

## MINDING THE GAP Overcoming the Strains (& Sprains) of Psychosocial Contributors

By Robert Pater

**It's easy and understandable for any of us to default to what we've experienced. And, like everything else, this can work both toward and against high performance.**

**Robert Pater** is managing director and founder of MoveSMART ([www.movesmart.com](http://www.movesmart.com)). Clients include AdvanSix, Amtrak, ArcelorMittal, BHP Billiton, BMW, BorgWarner, BP, Cummins, Domtar, DuPont, Hawaiian Airlines, HD Supply, Honda, Keolis, Kloeckner Metals, Marathon Oil, MSC Industrial Supply, Nissan, ONE Gas, Rio Tinto, United Airlines, U.S. Steel and WestRock. Pater is a professional member of ASSP's Columbia-Willamette Chapter.

**This applies to high-level leadership** as well as to safety performance, specifically to significantly and sustainably reducing soft-tissue injuries.

Why the upside and downside? Sure, experience generally paves a pathway, making it easier to duplicate previous successes. But experience can also limit perception that directs planning and execution. Is this one of the reasons even smart leaders get into ruts or peak out on diminishing returns after initially promising results?

I'm a big fan of applying persistence to move through, over, under or around difficult barriers, that is, when persistence is combined with patience and watchful mindfulness. Sticking to it and not giving up too easily is a high-level leadership essential. But persistence mired on autopilot can be a detriment.

Take soft-tissue injuries, the bane of many companies' safety performance, the all-time, number one source of lost-time/compensable injuries and still standing, according to Liberty Mutual (2021) and Bureau of Labor Statistics (n.d.). These are an injury source that may also account for lowered productivity and even losing difficult-to-replace workers.

It's easy to, by default, assume that musculoskeletal disorders (MSDs), which can also include fractures and dislocations but are most commonly associated with strains/sprains as well as some nerve entrapment syndromes, mostly result from overexertion, mechanical overload, moving too much or too bulky objects. To prevent impediment and injury, many leaders predominantly attempt to first catalog, then control physical risk factors—those associated with lifting (one- and two-handed), carrying, bending, kneeling, pushing, pulling, wrenching or torquing, using tools, climbing, assembling, being stationary or sitting too long, clamping, standing, reaching, twisting—with weight, repetition or other methods. You know, the range of pretty much every movement (and lack of enough varied motion). Many leaders do not consider or give shorter shrift to nonphysical contributors. But even with the strengths of this approach, companies are still tenaciously hurt by rafts of MSDs.

### **The Einstellung Effect: When a Leader's Strength Can Also Become a Weakness**

Call it jujitsu leadership. Experience is great when strategic leaders avert its negative aspects. For example, you're likely aware of many cognitive biases (e.g., confirmation bias, cognitive dissonance, Dunning-Krueger effect, Halo effect) that

can cloud thought or act as blinders to accruing accurate information for improving planning and execution. This may be related to what, until recently, was a type of cognitive bias I hadn't previously considered: The Einstellung effect, or "the counterintuitive finding that prior experience or domain-specific knowledge can under some circumstances interfere with problem-solving performance" (Ellis & Reingold, 2014).

Or, as described in an article subtitled, "What You Already Know Can Hurt You":

Einstellung is a German word that translates to setting, mindset or attitude. The brain attempts to work efficiently by referring to past solutions without giving the current problem much thought. It's stuck in a mindset. We apply previous methods to a seemingly similar problem instead of evaluating the problem on its own terms. *This effect presents across disciplines and skill levels. Whether or not we know it, we all experience it [emphasis added].* (Arra, 2021)

In essence, when taken too far, one's strength becomes one's weakness. For example, Ellis and Reingold (2014) attribute many faulty medical diagnoses to the Einstellung effect. Or, according to Brufsky et al. (2020), it's frequently referred to in medicine as "if it walks like a duck, it's a duck."

Burkeman (2014) says:

When doctors make errors, it's been demonstrated, it's likely to be because they jump to conclusions based on past patients, not because they lack medical knowledge. If you were choosing between doctors, you'd surely never choose the less experienced one. Yet sometimes it's precisely experience that gets in the way.

(I have close friends who almost lost their young son when doctors wrote off as constipation what were actually symptoms of a rare form of blood cancer. The mother is a nurse who persisted in pushing for tests her boy's doctors didn't think necessary from their experience but were. He thankfully survived and is in remission, but, due to the delayed diagnosis, had to undergo extreme treatments that have weakened several of his systems more than 10 years later.)

Regarding the Einstellung effect, Burkeman (2014) quotes renowned economist John Maynard



The Einstellung effect is like being mentally self-entrapped in a box constructed from the beams of our previous experiences. This can apply to company leaders who've achieved some improvements but then become reluctant to consider other approaches when they reach a diminishing return of performance.

Keynes: "The difficulty lies not in the new ideas, but in escaping from the old ones." Arra (2021) notes:

The Einstellung effect occurs where pre-existing knowledge impedes one's ability to reach an optimal solution. We become unable to consider other solutions when we think we already have one, even though it may not be accurate or optimal. It leaves us cognitively incapable of differentiating previous experience from the current problem.

### How Einstellung May Affect the "Soft Side" of Safety

The Einstellung effect is like being mentally self-entrapped in a box constructed from the beams of our previous experiences. This can apply to company leaders who've achieved some improvements but then become reluctant to consider other approaches when they reach a diminishing return of performance. Arra (2021) suggests this is akin to Voltaire's "Good is the enemy of great." I've seen the same phenomenon as companies move up through levels of safety culture and become gummed down at "good enough." Specifically, I've noticed this especially prevalent with hand safety, slips/trips/falls and, in this case, soft-tissue injuries. Reflexively defaulting to same-old solutions that once but no longer move the needle toward ever-greater improvement.

How might this specifically work with soft-tissue injuries? Many leaders approach these pervasive problems in similar ways: designing out physical ergonomic risks, restricting at-risk actions, purchasing purportedly safer tools and equipment, creating policies and procedures (e.g., rotation, enlargement, lifting limits and other ways to place a lid on exposures) for reducing incoming physical forces that could otherwise wear people down. Essentially, taking a mechanical approach to the human body. And, to its credit, this approach has likely helped reduce or prevent injuries in numerous situations over many years. But, like all else, it has limits.

So, why do many, by default, focus on physical contributors to MSDs? Perhaps because:

- Physical forces are more concrete, visible and tangible than psychosocial ones such as work satisfaction, supervisory support, liking or disliking a job, or relationships with coworkers. And the pain and discomfort associated with soft-tissue injury are difficult to quantify, vis-à-vis pain thresholds can vary significantly.
- Some leaders tend to give short shrift to nonmechanical contributing factors, discounting the impact

of psychosocial contributors as "soft" or even "phony" (e.g., "She's just looking for a way out, to bail"; "He just has a low pain threshold"; "He's just faking").

- Physical contributors that are job specific or work related are potentially easier to isolate, identify and control than psychosocial forces that may at least, in part, emanate from off-work sources.

- Physical contributors are easier to monitor, understand and discuss, whereas psychosocial ones are more internal and may skirt lines of being too personal or stepping over confidentiality.

Too often, organizations that measure psychosocial risks may rely on subjective self-reporting, whose accuracy depends on self-awareness, honesty and willingness to trust management.

Physical interventions for physical contributors are also easier to count and measure (e.g., number of lifting aids provided) than are engagement or peer-to-peer support.

But what's easier to see and affect does not necessarily equate to being maximally effective. And many experienced safety professionals have privately indicated, "We've picked off the low-hanging fruit" of cost-effective ergonomic and other physical controls, yet their companies still suffer high levels of soft-tissue injuries.

Just because you can't readily see certain forces does not mean they aren't adversely affecting people (e.g., radiation, chemical exposures, noise above or beyond the range of hearing, magnetism). What you don't see you can't recalibrate, compensate for or otherwise better control.

### Minding the Impact of Psychosocial Forces on MSDs

MSDs are personal injuries (contrasted with those associated with machine malfunctions, chemical and other exposures and more). Therefore, it makes sense to me that these safety problems must be addressed, in part, in personal ways, in addition to applying external fixes and limitations (which are also critical to maintain).

For years, several occupational physicians have been documenting the relationship between lower back pain (a prominent symptom of many MSDs) and mental and emotional reactions. Table 1 (p. 16) shows findings of the observed and reported associations with lower back pain.

I had the honor of Frymoyer sitting in on one of my day-long seminars, during which he pointed to the relationship between lower back pain and adverse mental and emotional reactions. He told me he found

attitude to be a critical determiner of people's reactions to lower back pain: "A major factor is a victim's perception of their own job; do they like it or not?"

Many safety leaders promote early injury reports as a means for unearthing contributing factors for prevention and early intervention toward forestalling chronic and more severe injuries. A 4-year physician-driven study specifically examined the link between reports of back pain with psychosocial factors (most prominently job satisfaction) in an industrial environment (Bigos et al., 1991). The researchers said their findings "emphasize the importance of adopting a broader approach to the multifaceted problem of back complaints in industry and help explain why past prevention efforts focusing on purely physical factors have been unsuccessful" (Bigos et al., 1991). So, according to these medical experts, organizational leaders must look beyond just physical contributors if they strive to make a dent in soft-tissue injuries.

Moving toward the realm of preventing these pervasive injuries, the works of Frymoyer et al. (1985) surface the question I suggest leaders consider: Does

the inverse also apply? Might baseline or initial attitude, mindset and mental state also make someone more likely to have a soft-tissue injury?

The Bigos and Frymoyer studies are admittedly several decades old. But does anyone arguably contend that there is less stress and pressure on people now? Consider a much more recent review published by EU-OSHA that provides an overview of 53 published studies on the firm links between soft-tissue injuries and psychosocial risk factors (Graveling et al., 2021). (I've also been aware of such connections from almost 4 decades working with numerous organizations worldwide to prevent such injuries.)

Neither this report nor I suggest that stress and other psychosocial risks are the main cause of strains and sprains. Just that they can pose a significant contributing factor. The report notes:

It is clear that both MSDs and workplace stress continue to present major problems to workers and their employers, leading to significant personal, financial and social costs. Given the recognized relationship between the two, it seems likely that their interactions further exacerbate the problem. (Graveling et al., 2021)

In summary, here's what the EU-OSHA report found:

- There's no doubt that stress and other psychosocial factors contribute to soft-tissue injuries:

Psychosocial risk factors can combine with physical risk factors to cause MSDs. The review demonstrated that there is clear evidence that psychosocial risk factors play a causal role in the development of MSDs in the workplace. They do not act in isolation but their effect combines with (and often exacerbates) the effects of physical risk factors. (Graveling et al., 2021)

- The exact relationship, while it clearly exists, is difficult to pin down:

The associations between psychosocial and physical risk factors and physical risk factors and MSDs identified in the research literature are many and varied; however, it is not possible to identify consistent patterns in those associations. Thus, although factors such as high workload or a lack of social support can be shown to contribute to the development of MSDs, it is not possible to relate these or other particular psychosocial risk factors to specific MSDs. (Graveling et al., 2021)

- This impacts many kinds of people in numerous industries:

There was no evidence to suggest that particular groups of workers were more susceptible to developing MSDs, although certain risks were more often encountered in specific sectors, placing those working in those sectors at greater risk from the influence of psychosocial factors. (Graveling et al., 2021)

**TABLE 1**  
**EMOTIONAL REACTIONS TO LOWER BACK PAIN**

**Findings of the observed and reported associations with lower back pain, from a study by Frymoyer et al. (1985). Each subject was evaluated for prior and current low-back pain complaints by use of a modification of the McGill pain questionnaire. Subjects were then categorized as having no low-back pain (n = 106, 33%), moderate low-back pain (n = 144, 44.8%), and severe low-back pain (n = 71, 22.1%). Subjects were further subcategorized as not disabled (defined as 7 or fewer days of work lost during the previous year) and disabled (more than 7 days of work lost during the previous year).**

Symptoms/reaction	Percent exhibiting/reporting		
	No symptoms	Nondisabling lower back pain	Disabling lower back pain
Unhappy	5.2	10.1	30.0
Hopeless	8.0	12.4	33.0
Worried	15.6	32.8	55.0
Scared	7.4	18.3	30.0
Nervous	11.2	26.5	36.8
Annoyed	32.3	54.3	55.0
Temper outbursts	8.0	18.7	31.6
Lonely	21.1	23.5	35.0
Touchy	7.8	14.8	15.0
Hurt	4.2	8.6	15.0
Unsympathetic	9.1	13.9	50.0
Headaches	6.1	20.0	30.0
Sleep disturbances	28.3	52.1	80.0
Dissatisfied with medical care	79.1	78.9	60.0
Feels handicapped	0.0	5.3	50.0
Feels miserable	6.1	23.1	60.0
Alcohol and drug abuse	7.1	7.0	15.0
Had nervous breakdown	3.0	1.1	10.5
Needs psychiatric help	8.9	8.2	15.8
Requires counseling	8.6	12.8	35.0

**Note.** Adapted from "Psychologic Factors in Low-Back-Pain Disability," by J.W. Frymoyer, J.C. Rosen, J. Clements and M.H. Pope, 1985, *Clinical Orthopaedics and Related Research*, (195) (<https://pubmed.ncbi.nlm.nih.gov/3156708>).

•Stress and soft-tissue injuries are like chicken and egg:

Importantly, the negative association between psychosocial factors and MSDs can work both ways. Such factors can materially contribute to the causation of MSDs, but having an MSD can exacerbate or accentuate the perception of some psychosocial factors. This is of particular potential importance in influencing the chronic nature of some MSDs; it can be an important potential barrier to successfully rehabilitating those workers with an MSD and bringing them back into the workforce. (Graveling et al., 2021)

•When leadership is effective, psychosocial factors can also have positive impacts on safety: “Furthermore, the effects of some psychosocial factors are not necessarily negative. Some factors can have a positive effect. For example, there is evidence that good job control can mitigate the otherwise negative effects of high job demands” (Graveling et al., 2021).

The findings in this EU-OSHA report are not limited to Europe. I’ve read numerous North American reports and medical, double-blind studies going back decades citing the impact of psychosocial factors on soft-tissue injuries.

### **Stressing Soft-Tissue Safety**

Stress is a common psychosocial risk contributor to MSDs. According to the EU-OSHA report, “Work-related stress is seldom the sole cause of such problems, but there is evidence that it can at times make a significant contribution” (Graveling et al., 2021).

It might help to put the term “stress” into context. For background, some time ago I coordinated a hospital-based stress management center (working with teams of psychiatrists, physical therapists, occupational therapists and other medical professionals); while that doesn’t make me a final authority, it did further open my vistas to a world of medical and other information about this topic. Hans Selye (1978), called the father of stress management, describes stress as the internal response to stressors, which are pressures from the external environment. So, it’s possible (and you likely know some who exemplify this) to have minimal outside pressures, yet be self-reportedly stressed and exhibit associated mental, physical or emotional responses. Vice versa, some more high-functioning people may operate in high-demand environments, yet are able to remain calm, sleep well and stay in control of themselves and their reactions, even as stuff is “hitting the fan.”

And control is the key. I’ve found that when people indicate they’re stressed, they’re generally equating this with a feeling of being out of control. You know, not being able to sleep though dog-tired, not eating healthily even when knowing better, not being able to stop oneself from doing or saying self-defeating things even though a little internal voice tells them, “don’t do it” or “don’t say it.” Stress may include feeling mentally, physically or emotion-

ally out of sorts or out of control. Conversely, most rarely report they’re stressed from not being able to fall asleep out of anticipation of a wonderful activity early the next morning, even with being tired. But when it’s a real choice—a good one—most feel in control, rather than stressed.

Stress can lead to both physical and mental consequences. The physical reactions are termed “arousal”: galvanic skin response (excess perspiration), heart beating faster, breathing rate accelerating, the adrenaline spigot (sometimes in overdrive) while the immune system simultaneously shuts down.

Mentally, stress typically results in attention narrowing, often to tunnel vision, where focus beams in to the extent that overall perception can suffer (reducing peripheral vision). In other words, not being able to see the forest for the trees, not seeing what’s in front of you (or even what you’re holding). This includes, but can go beyond, being less able to perceive risks or to see the scissors lift that’s just off to the side. It also can result in diminished decision-making, narrowly plowing ahead with a risky load rather than being able to recall options for safe methods that might help avert an acute incident or reduce the accumulation of physical strain.

So, if you concur with my definition that stress is the feeling of being out of control, any work intervention that offers opportunities for workers to take any additional control of themselves is both stress-reducing and likely soft-tissue injury preventive. This is the theme of another EU-OSHA (2021) research review which cites several case studies attesting to the effectiveness of engaging workers in the design and selection of ergonomic tooling and more. We’ve seen the impact of high engagement (which translates into a higher sense of control) in our work of almost 4 decades worldwide.

Note that psychosocial risk factors for MSDs also go beyond stress. They include mindset (how a person approaches tasks, assumptions they make, their expectation of time needed to complete tasks and more) and mindfulness (noting what is uniquely occurring in the moment they are lifting, pushing or pulling). This includes one’s ability to check in with their current state of readiness or physical restrictions to then make needed adaptations and much more. See any of my articles on these topics for more info.

### **Safely Redirecting Psychosocial Contributors for Tangible, Sustaining Injury Prevention**

Arguably, many soft-tissue injuries are cumulative in nature (though specific numbers are estimated and vary). We’ve all likely seen or heard of someone who “threw their back out” (soft-tissue lower back pain or injury) by doing a relatively insignificant activity that they’d performed hundreds, perhaps thousands of times before, such as picking up a piece of paper off the floor, bending over to tie a shoelace, getting out of bed, turning slightly to one side and more—like “the straw that broke the camel’s back.” At very least, cumulative tension may create weak spots that later actions send over the edge into an MSD.

To achieve and sustain next-level improvements in safety performance, be sure to monitor psychosocial contributors in your company as well as physical ones, then take steps to redirect these potential detractors.



If mundane daily activities can indeed accumulate toward a soft-tissue injury, doesn't it also make sense that monitoring and more mindfully performing these same motions can make it less likely that tensions/trauma might build to the point of injury? This isn't theoretical, and one doesn't have to be a Zen master to get better at moving naturally and more efficiently with less tension. It just takes learning principles and some practice and is actually self-reinforcing (as people feel more in personal control almost immediately upon trying certain methods).

Here are 11 practical, proven strategies for re-directing psychosocial factors toward greater soft-tissue safety. This reflects a lifetime of work, fostering significant and sustaining injury reductions by melding tangible physical and mental prevention methods for individual internalization of safety along with cultural/leadership integration. These are a few keys we've discovered.

1. Approach personal soft-tissue injuries personally through positive motivation. Rather than communicate, "Do this so you don't get hurt (even if you don't believe you will)," offer benefits to them. For example, we've seen the power in discussing how soft-tissue safety methods can provide immediate improvements (e.g., balance, strength and energy reserves, getting better at favorite sports and hobbies).

2. Help workers and managers develop safety-positive default habits by applying methods to off-work activities (which will also help reduce cumulative trauma otherwise carried into the workplace). Discuss ways that ergonomic principles and methods can help employees and family members more easily perform daily at-home activities, such as pushing/pulling grocery carts, doing home chores and more, and how ergonomic or cumulative thinking can help them make better (safer, more comfortable) purchasing decisions.

3. Encourage small changes, rather than attempting overwhelmingly large ones. The smaller the change someone tries to make, the easier and more likely they'll try and accomplish it.

One way that leaders can help is to support cumulative thinking, moving away from a swing-for-the-fences or get-rich-quick mentality and toward understanding that continually applied small decisions and actions can lead to much greater success with less stress. This can occur whether in finances (saving even small amounts regularly), relationships and very much so in safety. On the flip side, the potential for MSDs may be considerably reduced

by avoiding small amounts of tension buildup during daily work and home activities.

Language can help set the tone. Move away from talking about what *caused* an injury (implying that there's one simple cause) to what *contributed to* an injury and what small actions one could take to keep oneself more in control and safer.

4. Incorporate methods to boost self-control of their work. Where feasible, allow workers to personalize their work areas (e.g., force-absorbing shoe inserts, padding surfaces where appropriate, moving PPE to where it better suits them) and encourage them to personalize work methods. It's likely that a small-stature 52-year-old worker with preexisting conditions may safely accomplish a task differently than someone who is much larger, age 25 and without preexisting conditions.

5. Develop policies and procedures that also reflect psychosocial risk factors such as enhancing team communication and informal peer-to-peer support. Cooper and Marshall's large body of work dating back to 1978 has revealed the important role of social support (manager-worker, supervisor-worker, worker-worker) in reducing dysfunctional and distracting work stress and building stronger safety and organizational culture (Cooper & Marshall, 1978).

6. Tap the power of discovery (e.g., new ergonomic methods, techniques, tooling, procedures) rather than just mandating these. We've universally found that discovery ("Does this work for me?" "How can I best adapt it for myself?") reduces pushback, enhances control, boosts buy-in and tends to be self-convincing.

7. Engage workers in the design and selection of new equipment, including piloting potential prototypes of new tools. According to EU-OSHA (2021), "Participatory ergonomics approaches bring benefits by raising awareness of ergonomic risks in the workplace and by encouraging and enabling the workforce to assess risks and find solutions through their collaborative efforts."

8. Enlist workers through selection, strong training/preparation and providing opportunities to become peer agents of improvement in ergonomic methods to train, coach and reinforce coworkers for manual materials handling, as well as for efficiently accomplishing a wide range of tasks. We've been doing this worldwide throughout our existence and have found that, when combined with eliciting managerial buy-in, this grassroots approach can lead to eye-popping improvements in both MSD reduction and safety communications and culture.

9. You don't have to talk about stress specifically in those terms to help reduce dysfunctional stress. "Stress" can be a loaded term some would prefer to avoid, concerned that it might open a can of private worms. But recognize that any intervention that helps people become more in control of themselves is, in essence, a stress-management method.

10. Transfer easily/quickly learned methods for transferring forces away from vulnerable body areas before these build into cumulative trauma impediments. Many of these techniques are founded on ways to improve physical balance and by reducing unneeded over-tension or overexertion.

11. Incorporate mental MSD-prevention skills along with physical ones. Attention control is vital, both to reduce negative stress as well as to better scope out potential risks (e.g., sampling loads before moving them, seeing potential slip/trip hazards on the ground that might otherwise result in balance loss that then leads to MSDs from bodily reaction or overexertion).

Share skills for improving control of attention and what to do when someone can't easily "leave their work at work and home at home" to make it less likely that inattention results in incidents.

We've found it essential and highly effective to transfer skills in quickly learned self-monitoring, which pays back threefold: 1. It helps to note, then reduce tension buildup before it leads to cumulative trauma disorders; 2. It reduces applying excessive use of force to overt overexertion injuries; 3. It "lowers the radar," making it easier to perceive even small elevations of tension buildup in vulnerable body areas before they accumulate into injury. Our experience is that self-monitoring leads to self-reinforcing personal safety.

## Leading Simultaneous Change

Overcome becoming "Einstellung-ed." It's not either-or or even primary-and-secondary influences. It's clear that both physical and psychosocial factors simultaneously and interactively contribute to pervasive soft-tissue injuries. To achieve and sustain next-level improvements in safety performance, be sure to monitor psychosocial contributors in your company as well as physical ones, then take steps to redirect these potential detractors. Doing so can simultaneously prevent tenacious soft-tissue injuries and considerably elevate your overall safety culture. **PSJ**

## References

Arra, S. (2021, May 17). Einstellung effect: What you already know can hurt you. Exaptive. <https://bit.ly/3Nw1sGp>  
Bigos, S.J., Battié, M.C., Spengler, D.M., Fisher, L.D., Fordyce, W.E., Hansson, T.H., Nachemson, A.L. & Wortley, M.D. (1991). A prospective study of work perceptions and psychosocial factors affecting the report of back injury. *Spine*, 16(1), 1-6. <https://bit.ly/3t4cn2D>  
Brufsky, A., Anders, C.K., Kaklamani, V., Murthy, R.K. & Pegram, M.D. (2020, June 29). Guidelines and approaches to HER2 testing for breast cancer [Video]. OncoLive. <https://bit.ly/3wwesof>  
Bureau of Labor Statistics (BLS). (n.d.). Injuries, illnesses, and fatalities. [www.bls.gov/if](http://www.bls.gov/if)

Burkeman, O. (2014, Nov. 14). Don't get caught in the monkey trap. *The Guardian*. <https://bit.ly/3Pl9PX8>

Cooper, C.L. & Marshall, J. (1978). Understanding executive stress. Palgrave Macmillan.

Ellis, J.J. & Reingold, E.M. (2014). The Einstellung effect in anagram problem solving: Evidence from eye movements. *Frontiers in Psychology*, 5, 679. <https://doi.org/10.3389/fpsyg.2014.00679>

European Agency for Safety and Health at Work (EU-OSHA). (2021). Participatory ergonomics and preventing musculoskeletal disorders in the workplace. <https://bit.ly/39seWEw>

Frymoyer, J.W., Rosen, J.C., Clements, J. & Pope, M.H. (1985). Psychologic factors in low-back-pain disability. *Clinical Orthopaedics and Related Research*, (195), 178-184. <https://pubmed.ncbi.nlm.nih.gov/3156708>

Graveling, R., Smith, A. & Hanson, M. (2021). Musculoskeletal disorders: Association with psychosocial risk factors at work. EU-OSHA. <https://bit.ly/3Mpy9W2>

Liberty Mutual Insurance. (2021, July 15). 2021 workplace safety index: The top 10 causes of disabling injuries. <https://bit.ly/3MrEyjr>

Pater, R. (2000a, Dec. 20). The power of paying attention. *Industrial Safety and Hygiene News*. <https://bit.ly/3LhM9zT>

Pater, R. (2001a, Jan.). Attention control for safety and productivity. *Professional Safety*, 46(1), 33.

Pater, R. (2001b). Secrets of involvement II. *Occupational Health and Safety*, 70(1):26, 101.

Pater, R. (2001c). Moving from "stressed out" to in control. *Plaintalk: DuPont Employee Newsletter*.

Pater, R. (2006, Sept. 20). Safety catalyst: Stressing safety. *EHS Today*. <https://bit.ly/38x9ShW>

Pater, R. (2008a, Feb. 1). Mental strategies for soft-tissue safety. *Occupational Health and Safety*. <https://bit.ly/3Nho1i8>

Pater, R. (2008b, June 1). Six mental skills for strengthening soft-tissue safety. *Occupational Health and Safety*. <https://bit.ly/3PuQTp6>

Pater, R. (2010, Feb. 24). *Mental strategies and skills for soft-tissue safety* [Webinar]. ASSP.

Pater, R. (2013a, May 1). The martial art of stress management. *Occupational Health and Safety*. <https://bit.ly/3lmquMa>

Pater, R. (2013b, July 1). Engendering ergo and safety mindsets. *Occupational Health and Safety*. <https://bit.ly/3sGwfsk>

Pater, R. (2014a, Oct.). Leading practical mindfulness 1: Minding what to watch and what to avoid. *Professional Safety*, 59(10), 26-28.

Pater, R. (2014b, Nov.). Leading practical mindfulness 2: Expanding mindful safety. *Professional Safety*, 59(11), 23-25.

Pater, R. (2015, Dec 1). Mindfulness: Moving beyond trends toward performance. *Occupational Health and Safety*. <https://bit.ly/3PsEEsT>

Pater, R. (2021, March 1). The power of small. *Occupational Health and Safety*. <https://bit.ly/3NmbDgG>

Pater, R. (2021, Apr. 1). Mindset mastery: Harnessing the power of expectations. *Occupational Health and Safety*. <https://bit.ly/3sG84Kx>

Pater, R. (2016, July 1). Raising ergonomic mindfulness. *Occupational Health and Safety*. <https://bit.ly/3LnJ94Z>

Pater, R. (2020, Sept. 1). Stressing safely. *Occupational Health and Safety*. <https://bit.ly/3wB0mTa>

Pater, R. & Bowles, R. (2007, Apr. 30). 9 keys for directing attention to safety. *EHS Today*. <https://bit.ly/3Nlcsqd>

Selye, H. (1978). *The stress of life* (2nd ed.). McGraw Hill.

## Cite this article

Pater, R. (2022, June). Minding the gap: Overcoming the strains (and sprains) of psychosocial contributors. *Professional Safety*, 67(6), 14-19.