not see them as experts who are an infallible source of knowledge about the phenomenon. Other sources of lived experience were also consulted when interpreting the findings (van Manen, 1997). These included my own experience of the phenomenon, self-reflection and journaling, consulting other phenomenological research, and novels, poetry, films, television programs, and song lyrics that shed light on the lived experience.

Recruitment and Participants

This study consisted of in-depth interviews with 10 professional musicians who had self-identified as having experienced a playing-related injury. The number of participants is consistent with Thomas and Pollio’s (2002) recommendation of 6 to 12 participants, Polkinghorne’s recommendation of 5 to 25 participants (1989), and Creswell’s observation that phenomenological studies involve “as many as 10 individuals” (2007, p. 131). Snowball sampling was used to recruit participants from key informants known to me. Two in-depth interviews were conducted with each participant, ranging from 1 to 2 hours in length. After initial data analysis, participants were invited to a focus group where preliminary findings were presented and discussed. Six participants attended the focus group. This study was approved by the University of Western Ontario’s Research Ethics Board.

Analysis

Analysis used the hermeneutic process initially outlined by Heidegger and developed by van Manen (1997). The analysis was influenced by Heidegger's concept of historicity, acknowledging the individual contexts of the participants and the researcher. The analysis was also influenced by Merleau-Ponty's concept of the lived-body, as playing a musical instrument is an inherently embodied experience. Lastly, van Manen's (1997) 'existentials' – lived time, body, space and social relations – were used to develop questions for the interviews and to frame the analysis of the data. The analysis was also guided by the data itself, with themes emerging from the importance that musicians placed on them as well as their resonance with my own experience, through dialogue during the focus groups, and in consultation with research sources.

Rigour

Quality in phenomenological research depends in part on the way in which the methods reflect the philosophical groundings of the methodology, which have been described above. In addition to this, a reflexive journal was used to document decisions made about strategies for conducting the study and about thought processes during data analysis (Cohen, Kahn, & Steeves, 2000). I also met with an experienced qualitative researcher who was a member of my dissertation committee, in order to determine whether the analysis was plausible (Cohen et al., 2000; van Manen, 1997). Early findings were checked for accuracy and plausibility both in the second interviews and during the focus group. Finally, thick, rich descriptions are provided to assist the reader in determining the accuracy of the description of what it is like to be a professional musician with an injury.

Findings

Receding nature of the body

Participants indicated that when they were involved in music-making, they were less aware of their bodies. As Mark described, "I never am aware of pain in concerts. . . either they don't happen

when you're in a concert, or I just am in some other place where I don't feel them." Elizabeth explained, "when I'm playing I kind of forget about the pain, I don't notice the pain." Simon also expressed the absence of the body when he was not in pain: "Every once in awhile it will dawn on me that 'hey, you know, my back's doing okay.'"

Jacqueline felt that this experience of losing touch with her body had partly to do with the level of difficulty of the work: "If something is really difficult to do then I'm more likely to be so focused on the music that I can't focus as much on my body." Mark related to this, stating that "I think I get into those frozen positions [that cause pain] when I'm practicing cause I get focused on one little [musical] issue."

By contrast, participants also noted that they were more aware of their bodies when they were experiencing injuries, and that this intruded upon their experience of music performance. Simon explained: "You can't focus on the artistic demands or even the technical demands. It [pain] takes your mind away from tuning, ensemble, music-making." Barbara described a similar experience. "It's no fun being in pain when you're playing because you can't totally focus on the music-making, so that limits your enjoyment of the experience." Robert also experienced a dampening effect of injuries upon his experience of playing: "It's not as much fun. You don't get the rush in the same way when you're in the middle of playing and it hurts."

However, some of the participants felt that this interruption of the unconscious performance of music that can occur was necessary and important in maintaining health and longevity as a performer. Mark explained:

If you focus on the music, you forget about pain in your shoulder and you just injure yourself more. So the whole thing about getting away from that focus on music, and focusing on your body, the body that's creating the music is so important.

Barbara also spoke about the importance of being aware of the body in order to maintain health.

I think you have to learn to have some control. There can be excitement with control. . . My joy is in finding a way to play that I'm not in pain, and that I can fully do what I need to do to make that music come alive and I'm not regretting it the next day because I'm suffering from it.

Instrument as an extension of the body

Lived space, in phenomenological terms, is not congruent with the vernacular concept of geographic space. Merleau-Ponty (1945/2002) described lived space as a “system of possible actions, a virtual body with its phenomenal ‘place’ defined by its task and situation” (p. 291). In this study, lived space was demonstrated primarily through the musicians’ relationship with their instruments. Elizabeth described her relationship with her instrument as “wonderful, it’s like a part of my body. It’s like I’m talking.” Sandra stated, “I still feel like it [her instrument] is part of my arm; but it used to be more natural [before she experienced injuries]”. According to the participants, this was more likely to take place when they were intensely focused on the music.

Receding nature of time

As with the body, participants described that their perception of the passage of time was influenced by their engagement in the music, as well as by interference from their injuries. When they were engaged, time passed very quickly, as described by Elizabeth: “When I’m playing the time just – it’s like 5 minutes, 2 hours later . . . I get lost in it.” Barbara described her experience during rehearsals: “You’re sitting there. . . enjoying the rehearsal and playing, time goes by pretty quickly for the most part.” However, when participants became aware of their bodies through fatigue or discomfort, this affected their experience of time. Jacqueline explained that when she played in what she described as ‘the pain zone’, “it’s like it [time] stops almost, and I’ll be looking at the clock over and over again, and it will feel like an eternity has gone by and it’s been two minutes. It’s excruciating, how

slow time moves.” Barbara’s experience with rehearsals continued: “When you’re in pain it’s [sighs] looking at the clock, ‘when am I gonna go home and get in the bath and soak my sore joints’ and stuff. You are more aware of the time.” Robert also expressed his experience of time:

When it hurts you feel like you’re there for a longer time. It doesn’t just fly by, you don’t get to the end of the show and say, ‘wow, where did that one go?’ you know. It’s like, ‘oh man, I’m finally outta here.’

For Sandra, the experience of time was impacted by changes she made to her practice routine at home, particularly increasing breaks and limiting the time she practiced, in order to cope with her injury.

There have been days that felt like time was really dragging on because I couldn’t get anything done. . . . If it takes me three and a half weeks to learn a piece of music then that feels like. . . ‘God, is this ever going to end’ or ‘how many hours is it going to be in between my hours of practicing sitting around waiting to be able to get going on this again?’ . . . I used to sit down for three or four days and just practice all the time until I could play whatever it is I had to play. This is way more dragged out.

More specifically, Sandra explained that she felt she was “way, way, way, more alert” to the amount of time she spends in a practice session. She said, “I sort of have my eye on the clock all the time about how long I have got and then I have to stop.”

Not all of the participants conceived of time in terms of hours and minutes. Simon explained that in performance, he often thinks in terms of the number of pages left in the piece. Barbara also spoke about time in years, in relation to aging. She explained:

It makes you think about your age more, because you’re hurt. When you’re in pain, suddenly you think ‘well if I’m in pain now,

what kind of pain am I gonna be in later, oh my God how long can I keep playing my instrument? Am I gonna have to retire early, am I gonna make it to retirement? Am I gonna be a cripple and a mess when I'm older?' I think it does make you more aware. You feel like time's moving faster ... I think you are more aware of time.

Barbara further explained that the passage of minutes when she experienced pain was slower, but the perception of the approach of age was faster.

Negative aspects of occupation and flow

The participants in this study spoke about the potential for engagement in musical performance, particularly during flow, aggravating or causing playing-related injuries. Jacqueline compared her engagement in music as akin to addiction:

My partner at the time was saying, 'It's almost like an abusive relationship that you have with your instrument. You go to it, and you play it, and it hurts, and you walk away; but then you keep coming back to it all the time.' ... I was just so in love with it, I didn't want to give it up. It was so worth it to me somehow, in a very strange way, to continue to suffer through it. ... It's sort of like a drug that you have to take in moderation.

Mark described how his university practice-behaviours, which were common among his peers, were unhealthy:

For me a big thing would be to go to the University and find an empty room, one of those big halls. ... and sit on the stage at ten at night and start practicing, and just walk out of there in a complete daze at like two in the morning and not have any idea what time it was and... just totally idiotic. [laughs] Completely out of touch with reality, you know? And what a mistake. 'Cause you can do so much more if you just set the timer, focus on one or two things.

Other participants also described common musical practices as injurious, such a practicing for long periods of time, particularly without breaks; intensive, long rehearsals; overplaying (including volume and physical effort); poor body awareness and attention to general health (e.g. getting regular exercise, stretching); and touring, with its associated stress. This is illustrated by Giselle, speaking about a fellow musician:

People are dropping like flies, you know. And it's just overplaying, because there is just too much work. They treat you like a slave ... That's what happened to her, the stress of the job ... she was there in all those hard years of [conductor's name] when it [orchestra] was really a playing machine like Japan, China, Europe, recording galore, like they'd be in a recording session for five days, they would be locked in that church, and then they'd get on the plane a week after and they would do Paris and London and you know, she says to me ... 'the stress was horrendous.' ... I always said 'I want to have your job' and she always said, 'you don't want my job'.

Several of the participants in this study viewed the state of flow as a risk for injury, and took steps to avoid it in their personal practice. Strategies to avoid flow included using an egg timer to break up practice time; taking frequent breaks; and avoiding playing pieces from start to finish, focusing instead on specific sections that required work.

Occupational disruption, alienation and marginalization

Occupational justice has been defined as "address[ing] what people do in their relationships and conditions for living" (Wilcock & Townsend, 2000, p. 84). These same authors (2009) elaborated this definition with the following:

Motivating this exploration is a utopian vision of an *occupationally just world* governed to enable all individuals to flourish in diverse ways by doing what

they decide they can do that is most meaningful and useful to themselves and to their families, communities, and nations. (p. 123)

Associated notions that contribute to or are examples of occupational injustice have been developed in the occupational science literature. These include occupational disruption, which has been defined as “deprivation from access to occupation” (Whiteford, 1997, p. 126) within a relatively short timeframe (as distinguished from deprivation, which takes place over an extended period of time). Musicians may experience occupational disruption if they are unable to engage in music performance for a period of time due to pain or medical contraindication.

Musicians who are unable to continue to play an instrument, or at the level they previously enjoyed, may also experience occupational alienation, defined as “absence of meaning or purpose in the occupations of daily life” (Bryant, Craik, & McKay, 2004, p. 283). Participants in this study discussed this as a possibility in their interviews. Elizabeth said that it would be like “cutting off my whole way of communicating, cutting off a whole realm of social relationships I’ve developed.” Jacqueline stated, “Life would be so empty without it [music]. I’d feel like everything else was just kind of like a second-best.” Other participants, however, had less extreme visions of what it would be like if they could no longer play. Mark felt that he would eventually come to that time, and that “it would be really hard not to play,” but “it’s not going to freak me out.” Barbara expressed the tension between the love of music and the challenges of being a musician. “It could be devastating in one sense . . . or else it could be also a relief to not be doing the things that have taxed your body or your emotions.” The difference in these participants’ perceptions of what deprivation and alienation might be like appeared to depend on the role music played in their lives. For example, Elizabeth saw music as key to her identity and central to her social relations with others. Mark, by contrast, had other areas of interest in his life, and felt that it was important to

have social contacts outside of music to cultivate balance.

Musicians in this study also experienced occupational marginalization, which “operates invisibly, a major force of injustice being normative standardization of expectations about how, when, and where people ‘should’ participate” (Townsend & Wilcock, 2004, p. 81). Jacqueline described her experience of social norms: “people are already, to some degree, raising their eyebrows and saying ‘how could you be doing something so frivolous?’” For Jacqueline, this led to a lack of understanding from her friends and family that she would leave a future career as a musician due to injuries. Elizabeth related her experience in seeking care from her family doctor: “I don’t think they do [take her occupation seriously]. He [her family doctor] has no idea how important that is to me.” Simon expressed: “I’ve never worked an honest day in my life. Except 50 cents pulling weeds for a neighbour.” These participants experienced marginalization, sometimes self-imposed, in regards to the value of their occupation.

Finally, musicians with injuries can experience occupational deprivation in the form of un-(or under)employment as a result of a disability. Although few of the participants in this study had experienced occupational deprivation, they were impacted by the threat of deprivation while managing their injuries. Several were also underemployed as a result of their injuries, in an attempt to maintain their playing abilities in specific areas. Robert, for example, had stopped performing certain repertoire that he found exacerbated his elbow pain. Other participants reported declining particular paid engagements. For Jacqueline, this was because the time commitment required was too long for her pain comfort; for Nancy, because adding work to her prior commitments would be too physically demanding.

Social determinants of health

Musicians in this study, like many musicians worldwide, experienced the negative impacts of social determinants of health. In the US, musi-

cians' median income during the period of 2003 to 2005 was \$22,600 compared to the overall labor force median of \$30,100 (National Endowment for the Arts, 2008). In Canada the discrepancy is higher; the 2006 census found that the median earnings for musicians was \$9,394, compared to the overall labor force earnings of \$26,850 (Hill Strategies Research, 2009). Many musicians work for more than one employer and are engaged in freelance work (National Endowment for the Arts, 2008), and therefore may lack access to extended healthcare benefits. In addition, many playing-related injuries are sustained during or before post-secondary education, and so musicians' playing-related injuries may be excluded from coverage by extended healthcare or workers compensation insurance plans. As has been demonstrated elsewhere, these social determinants can have significant impact on the health of individuals. However, the musicians in this study chose to continue in their valued occupation, although some noted that there was not much choice in continuing. Simon stated, "*It's more like a quiet desperation to recover from it [injury], because it's your living, such as it is, I mean what else are you gonna do?*". Thus far, no evidence exists to demonstrate whether continuing to engage in a professional musical occupation has benefits to health, whether individual or societal, over the long-term.

Discussion

The receding nature of the 'healthy, normal' body has been demonstrated in other phenomenological works. As Aho and Aho (2009) stated, "I do not typically experience myself as 'having' or possessing a body at all" (p. 18). This observation has also been noted by Toombs (1995, 2001) and Leder (1990). Similarly, Toombs (1990) reported that people who are in ill health experience time as moving more slowly. The invisibility of the instrument in musical performance has also been described in the phenomenology literature by Schmickling (2006) and Behnke (1989). This study re-iterated these findings, with participants noting that they were not aware of their bodies, instruments or the passage of time when engaged

in performing music, but that awareness was increased when they experienced pain and injury.

Jackson (1996) found that individuals who experience flow also experience distorted time, and different experiences of the body. Where the phenomenological literature distinguishes between healthy and unhealthy bodies, studies on athletes have noted that flow experiences can also include a sensation of bodily well-being. This must be realistically contrasted with the pain that is often experienced by elite athletes, and the hyper-body awareness that is an essential component of sports performance at that level. When engaged in performance, some of the participants in the current study felt that their instruments became a part of their bodies, such that they need only intend to play and it happened. This is also consistent with flow theory, which proposes that people who are engaged in flow lose their sense of self-consciousness, experience a merging of action and awareness, and perform effortlessly.

Flow in occupation and risk of injury

This current study sheds light on the potentially negative health consequences of flow itself when people engage in an occupation that is not considered inherently risky. As participants related, getting 'lost' in the music can result in injury, because the experience results in dissociation from the body, which might otherwise provide cues such as pain that might encourage musicians to stop playing. Similarly, dissociation from the experience of time can result in lengthy playing sessions without breaks, which has been identified as a risk factor for playing-related musculoskeletal injuries (Wu, 2007; Zaza & Farewell, 1997). The participants in this study indicated that they took steps to avoid flow by using an audible egg timer to alert themselves to a scheduled break time, breaking up practice sessions throughout the day, and paying attention to their bodies during practice sessions.

In the current study, Jacqueline expressed an addictive element to her own musical pursuits, which was described by her partner at the time as

an abusive relationship with her instrument. Jonsson and Persson's work (2006) suggests that if musicians spend a significant amount of time performing music, their performance should reflect a balance of challenging and relaxing repertoire. It also suggests that a balance of occupations that promote flow (such as music) with other occupations that are challenging and that allow for relaxation is desirable for maintaining health. It is interesting to note that after experiencing playing-related injuries, Jacqueline chose to pursue another career and continue with music as a significant avocation. She spoke about this as a balance that allows her to enjoy playing while devoting time to other interests, which seems to reflect the balance suggested by Jonsson and Persson. The relationship between musical performance, the experience of flow, the receding nature of lived time and body, and the musicians' expression of strategies to interrupt flow in order to preserve their health, are new and important findings in this study.

Relationship between occupation and health

This study has demonstrated that the relationship between occupation and health is not a simple equation, where engaging in occupation improves, or even maintains, health. For participants in this study, the occupation of music-making has not always contributed to health; these musicians perceived that their occupation had either caused injury or aggravated associated conditions such as osteoarthritis. In some cases, participants were advised by healthcare professionals to quit playing for the good of their health. It might be argued that in order to continue playing, some of the participants made lifestyle changes that were of benefit to their health – for example, Elizabeth resolved to lose weight and began taking supplements, and Nancy began regular physical activity. However, it is important to note that these choices were not made only for their benefit to health in general. In Elizabeth's case, for example, choices were made that allowed her to extend her ability to play music, which is central to her life.

Occupational choice and health

As described above, individuals' choice of occupations, and of how to engage in chosen occupations, can have an impact on their health. Although some research has investigated occupations that might cause harm or are otherwise 'risky', as previously described, to the author's knowledge no one has yet juxtaposed occupation as a potential detriment to health. This study indicates that there may be situations in which occupational choice may in fact be detrimental to aspects of health. For example, continuing to play the violin may aggravate a player's shoulder bursitis and associated pain. There may, however, be benefits in other areas of health; this occupation might provide continued employment, social relations with colleagues, friends and spouse, and self-esteem. This complex relationship, where a factor may be enabling in one health domain and disabling in another, can be illustrated using the model of the WHO's International Classification of Functioning, Disability and Health (2001) (Figure 1).

In this model, the bi-directional arrows indicate that the health domains presented in the model can influence each other. Factors that affect each domain can either be enabling or disabling, and yet the effect is not necessarily cumulative. It follows that while a certain occupation may be detrimental to health – returning to the example

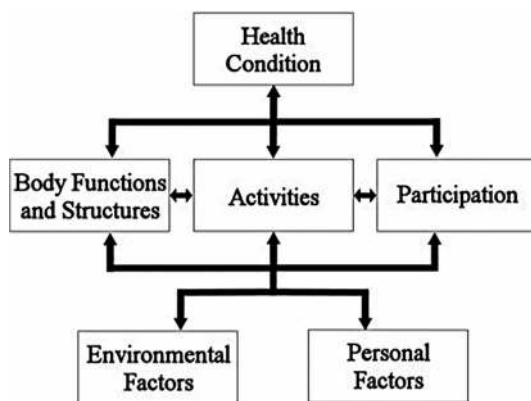


Figure 1: Interaction between Components of Health in the International Classification of Functioning, Disability and Health (WHO, 2001, p. 18). (Reproduced with permission)

of shoulder bursitis – at a body function and structure level, this does not preclude it from improving health in the domain of participation. Whether an occupation is beneficial or detrimental to health also depends on the perspective – is it individual health, or societal health? Does being engaged in occupations which benefit one's social participation and contributes to societal health, override any detriment to individual health? Clearly these are complex questions that challenge the assumption that occupation is beneficial to health.

The WHO's Ottawa Charter for Health Promotion (1986) defined health as "a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities". If one accepts this definition, it is easier to understand how the relationship between occupation and health can be more complex than has been portrayed in the occupational therapy and science literature. The Charter definition also highlights the importance of overarching principles like individual choice and occupational justice, which provides a macroscopic view of health as a societal value while at the same time valuing the individual's right to freedom of choice.

A complex relationship

Whereas the occupational science and therapy literature has previously portrayed occupation as necessary for, and beneficial to, health, this study adds to the body of literature that demonstrates that this portrayal is inaccurate or incomplete. Musicians in this and other studies have a complex relationship with music and with their instruments. While this occupation may be meaningful, pleasurable, and central to a musician's identity, it may also cause physical injury. Being injured can cause deep emotional upset and impact musicians' abilities to perform in other occupations that are meaningful to them (Guptill, 2011a, 2011b). The perception of the benefit of this occupation for health depends on the definition of health to which one subscribes, and the viewpoint from which one examines the benefit. If health is

viewed through the lens of occupational justice as including spirituality, self-determination and freedom of choice, it is possible that performing music, despite the cause or aggravation of injury, can sometimes be seen as providing fulfillment in other areas of health. Similarly, if the viewpoint is person- or client-centred – in this case, the viewpoint of the musician – the benefits may outweigh the potential detriments.

Conclusion

The findings reported here demonstrate that the relationship between the occupations of musicians and health is complex. While occupational science has often presented occupation as necessary for, and beneficial to, health, this study suggests that this is not always the case. It seems reasonable to propose that occupation may represent a continuum of benefit, strongly influenced by the nature of the occupation and its meaning for the individual who is thus engaged. Further research is needed to extend understandings of the benefits and drawbacks of engaging in occupation to the health of human beings. Questions that remain to be answered include how occupational meaning and identity influence the relationship between occupation and health; whether occupational justice favours individual choice of occupation over societal well-being; and whether differing cultural values and power relationships are adequately accounted for in conceptualizations of the relationship between occupation and health.

Acknowledgements

This article is based on a presentation given to the Combined SSO:USA and CSOS conference: Redefining Boundaries and Bridges in Occupation, in October 2010 in London, Ontario, Canada. It reports selected findings from the author's doctoral dissertation. The research was funded by a doctoral fellowship from the Social Sciences and Humanities Research Council of Canada.

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The lived experience of working as a musician with an injury

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Received 1 May 2010

Accepted 26 November 2010

Abstract. *Objective:* Research and clinical experience have shown that musicians are at risk of acquiring playing-related injuries. This paper explores findings from a qualitative research study examining the lived experience of professional instrumental musicians with playing-related injuries, which has thus far been missing from the performing arts health literature.

Methodology: This study employed a phenomenological methodology influenced by van Manen to examine the lived experiences of professional musicians with playing-related injuries.

Participants and Methods: Ten professional musicians in Ontario, Canada were interviewed about their experiences as musicians with playing-related injuries. Six of the participants later attended a focus group where preliminary findings were presented.

Results: The findings demonstrate a need for education about risk and prevention of injuries that could be satisfied by healthcare professionals and music educators.

Conclusions: The practice and training of healthcare professionals should include the “tactful” (van Manen) delivery of care for this important and vulnerable population.

Keywords: Playing-related injury, work, phenomenology, performing arts, health

1. Introduction

The daily occupation of professional instrumental musicians involve many hours of practice, whether it be individual studio time or practice in a group setting such as an orchestra. The performing arts health literature has demonstrated that musicians are at risk of acquiring playing-related injuries, as described below. The prevalence of these types of injuries is difficult to determine due to a lack of high-quality studies. However, one reliable systematic review indicated that the prevalence of injuries, excluding minor symptoms, was between 39 and 47%, or in other words, similar to work-related musculoskeletal disorders in newspaper workers, supermarket checkers and assembly line food packers [1]. Some studies using a broader definition of playing-related injuries have reported lifetime prevalence as high as 90% [2,3].

Risk factors contributing to these injuries include the repetitive nature of the necessary movements, the long hours of practice needed to perform well, and the awkward postures required to play certain instruments (such as the asymmetric, raised arms position of the violin) [4,5]. In addition to these physical factors, stress and anxiety have also been linked to playing-related injuries [6]. However, little is understood about the lived experience of musicians with injuries and how their work impacts this experience.

This paper explores findings from a qualitative research study examining the lived experience of injured professional instrumental musicians. During the analysis phase, the researcher identified three roles that described the lived experiences of the participants: musician, teacher and worker. This paper will explore the musicians' role as workers and the relationship between

this role and their experiences with playing-related injuries.

2. Methodology

The methodology used in this study was derived from the philosophy of hermeneutic phenomenology, influenced by the work on phenomenology of practice developed by Max van Manen [7]. This philosophy acknowledges that both the researcher and the participants are caught up in our experiences of the world and that this experience cannot be completely pushed aside when examining a phenomenon. The methodology used in this work drew from the philosophy of Merleau-Ponty [8], acknowledging that there is a phenomenon to be described, but that our only access to it is through our lived, embodied experience. Heidegger's views on hermeneutics [9] and Gadamer's dialogic views [10] also influenced this methodology in that the researcher is an active participant in describing and interpreting the phenomenon. The methodology acknowledges the importance of the experiences of the participants, but does not see them as experts who are an infallible source of knowledge about the phenomenon.

3. Methods

3.1. Participants

Ten adult, professional, classically-trained, English-speaking musicians in Ontario who had experienced physical playing-related injuries, either at the time of the study or in the past, participated in this study. Classically trained musicians were chosen in order to select participants with similar experiences, and due to the researcher's ability to recruit key informants from this population. The number of participants is consistent with Creswell's observation that phenomenological studies involve "as many as 10 individuals" [11] (p.131), Polkinghorne's recommendation of 5 to 25 participants [12], and Thomas and Pollio's recommendation of 6 to 12 participants [13].

Playing-related injuries are difficult to define, and there is no gold standard for their diagnosis [14]. Therefore, musicians who volunteered for the study were asked in the letter of information and during the interviews to self-identify as having experienced a 'playing-related physical injury'. It was felt that this term used

accessible language and would be well understood by musicians.

Defining the 'professional' musician is also challenging. The number of hours musicians play per week can vary. Some musicians who identify themselves as 'professional' might only perform as their primary source of income for part of the year, and for some their primary source of income might be employment other than performing (e.g. teaching in an elementary school). It was determined that the best approach was again to allow musicians to self-identify, by requiring identification as a 'professional musician' as a criterion to participate in the study.

The participants ranged in age from 28 to 59 years, with most (8) in their 50s. They performed on a variety of instruments: four played the violin, two the cello, one harp, one flute, one percussion, and one trumpet. All of the participants did freelance musical work, and for three participants, this formed the majority of their performance work. Four musicians performed regularly as part of an orchestra, and one performed in an orchestra part-time. All of the participants were teachers; five taught in formal school settings, four of those in universities and one in a private elementary school. All had started music studies by age 10, with the youngest beginning at age 4. Their injuries ranged from tendonitis to difficulties with orofacial musculature, arthritis and bone spurs. Although nine of the participants had not had complete resolution of their symptoms, all continue to identify themselves as professional musicians and continue to play.

3.2. Recruitment

This study was approved by the University of Western Ontario's Office of Research Ethics. Purposeful, snowball sampling was used in this study, as well as criterion sampling, in that all participants must have met the criteria outlined above. Initially, email contact was established with six people in the musical community in Ontario, including conductors, faculty members at a local university, musicians, and arts managers. In addition, two orchestras gave permission for the researcher to speak to the musicians and leave a letter of information for interested parties.

3.3. Interviews

In-depth interviews were chosen as a method of collecting narratives of the lived experiences of professional musicians with injuries. Interviews are com-

- Please tell me about a specific time when you were injured.
 - * How did it happen?
 - * When did it happen?
 - * What happened when you became injured?
 - * What was it like to continue working?
 - * What was it like to continue teaching?
 - * What was it like at home?
- What is it like to be an injured musician?
 - * How do you experience your body when you are injured?
 - * What does your body feel like?
 - * How do you experience time when you are injured?
 - * Is it faster, or slower?
 - * Do you feel that injury is related to age, experience?
 - * What are social relationships like when you are injured?
 - * What is it like at home?
 - * Can you describe the place you associate with being injured?
 - * Where do you experience injuries?
 - * Is there a place that is meaningful to you in relation to being injured?
- Did you seek out any help for your injury?
 - * Who?
 - * When?
 - * Why?
 - * What help did you receive?
 - * What was the process of seeking and receiving help like?

Fig. 1. Interview guide.

monly used as a data collection strategy in hermeneutic phenomenological research [7,15–18]. Van Manen described interviews as a means of collecting examples of lived experience, through which we can seek to understand the phenomenon in question.

Interviews were recorded and transcribed verbatim, and names were replaced by pseudonyms. Identifying information – e.g., names of healthcare providers; orchestras with whom the musicians’ perform – was removed from the transcripts. Two interviews were conducted with each participant with the exception of the last two. Giselle had a health concern just prior to the first interview, and initially cancelled the interview, providing instead a written account of her experiences. She later agreed to an interview. Since the researcher had already read the material from Giselle’s written account, and since the researcher had completed interviews with all other participants (seventeen in total), she was able to obtain all of the information needed during the interview. It was therefore felt that a second interview was not required. Thomas was also only interviewed only once. Again, this interview took place after all other interviews had been completed, so the re-

searcher was able to obtain all the information needed during the interview.

The interviews consisted of main questions about the experience of being an injured professional musician, with probes used as needed. The interview guide is presented in Fig. 1. Demographic information was collected as it arose in the discussion at the first interview (e.g. age the person began playing; current age; marital status). If it was not discussed in the first interview, further information was sought in the second interview. Using this information and through email collaboration with the participants, biographical sketches were developed for each participant to assist in contextualizing the interview data.

3.4. Focus group

Drawing from Gadamer’s focus on the importance of dialogue in accessing and interpreting the phenomenon [10], a focus group was used after interviews in order to engage the participants in a dialogue about the preliminary findings. After interviews were complete and initial analysis had begun, nine participants

were contacted by email about their availability to participate in a focus group. The tenth participant had very different experiences than the rest. Although differences are natural and important in focus groups, experienced focus group researchers feel that there does need to be a shared experience in order for participants to engage in a discussion (David Morgan, personal communication; Marlene Cohen, personal communication). One of the primary motifs that emerged from the interviews was a deep sense of frustration with the difficulties participants had encountered in getting help in the healthcare system. However, this individual had received almost immediate treatment with which he was very satisfied. Since this frustration was central to what other participants had experienced, it was felt that there would not be enough common ground with the other participants for a discussion. He was therefore not asked to participate in the focus group.

Focus groups have not been widely used in hermeneutic phenomenological work. Marlene Cohen, a nurse researcher, employs focus groups and feels that “people [do not] have trouble sharing in a group made up of people who share the experience” (personal communication). Other researchers have also used these methods in hermeneutic phenomenological research [19–24]. David Morgan advocates for their use to “‘give a voice’ to marginalized groups”, and in “‘applied settings where there is a difference in perspective between the researchers and [the participants]” [25] (p.266). Since the voice of the musician has thus far been relatively absent in the literature on musicians’ health, and because my perspective as a researcher and clinician is likely different than that of the professional musicians in this study, focus groups were an appropriate method for this work.

3.5. *Other sources of lived experience*

As recommended by van Manen, other sources of lived experience were used to interpret the findings [7]. These included the researcher’s own experience as a part-time professional musician (akin to participant observation), self-reflection and journaling, other phenomenological research, and works of art that can shed light on the experience and its meaning. In this study novels, poetry, films, television programs, and song lyrics were used to deepen the understanding of the lived experience.

3.6. *Analysis*

Analysis in this study employed a hermeneutic process of moving between the details and the broader concept of the whole until both can be seen simultaneously. This was initially outlined by Heidegger and developed for research application by van Manen [7]. This study was interested in not only a description of this phenomenon, but also the meaning of the lived experience, which is implicit in Heidegger’s work and more explicitly stated in van Manen [7]. The analysis was also influenced by Merleau-Ponty’s concept of the lived-body, since playing a musical instrument is an inherently embodied experience [8]. Finally, the analysis was guided by the data itself, with themes emerging from the importance that musicians placed on them as well as their resonance with the researcher, through dialogue during the focus groups, and in consultation with research sources.

3.7. *Reflective journal*

Journaling is a way of ensuring rigor in hermeneutic phenomenology, documenting the process of influence of the researcher and what is researched, and vice versa [26]. Throughout the research process the researcher kept a journal, documenting the development of thoughts about phenomenology, musicians’ injuries, and interpretations of the data. The journal included relevant quotes about readings or thoughts about information from web searches conducted to better understand issues mentioned during interviews, the etymology of certain words and expressions, and other ideas that arose. ‘Field notes’ were also collected, including aspects of the physical environment in which the interviews or experiences took place, body language, tone of voice, environmental distracters, and other pertinent information. They also included observations made during interviews and recruitment efforts. For example, when subjects were recruited from a local orchestra, the researcher remained afterwards to watch the rehearsal, and observations about the experience were recorded. Observations of the researcher’s own musical performance activities were also recorded.

3.8. *Peer consultation*

The researcher met periodically with a member of her thesis committee who had experience in qualitative methods. This member assisted in clarifying questions in the interview guide and in the interpretation of study results. She also assisted in structuring the information that was presented to the participants for the focus group session.

4. Findings

4.1. *The work of musicians*

Participants in this study discussed the work of being a musician. Some performed as employees of organizations, while others performed freelance in a variety of settings including social events (e.g. weddings) and clubs. The participants also spoke about the pay, working conditions and benefits to which they had access within the context of their experiences with injuries.

4.2. *Employee versus freelance artist*

Two basic philosophies of the work of the musician began to emerge during the interviews, and prompted a brief discussion at the focus group session. Those musicians who played in orchestras spoke about the challenges of that type of work; while other musicians, whose musical work did not consist of employer-employee relationships but rather more freelance work, spoke less about the challenges of the work and more about the intrinsic rewards of playing music. After the focus group session was over and the microphone was turned off, a conversation took place which reflected these differences between Simon and Elizabeth, whose experiences reflected the two extremes. Simon reflected that there was a time when he enjoyed playing and the artistic involvement with music much more than he had found recently performing with an orchestra. Elizabeth indicated that that enjoyment was a regular part of her own music performance. It appeared that the freedom and control of freelance work allowed musicians more choice in selecting the kinds of music they played, venues in which they performed, and musicians with whom they worked. Those musicians with the most freedom also had more non-performance work that provided their major source of income. Barbara reflected that despite the challenges of working in an orchestra, she still found something each day for which to “thank God for making me a [instrument] player.”

4.3. *Pay and benefits*

The participants discussed the low pay associated with being a professional musician. Simon noted that

this type of stress is counterproductive when trying to cope with an injury: “It’s more like a quiet desperation to recover from it [injury], because it’s your living, such as it is, I mean what else are you gonna do?” Nancy noted that many musicians do not have access to extended healthcare and disability benefits. Those participants who were associated with larger orchestras, however, did have access to sick leave, even if they were part-time members of the group. Simon also noted that “we’re not really talking about cut-throat business types and I know with our orchestra, when people have used up their sick services, there’s still that sense of compassion.”

4.4. *Working conditions*

Working conditions were discussed particularly in relation to risk of injuries and balancing other commitments. All the participants were also teachers, whether in their own private studios, through a university or in the grade school system. Mark indicated that orchestras tend to perform three different programs per week during the season; with rehearsals, this could amount to nine two-and-a-half hour ‘services’ per week. Simon sometimes had difficulty fitting in the fourteen students he taught at the university when heavier orchestra schedules were taking place. This schedule required musicians to acquire repertoire quickly and through efficient use of time so that, in Barbara’s words, “you don’t have to spend your whole life practicing.” In addition, Simon noted that too much personal practice can detract from stamina for a concert.

Although Robert’s performances with a pit orchestra (accompanying a live show) were much more frequent – sometimes six performances per week – this was balanced by the seasonal nature of the work, which complemented his schedule as a university teacher. Jacqueline noted that some seasons were quite busy in freelance work, such as Christmas, Easter and weddings in the summer. The financial reimbursement made it tempting for her to take on many commitments at a time, or some social engagements of four hours or more (e.g. weddings, parties). However, she reflected that those types of ‘gigs’ were a challenge mentally and physically: “Everybody’s sitting there eating their dinner, you know, clinking of plates and everything, and it goes on and on, and then by the end of it I feel pretty out of it.”

Working conditions can be exacerbated by demanding tour schedules and conductors. Simon noted that he first experienced difficulties with his embouchure

while on a ‘run-out’ – an engagement that requires travel, but is close enough to not require an overnight stay. He associated that injury experience with being tired from traveling. Giselle also illustrated the demands of orchestral life with anecdotes from a close friend who performs with an internationally renowned orchestra with which Giselle also used to play:

People are dropping like flies, you know. And it’s just overplaying, because there is just too much work. They treat you like a slave. . . . That’s what happened to her, the stress of the job, and she kept saying, “I’m a machine, I’m a machine, I hate being a machine.” But she was there in all those hard years of [conductor’s name] when it [orchestra] was really a playing machine like Japan, China, Europe, recording galore, like they’d be in a recording session for five days, they would be locked in that church, and then they’d get on the plane a week after and they would do Paris and London and you know, she says to me. . . . “the stress was horrendous.” . . . I always said “I want to have your job” and she always said, “you don’t want my job.”

Giselle also described the stress that conductors can place on orchestra musicians:

I had to deal with a very, very crazy conductor . . . and basically I had a breakdown there. It was very bad. Cause he played mind games and he knew who was vulnerable and he’d just put you down publicly and he would just make it so you can’t play anymore . . . that is the first time I experienced abuse, the first time in my life. It was very, very powerful.

Although Giselle’s experiences were unique within this group, they speak to the potential for working conditions to impact negatively on the level of stress experienced by musicians who are in situations – like an orchestra – where a person in a position of power, such as a conductor, can influence the environment of the work, and the schedule of work is beyond the musician’s control.

The financial situation of an employer can also provoke anxiety in musician-employees. Giselle explained the financial burden of stress and injuries in orchestras: “People are dropping, so they have to hire extras [additional musicians], and it costs a lot of money because these people [orchestra members who are off sick] are paid, they’re on salary, plus they have to pay all the extra people that are subbing [substituting] for them.” Barbara described her reaction to her orchestra’s finan-

cial difficulties: “My orchestra was going under. I had to do something, and I went into panic mode.” Through their experiences and the stories of other musicians in similar situations, these musicians demonstrated the potential influence of employer financial stress on their well-being.

4.5. *Social status and community support*

The participants also discussed the idea that performing music is not respected by the public, and perhaps not seen as a ‘real’ job. Jacqueline stated, “Once you decide to go to university for music and do a performance career, people are already raising their eyebrows and saying ‘how could you be doing something so frivolous?’ ” Simon’s comment reflected a similar sentiment: “I haven’t worked an *honest* job in my life. Except fifty cents pulling weeds for a neighbor.” Simon also discussed at length the lack of support (financial and audience attendance) in his community for the orchestra with which he performs. The issue of community support for music in general was also discussed during the focus group session. Jacqueline, whose work is mostly freelance, did not agree that her community did not support live music. Elizabeth, whose work is similar to Jacqueline’s, suggested that although the region is not as supportive as it could be, the response from the public varies according to the venue. Jacqueline agreed that this might better reflect the warm response she received when performing.

4.6. *Lived social relations*

4.6.1. *Social supports*

Many participants spoke about their interactive roles within their communities as either supporting or being supported by other musicians. Nancy described a sharing of information, stating that “different people have different advice. We trade exercises and stuff.” Jacqueline described the circumstances she experienced:

I know that not all musicians are comfortable talking about [injuries], but for me it was no big deal. I was having this issue and I thought ‘if anybody can provide suggestions at all, I’d be happy to hear them.’ . . . It felt like everywhere I went people were saying ‘yeah that happened to me too.’ . . . For me in talking with my musical peers about that, it was a shared experience that we could all really identify with each other about.

Participants also spoke about the culture of silence that appears to surround musicians' injuries. Mark spoke about a sense of camaraderie amongst musicians who have been injured, but that some are more open than others about their experiences. He himself has been quite open about his injuries, although he admitted that this was not a choice. He described himself as being 'out of the closet' because he was off work for an extended period and his colleagues therefore knew something was wrong. In contrast, he spoke about a colleague who preferred to keep this information hidden.

He just didn't want to talk about it, he didn't want people to know about it . . . people talk in the changeroom and you'd hear that he'd had the operation and stuff . . . you don't want to be going up to somebody in front of others until you really know how they feel about it [speaking to others about injury], cause a lot of people don't want people to know.

Mark did have strong feelings about the potentially damaging effects of the culture of silence that he said still persisted around the issue of musicians' injuries: "Come on, let's spread the wealth, I mean if people have it out there, dammit I wanna know what they are [solutions], and let's get over all this craziness about just keeping it hidden." Other participants were not as open with their experiences, and felt that health concerns were something they preferred to keep to themselves. Elizabeth stated:

I don't think they need to know. And I don't want to be a whiner or seem like a loafer, a crutch or something. And I don't want them to think, 'oh, she can't do it, she's got arthritis,' or something. . . . It's not a deep dark secret, but it's like a mole or something.

In describing a mole, Elizabeth appeared to be referring to something that would normally be hidden (by clothing, for example), and only disclosed in very private circumstances.

Some musicians were concerned about their perceived employability, should their injuries become public knowledge. Other participants indicated that some of their peers shared this fear, even if they themselves were not concerned. Nancy explained that in terms of discussing injuries with colleagues, "some people do, you know, and some don't, and I guess some people are afraid to talk about it 'cause they figure it might affect getting hired." Robert explained that he discussed injuries with some of his colleagues, but was selective about those to whom he discloses this information.

There's some people who I don't want them to know that I'm hurting. I'm not gonna jeopardize what somebody thinks of the way I might play and interpret it in light of 'well he's hurt,' you know. There's a certain sports analogy there I think. I mean you're not gonna tell the coach you're hurting or he's not gonna put me in.

Giselle had a unique experience among the participants of feeling that she was stigmatized by her peers because of her injuries.

All my friends quit calling me. And I'd go and sit in an orchestra rehearsal at [university] and I'd cry, and people would just put their stuff in their case and leave – it almost felt like I was contagious, you know? And I was writing letters to people, 'please call me, please be my friend, please,' and no.

These varied experiences of support (or lack of support) amongst the participants reflected the complexity of the lived social relations involved in being a musician with a playing-related injury.

4.6.2. *Relations with colleagues*

Some participants in this study spoke about the social aspect of music performance and its relationship to the lived experience of being an injured musician. For example, Jacqueline described how common injuries were among her university peers: "It felt like everywhere I went people were saying 'yeah that happened to me too.' . . . For me in talking with my musical peers about that, it was a shared experience that we could all really identify with each other." Mark spoke about a sense of camaraderie amongst musicians who have been injured, but that some are more open than others about their experiences. He himself has been quite open about his injuries, although he admitted that this was not a choice. He described himself as being 'out of the closet' because he was off work for an extended period and his colleagues therefore knew something was wrong. In contrast, as described previously, he spoke about colleagues who preferred to keep this information hidden. Thomas and Mark both noted that close relationships with colleagues could have its downside, and Barbara in particular felt that this closeness could at times be toxic in group situations. It should be noted that all of the participants in this study performed with other musicians some of the time, and for many of them, most of the time. Only certain instruments, such as piano, would typically perform regularly without accompaniment.

The shared nature of this experience was also reflected in the way the musicians approached care. Nancy and Robert had both sought treatment from healthcare professionals who were recommended to them by colleagues. Nancy had taken her student to see a physiotherapist that she herself had seen, and Giselle noted that her teacher took her to see a specialist that many local musicians had consulted.

4.6.3. *Relations with teachers*

Music teachers can have a strong influence not only on the technique used to play an instrument, but on the student's attitude towards and actions taken when injured. Jacqueline noted that her teacher's instructions were important in determining her response to early symptoms of injury. Her teacher had told her to practice a certain number of hours per day, and although she could not quite reach this goal and experienced significant pain, she still felt compelled to meet her teacher's expectations. Simon expressed discomfort during the focus group at the idea that his teacher might learn of his difficulties with injuries. Interestingly, other musician participants countered his fear with the idea that his teacher might not only be sympathetic, but might have some ideas about how to help Simon. Finally, Giselle described the response of her teacher when she became injured while at university. Her teacher inspired fear in most of her students, but reacted promptly to Giselle's injury by taking her to see a specialist who was able to help her continue playing.

The relationship with the teacher is an important aspect of lived social relations because it can influence whether or not students experience injuries. This is further discussed below under "health promotion".

5. Discussion

5.1. *Implications for healthcare*

Participants in this study indicated that they were frustrated by the lack of services that were readily available to treat musicians. The gap appeared to be centered around knowledge of the nature of and treatment for musicians' health concerns; the work of musicians, including physical demands of playing instruments as well as other work demands; and the importance of the occupation to the musician. In addition, low income and limited access to healthcare coverage contributed to the perceived lack of services this group of participants expressed.

5.1.1. *Need for healthcare*

Canadian census data from 2006 (the most recent available) indicate that the average income for musicians was \$14,439 (teachers in formal school and post-secondary institutions were not included in these data) [27]. Although the Canadian healthcare system is often described as a public system, some services are not covered. These include outpatient physical and occupational therapy, the majority of chiropractic services, and work-related injuries that pre-dated the person's status as an employee (e.g. injuries acquired in post-secondary training, or while the person was a freelance musician). Because of their low pay and the need for these types of services to treat work-related injuries, musicians would benefit greatly from access to extended healthcare and workers compensation benefits. However, the census data indicated that 53% of Canadian musicians were self-employed, and 42% worked part-time [28]. Many members of professional orchestras in Canada are also not defined as 'employees', and therefore do not qualify for workers compensation (Francine Schutzman, President, Organization of Canadian Symphony Musicians, personal communication). The findings from this study, census information and working conditions indicate a need for healthcare services for professional musicians in Canada.

5.1.2. *Restricted participation*

The World Health Organization's *International Classification of Functioning, Disability and Health* [34] described participation as "involvement in a life situation" (p.10). Musicians with injuries, like other injured workers, experience restricted participation. It appears that through a variety of strategies, including adapting playing techniques and schedules, the nature of work accepted, changing equipment such as chairs, and physical rehabilitation, the musicians in this study were able to continue to perform as professionals to a level with which they were satisfied. Unlike the medical advice that many musicians receive, "just stop playing and do something else" [35], it is important to reflect upon the fact that these musicians instead chose to implement adaptive strategies that allowed them to continue in their chosen occupation.

Moreover, the musicians in this study chose strategies that intervene at the level of their own practice time, and only minimally change their work of musical performance. For example, union rules require a break to be taken every 90 minutes of rehearsal time in a three-hour rehearsal, or an intermission for a concert over 90 minutes in length. Many of the participants in

this study indicated that they take breaks during their individual practice much more frequently, but none indicated these working conditions as a source of difficulty for them. This provides important insight into what may be seen by musicians as limits to adaptations that can be made to their work environment, and may represent a perception that is strongly socially ingrained and may or may not reflect the practicality of such changes.

Making changes to the occupation of music performance may not be possible in all cases. However, some musicians with playing-related injuries may prefer to explore the possibility of changes to their occupation as an alternative to decreasing or ceasing their playing-activities.

5.1.3. *Healthcare services for musicians*

Participants indicated that the healthcare professionals they dealt with appeared to lack knowledge about the work involved in being a professional musician, and of treatment methods for musicians' injuries. In order to address some of these potential shortcomings, a multi-factored approach is advocated, including healthcare professional education, referrals to professionals who already possess skills in the treatment of musicians, the establishment of associations to advocate for specialized skills, and publication of research and treatment approaches in peer-reviewed journals such as this special issue of *WORK*.

Most healthcare professional curricula lack specific training in playing-related injuries of performing artists, including musicians. This means that many professionals are unfamiliar with the specific postures, physical requirements, and nature of the work of professional musicians. As in any occupational assessment, observing the occupation itself is key to understanding these factors. Asking musicians to bring their instrument to an assessment or evaluating the work requirements in the workplace itself (home studio or rehearsal hall) are both important tools for the treatment of injured professional musicians.

Specific services for musicians with injuries are spread throughout Canada and are not widely advertised, with a few exceptions, such as the Al & Malka Green Artists' Health Centre in Toronto [36]. Musicians tend to rely on their colleagues and teachers for treatment advice, and when they do seek treatment, they generally consult these sources about where to seek treatment. This would suggest that the provision of healthcare services to musicians should include communication with musicians and music teachers through

large ensembles, unions, educational institutions, and via the Internet.

Participants indicated throughout the study that reliance on pain medication was undesirable, and that complementary medicine, including supplements, dietary and lifestyle changes, and exercise, were desirable forms of treatment for playing-related injuries. This suggests that the inclusion of complementary and alternative approaches to care are important modes of healthcare delivery for this group of musicians. In addition, the limited time available for travel and return appointments, in addition to limited funds or access to extended health benefits, suggest that local, economical treatment that encourages self-care is an appropriate approach for these participants. It also suggests that an Internet-based network of professionals organized by region would be beneficial for professional musicians.

The perspectives of the participants in this study were varied, and reflect the individuals who experienced playing-related injuries. These individual differences demonstrate the importance of adopting a client-centered approach to the care of musicians. A multi- or inter-disciplinary approach is also advocated when working with musicians with injuries. Healthcare practitioners also need to be cognizant of the potential importance for musicians to maintain occupational balance, which was highlighted by some of the participants in this study. This stands in stark contrast to what the author has observed in musical training as the encouragement to exclude other activities and pursuits in order to focus on attaining the highest level of achievement possible.

Finally, musicians' readiness to change is also important in achieving successful rehabilitation, since adaptive strategies, equipment and lifestyle changes must be acceptable to the client or they will likely be abandoned. Open communication and a deep understanding of the musicians' occupational context and personal investment in the occupation would be most helpful in providing recommendations for change.

5.1.4. *Health promotion*

It is believed that providing young musicians and music teachers with information about injury prevention is key to the advancement of musicians' health [37]. In addition, participants in this study indicated their desires to 'break the cycle' of musicians' injuries by providing information to their students and other young musicians about injury prevention and health promotion strategies. To this end, the "Health Promotion in Schools of Music" initiative was established in the

United States [38]. Such an organized movement for health promotion in schools of music does not exist in Canada. However, it is hoped that further research and discussion between schools of music, healthcare professionals and researchers, information about injury prevention may be incorporated into the curricula in Canadian schools of music. This would raise awareness about the risk of injuries with students and educators. It may also serve to encourage teaching, research and treatment partnerships in the communities in which the schools of music are located.

Training to become a musician can begin as early as the preschool years, depending on the curriculum [29, 30]. By the time musicians become professionals they have played for approximately 10,000 hours [31]. Visentin [32] noted that the musical community tends to place music teachers on a pedestal and treat them as infallible sources of information. In this current study, many of the participants noted that their teachers seemed to have lacked information about how to prevent and what to do about playing-related injuries.

Teachers may increase the risk of injury if they are not informed about injury prevention, do not recognize the early signs of injury, or encourage students to adopt risky practice behaviours. However, teachers may also decrease the risk of injury and improve the outcome of injuries if they are sensitive to healthy practice habits and early warning signs, and if they are knowledgeable about local practitioners who can help in the event of injury. There is evidence that music teachers who receive relevant training in music-specific physiology do make changes in their teaching, and that these changes subsequently benefit their students [33].

The findings from this study indicate that the work of professional musicians, as in many occupations, consists of many factors that may influence health. Musicians work in a variety of settings, both as employees and as freelance artists. All the participants in this study were also teachers, whether formally through schools or universities, or informally in their own home studios. Participants in this study described low pay and lack of access to extended healthcare and workers compensation benefits, which together contribute to a lack of access to timely and affordable care. They also described stressful working conditions and a lack of control over these conditions, both of which are associated with increased risk of occupational injury [39, 40]. A lack of recognition in society as providing an important service and a lack of community support also negatively impacted some of the participants in this study, although others found the support for their work to be a positive aspect of their work.

5.2. Limitations

Study limitations commonly addressed in qualitative work in the health sciences include issues like small sample size and the inability to generalize the results to the broader population. Small samples are quite common in qualitative research and in phenomenology in particular, because statistical representation of the population is not considered the goal of the work [7, 12, 13]. In phenomenology, detailed descriptions of the participants' experiences are sought in order to shed light on the nature of the phenomenon in question – in this case, the lived experience of being an injured professional musician. These detailed descriptions generally come from smaller samples, and as discussed previously, the number of participants in this study is consistent with recommendations for studies using hermeneutic phenomenological methodologies.

Regardless of the need for statistical representation, the gender distribution, age and the nature of the health concern in question are often provided for information in qualitative studies, in order to determine whether the findings are relevant for the reader's needs. At this time, statistics regarding the nature of health concerns in Ontario musicians are not available. Although more professional musicians in orchestras in Canada are men, the gender distribution amongst musicians in general is approximately equal (Statistics Canada, 2009). In this current study, there were six women and four men, which may represent a difference when compared to both Canadian musicians and orchestral musicians in Canada. The majority of the musicians in this study were between ages 50 and 60, which is also different than Canadian musicians as a group, which have a more varied age distribution. Lastly, it was noted that all the participants taught, whether in their own home studios or within the public or post-secondary systems. Although no statistical information is available with which to compare this result, anecdotally this is common amongst professional musicians in Canada.

The experience of the participants in this study may have been influenced by the different work that they did. Different types of work, for e.g., whether they performed primarily freelance or as employees, styles of music, e.g. jazz, world music, and classical repertoire, and the presence or absence of a non-performing 'day' job might have influenced their experiences. In addition, the different injuries experienced in this group might also have influenced their experiences as professional musicians. A musician who experiences a chronic injury related to playing, such as arthritis, might

have a different experience than a musician whose injury is more acute, such as lack of embouchure control. A more homogenous group of participants may have provided different experiences and influenced the researcher's interpretation of the lived experience. However, it is partly through viewing contrasting experiences that the researcher is able to understand the nature of the phenomenon [7]. It is felt, therefore, that the variations in the participants' experiences were in fact helpful in this study.

5.3. *Relevance*

In this work, the experiences of the ten participants, six of whom participated in the focus group, do not apply to every professional musician in Ontario, or even to those in the cities, towns, orchestras and ensembles represented by the participants. However, commensurate with the methodology, the insights gained from this deep exploration can be applied to sensitively developing healthcare interventions, health promotion programs, and music education that considers the value and the possibilities of those individual experiences.

Drawing again from the methodology developed for this study, it is this researcher's position that the reader is an active participant in developing an understanding of the lived-experience of musicians with playing-related injuries. In keeping with this view, readers should consider the information provided about the participants as well as their specific contexts outlined in the findings, and decide if the research applies to their area of interest or the individuals with whom they are working.

5.4. *Summary*

The work of professional musicians varies in terms of time demands, financial compensation, availability of benefits, and stress in the workplace. Musicians in this study who worked for formal organizations such as orchestras had little control over these workplace factors, while those in freelance work had greater control. The trade-off, as in many areas of employment, includes the security of the work and the availability of healthcare and disability benefits, which is particularly relevant for musicians with injuries. The musicians in this study indicated that greater control over their work contributed to their ability to avoid injuries, and to better manage injuries that did occur.

The findings in this study demonstrate a need for education about risk and prevention of injuries that could

be filled by healthcare professionals and by music educators. Health promotion that includes collaboration between these two groups, as has been advocated by Chesky, Dawson and Manchester [36], would help to change the culture of acceptance of injuries in music education and performance. The findings in this study also demonstrated a need for specialized care for musicians with playing-related injuries, with accompanying health professional training and research to support intervention strategies.

Census data demonstrate that Canadian musicians are vulnerable to health concerns not only as a result of the nature of their work, but also as a result of limited income and corresponding limited access to healthcare services. This may also reflect the circumstances of professional musicians in other nations.

6. **Conclusion**

At the end of this study, the playing-related injury of one musician was completely resolved, two were much better, three were the same and four had experienced setbacks in their health, with one being hospitalized for a concern related to injuries. Clearly, playing-related injuries are long-term in nature, and it is important that musicians develop individual coping strategies, which could include healthcare interventions, physical conditioning methods, prevention measures, and workload and stress management. Intervention by healthcare practitioners can provide assistance with these coping strategies, if the view of health taken is broad and includes education of young musicians and teachers about the risk of injuries and prevention strategies. It will also prove to be effective only if healthcare professionals understand the nature of the challenges experienced. It is hoped that studies such as this become more prevalent and begin to influence the practice and training of healthcare professionals to provide more "tactful" [41] care for this important and vulnerable population.

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Music Educators Journal 2010; 96; 28
DOI: 10.1177/0027432110370736

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What Music Teachers Can Do

By learning about research-based methods of prevention, you can help your students avoid playing-related injuries.

The risk of injury in musicians has been well established over the past twenty-five years. Concerns about the risk of becoming injured have been increasingly present in the music world. Research in performing arts medicine has demonstrated that approximately 25 percent of music students experience a playing-related injury.¹ Since musicians' musculoskeletal injuries are associated with several factors related to practice habits, music teachers can and should play a vital role in injury prevention.² In 2003, the National Association of Schools of Music (NASM), the accrediting body for degree-granting music institutions in the United States, adopted the following statement for its handbook: "Institutions should assist students to acquire knowledge from qualified professionals and authoritative medical sources regarding the maintenance of professional health and the prevention of performance injuries."³ Despite this statement, only a "handful" of NASM-accredited institutions have devoted resources to musicians' health.⁴ Even with these efforts, the basic question remains: What can music teachers do to prevent injuries? Although not widespread, prevention education programs have been developed and implemented for music teachers and students alike. For example, Claudia Spahn and her colleagues at the Freiburg Institute for Music Medicine demonstrated that their prevention education course for conservatory music stu-

dents was effective in improving several aspects of health and musicianship.⁵ Studies show that music teachers who learn about injury prevention do pass it along to their students.⁶ Many music teachers learn about injury prevention through contact with other teachers and musicians, attendance at workshops, and through reading articles. Our goal is to present evidence-based prevention strategies for music teachers that will assist in ultimately reducing these potentially career-threatening injuries.

Injuries among Musicians

Injuries to the upper extremity (hand, arm, and shoulder) are common in musicians.⁷ These include overuse problems, strains and sprains, inflammatory conditions (e.g., tendonitis, tenosynovitis), nerve compression problems (e.g., carpal tunnel syndrome), and other neurological conditions, such as focal dystonia. Instrumentalists also experience symptoms in the back and neck,⁸ but these have been less well described in the performing arts medicine literature. Temporomandibular joint disorder, which affects the joints between the jaw and skull, can be a concern for some, and others may experience skin disorders (e.g., violinists' neck). Musicians can also experience high levels of performance anxiety and other mental health concerns.⁹

Reported prevalence rates of playing-

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related injuries in instrumental musicians vary from 26 to 93 percent. It is difficult to know the true prevalence of these problems within the musician community because processes for definitive diagnoses have not been fully established, many research papers use different definitions or fail to define playing-related injuries, and many studies are fraught with methodological problems.¹⁰ In addition, there are vast differences in the frequencies of certain types of injuries between different common instrument groups (piano, upper strings, guitar, flute, other woodwinds, and percussion).¹¹

Risk Factors for Injuries

An important risk factor for playing-related injuries is the use of repetitive movements during extended hours of practice.¹² In particular, a rapid increase in practice time seems to predispose musicians to injury.¹³ This may occur when preparing for an important audition or performance or when beginning professional music studies. Stress and anxiety seem to be risk factors in acquiring injuries.¹⁴ In addition, stress has been shown to affect performance.¹⁵

Awkward body positions mandated by the shape and weight of the instrument, the technical difficulty of the repertoire, and playing unfamiliar instruments may also contribute to injuries.¹⁶ In addition, the total number of years playing may be a risk factor for playing-related injuries. For example, Yoshimura and her colleagues found that an increased number of years playing the piano was a significant predictor of pain in pianists.¹⁷

Perhaps most importantly in terms of the goals of this article, it has been demonstrated that taking breaks during practice sessions and doing a physical warm-up prior to playing may be related to a decrease in playing-related injuries.¹⁸ It has also been shown that student technique can be influenced by teaching students to be more efficient in their prac-

ting.¹⁹ The time intensity of a practice session can also be changed by students and their teachers.

Some risk factors are not modifiable. These include gender (women seem to be more at risk than men), instrument played (string players and pianists have higher rates of injury), age, and body mass index (BMI) (older musicians and those with a higher BMI are at an increased risk of injury).²⁰ In addition, hypermobility (double-jointedness) may be a risk factor, although it is important to note that hypermobility is more common in the musician population than in the general population. The relationship between hypermobility and injuries remains unclear.²¹

Many of the factors that contribute to playing-related injuries are related to playing behaviors, and these behavioral factors are modifiable. Students can be taught good playing habits that may help prevent future injuries. Therefore, it is important that teachers not only tell students what to practice, but show them *how* to practice. In the next section, we describe how music teachers can translate the research about suspected risk factors for playing-related injuries into good practice habits for students.

Prevention Strategies

The following are modifiable risk factors to consider for preventing playing-related injuries:

- Warm-up
- Breaks
- Posture, playing position
- Technique
- Repetition
- Pacing

Warm-Up

Many teachers advocate a musical warm-up, which is important in preparing the body and mind for performance. However, this can and should be combined with a physical warm-up. Students should

be advised against playing with cold hands in a cold room, for reasons of intonation and instrument care as much as for injury prevention. For wind players, deep-breathing exercises, focusing on lowering the diaphragm without raising the shoulders, can assist in preparing the body for playing. Long tones in a comfortable range are advocated to prepare the small muscles of the face and mouth. Students can then move on to short pieces of minimal technical requirement, or moderately paced scales and arpeggios. For pianists and string players, slow, comfortable playing (e.g., scales, arpeggios, or easy repertoire) is advocated during warm-up. String players may wish to use open strings where possible. Technically demanding material or techniques, such as octaves for the pianists and double stops for string players, should be avoided. For all instrument types, teachers should demonstrate an appropriate warm-up routine and advise students to follow this routine during all their practice sessions at home.

Stretching

The scientific literature about stretching in musicians is inconclusive. Athletic trainers in the past have claimed that stretching improves performance and reduces injuries in athletes; however, there is no conclusive evidence that stretching prevents injury in healthy individuals. It is safe to say that bouncing the limb during stretching (called “ballistic” stretching) should be avoided. There is some evidence that dynamic stretching (doing a movement that takes a joint near the end range of motion) produces greater benefits for high-speed movements,²² but this has not been applied to musicians. There is also evidence that stretching may reduce the sensations of stiffness and soreness when performing new activities.²³ If stretching is done, then the safest way to approach it is to go slowly and gently and to avoid any stretching that causes pain. It is helpful to adopt postures that are different from

those used in playing. For example, pianists can stand, lift the head and chin, and gently lean backward to extend the back. They may also turn their palms upward and extend their wrists and fingers. Keep in mind that it is not how far you stretch a muscle that counts; it is how long you hold it. Many musicians can create problems by stretching too forcefully, because they erroneously think that stretching more or stretching farther is better (e.g., “If stretching three times is good, then stretching nine times is better.”).

Breaks

We have found no specific research on how long and how frequently musicians should break. However, studies with nonmusician workers have shown some indication that taking breaks is helpful in

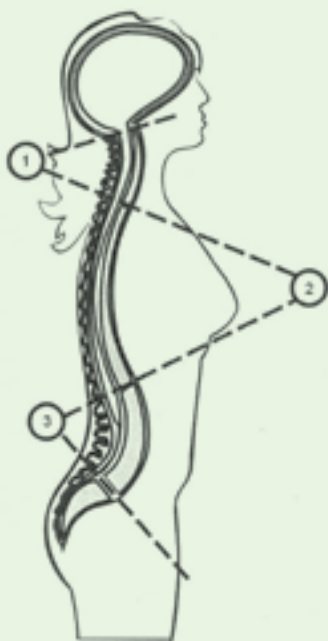


FIGURE 1

The three natural curves of the spine: (1) cervical, (2) thoracic, (3) lumbar.

Note: Adapted from Adalbert I. Kapandji, “Anatomy of the Spine,” in Raoul Tubiana and Peter C. Amadio, eds., *Medical Problems of the Instrumentalist Musician* (London: Martin Dunitz, 2000).

preventing injuries.²⁴ Students should be encouraged to incorporate two kinds of breaks into their practice routine: microbreaks, and breaks away from playing. A microbreak might consist of stopping for thirty seconds or counting rests when practicing a piece with accompaniment. For wind instrumentalists, counting rests can greatly increase perceived stamina for a long recital and may not only prevent injury, but may also improve students’ self-confidence.

Longer breaks away from the instrument should also be encouraged. Tubiana and Amadio write that “most music teachers suggest a five-minute break after thirty minutes of practice.”²⁵ However, clinical experience of the first author and research in occupational health suggests that this will vary significantly with the instrument, repertoire, and student familiarity with the piece.²⁶ This does not mean that students need to leave the room and forget about music. They should, however, change position and do an activity that does not involve the muscles or postures that are used for playing. For example, a pianist could stand up, do some gentle stretches,

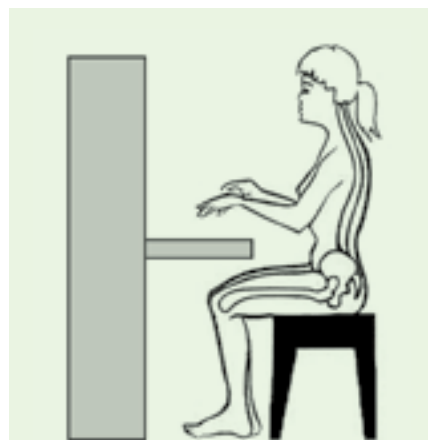


FIGURE 2

Piano-playing position. Pianists should maintain normal curves of spine when sitting at the piano.

Note: Adapted from Adalbert I. Kapandji, “Anatomy of the Spine,” in Raoul Tubiana and Peter C. Amadio, eds., *Medical Problems of the Instrumentalist Musician* (London: Martin Dunitz, 2000).

and visualize performing the piece at an upcoming recital. A woodwind player who was practicing standing could sit down and sing her part as mental rehearsal. Fingering parts while not playing is not a complete break, since the muscles of the fingers and posture of the hands, arms and body are still being used.

Playing Position

All instrumentalists should be aware of the natural curvatures of the spine, and maintain these normal curves when sitting or standing (see Figures 1 and 2). Posture should not be static, and students should be encouraged to move with the music and as required by the instrument (e.g., leaning the pelvis to the right to reach higher notes on the piano). When possible, instruments sized to the body of the student should be chosen, rather than expecting a child to “grow into” the instrument. Last, keep in mind the relationship between the sheet music and the student’s body posture. The height of the music may encourage poor posture if it is not level with the eyes (older students who use bifocals may need the music lower).

Parents need to be included in the education of the specifics of playing posture for children, so that this can be monitored at home. This could be done through inclusion of information about playing position in a teacher’s introductory letter, or in a course outline.

Sitting

When sitting to perform, musicians are often told to sit at the edge of their chair, and some tend to overextend the lower back in an effort to sit up straight. Sitting tall (shoulders down and back, chin not jutted out, not slouching) is important. However, in addition to the common slouching seen in many students, the first author has also observed hyperextension in the lower back of musicians who sit at the edge of their chairs. Both of these extremes can cause unnecessary tension and pain in the lower and midback. Whether at the edge of the chair or not, sitting posture should focus on maintaining the natural curves of the spine and

ensuring that the feet are flat on the floor (except in the case of pianists and harpists, who need foot mobility for pedals). The student's body weight should be evenly distributed through the buttocks, legs, and feet. Students should learn to fit themselves to their playing position and to check for common problems (sitting too close or too far from the piano).

Chairs should be relatively flat, not highly curved surfaces, parallel to the floor or tilted forward no more than twenty degrees (not tilted backward), and preferably lightly padded. The seat depth should stop one or two inches behind the bend of the knee. A solid back piece is preferred, so that students can use the backrest for support if needed. Pianists should use adjustable benches, and teachers should adjust the height for students to demonstrate the appropriate position. The height of the chair or bench should allow the student to sit with hips, knees, and ankles bent at right angles (ninety degrees), or slightly higher for use of foot pedals. Some health care practitioners advocate a slightly forward-tilting posture in order to promote a natural curve in the lumbar spine.²⁷ In both cases, feet and buttocks should be solidly planted to provide stability for the moving upper body parts. If necessary, a footrest can be used (e.g., phone book). It should be noted that the desirable characteristics of a chair are often not found in the folding chairs commonly used in school auditoriums or classrooms. Schools should consider purchasing stacking (not folding) chairs with flat seats at two or three different heights to accommodate various and growing body sizes.

Standing

When standing to play, the most common postural error is to lock the knees backward. This may cause slouching through the mid- to upper back and shoulder areas. Encouraging students to unlock their knees often corrects many postural difficulties, and can increase expression in the music if accompanied by gentle movement. Feet should be placed about shoulder width apart, with shoulders down and back, and the chin not jutted out.

Ergonomic principles teach us that

neutral joint postures are desirable for optimal functioning of the muscles and minimal injury. Wherever possible, teachers should examine students for extreme postures and see if they can be corrected (e.g., bent wrists should be straight; head should not be tilted forward). Figures 3 through 5 illustrate some common postural concerns and corrections that may be applied by teachers in lessons.

Repetition

While repetition is integral to performing music, it is also a risk factor for injuries. However, there are ways to reduce repetition that can include practice techniques that may benefit the student in ways other than simply injury prevention.

Smart Practicing

Smart practicing includes teaching students not to start at bar 1 and play through the piece, no matter what mistakes may be made, until the double bar. Students should practice short chunks of music (e.g., a few bars, a phrase) when learning a new piece. They can learn to be like detectives and try to find where problems arise in the music. (Is it fingering? Bowing? Uneven rhythm?) Problem areas should be practiced slowly until accurate, and only then should the tempo be increased, without compromising technique or sound. Muscle memory is involved in performing music, and it is important that the correct movements be learned so that they can be relied on at higher speeds.

Cognitive Rehearsal and Imagery

Mental (cognitive) practicing (practicing away from the instrument) can help reduce repetition, and can benefit the learning process.²⁸ Examples are learning the fingering of a scale on a table top first, then going to the piano; listening to recordings of the piece and studying the chord structure before playing it; and visualizing oneself practicing arpeggios, scales, or a piece. Research shows that visualizing a successful performance improves perceived self-efficacy,²⁹ and this in turn is likely to improve performance.³⁰ We also know that people who first visualize themselves performing

have better performances than those who do not.³¹

Guided imagery (imagining oneself going through all the steps in a performance, right through to a successful result) is an effective strategy for reducing performance anxiety and increasing confidence.³² Guided imagery can therefore be a powerful tool in students' preparation for performances.

Pacing

As mentioned previously, it is important that students not crash-practice before lessons, recitals, exams, and so on. The best strategy, as teachers know, is daily or almost daily practicing. Strategies such as keeping a practice chart or log can assist students with learning to practice. When an increase in practice time is needed, teachers can compare it to a crescendo (not subito), and encourage students to gradually increase the time in increments of ten to twenty minutes.³³

Some busy students who are involved in several extracurricular activities find it impossible to find a thirty-minute block of time to practice each day. Teachers can encourage these students to divide up their music "homework" into manageable small chunks of five or ten minutes (e.g., five minutes for scales here, ten minutes on a piece there, etc.)

Tension and Technique

Many musicians are aware that undue tension can cause long-term pain and injury. Although position is important in preventing undue tension, technique is also important. A student who is comfortable with scale patterns will approach scalic passages with less tension and therefore reduce the risk of injury in the long term. As teachers know, good technique also reduces the amount of repetition and time required to learn new repertoire. Teachers should work with students to develop technique at a pace that is achievable for the student and without overpracticing, while being alert to unnecessary tension. Regularly scheduled breaks and micropauses can assist students in returning to a relaxed, basic position for playing. Students should

FIGURE 3



Woodwind player sitting at the edge of the chair and demonstrating hyperextension of the lower back. Her knees and hips are not at right angles, and the music stand is too low.



By moving to the back of the chair and supporting the feet, the back is in better alignment and the hips and knees are now at right angles. The music stand was also raised.

FIGURE 4

Child at piano.



Child is seated too far away from the piano. Note the extended elbow and slight wrist extension.



Child is seated too close, and is compensating by bending over the piano at the neck. Note the elbows are too bent.



Good position. The elbows are at right angles, and the wrists are straight. The child is able to sit straight and maintain normal spine curves.

FIGURE 5

Small child at the piano.



Child is seated too low due to his small stature. Note the elbows are too bent and the wrists are below the keys.



The adjustable bench was raised and a stool placed under the child's feet. Note the elbows are now at right angles and the wrists are straight.

Additional Resources for Healthy Playing

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be encouraged to be aware of common areas of tension, such as hiking the shoulders toward the neck or clenching the jaw, and learn to focus on relaxing these areas whenever they are taking breaks or micro-pauses. This is particularly important when preparing for recitals and other potentially stressful circumstances. Diligent attention to these practices over time will pay off when relaxation becomes an unconscious part of the student's routine.

Cool-Down

Although no research can be found to support the use of cool-down as a preventive measure, given the athletic performance of playing a musical instrument, it seems prudent to recommend it. Both musical and physical cool-down activities are important. As recommended for

warm-up, long, slow tones in an easy range are recommended for winds, and slow movements are recommended for players of all instruments. If stretching is done, students can also stretch after a practice or performance session.

If an Injury Occurs

Music teachers do not need to become experts in performing arts medicine to provide sound advice to their students to help prevent the all-too-common injuries that many will face throughout their careers. The strategies presented in this article are simple to incorporate into lessons or classroom instruction, and are unlikely to do any harm. However, teachers may sometimes be approached by students in need of help with an injury. Teachers should not diagnose their students' injuries, but may find it helpful to inform themselves about local services and qualified healthcare practitioners that can help students recover.

There are four basic symptoms of playing-related injuries that should be investigated by a health care professional. Pain should be avoided during playing at all costs. Although some pain may resolve without complications, it is an indication that the player has pushed the body too far, and changes need to be made. Numbness, tingling, or a sensation of "pins and needles" may be an indication of nerve involvement. Persistent lack of control of a finger, hand, or arm may signal a condition known as focal dystonia. The appearance of an unexplained bump might be related to a ganglion cyst (a benign outgrowth of the joint lining). All of these symptoms should be investigated and professional treatment sought in order to prevent the issue from becoming more difficult to diagnose and treat.

Teachers Are Instrumental

This article has provided guidance for music teachers on measures that can be taken to help prevent students from sustaining playing-related injuries. Teachers can be instrumental in instilling the practice habits, postures, and techniques that can help to sustain students through a lifetime of music enjoyment. We also

hope that this article will help to increase the awareness of the risk of injury within the music education community and thereby promote wellness for generations of musicians to come.

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