

Strategies and Skills for Preventing Both Hand Injuries and Strains/Sprains

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Introduction

Even the most vexing problems have solutions. Sure, it seems like we're all busy, often trying to do too much with too little. As one Corporate Safety Director reflected, "I work a forty hour week – by Wednesday." Another, when hearing that several professionals are now doing the work of two, exclaimed, "Two? That's all?"

Yet insistently high expectations of improvement still come hand-in-glove with high pace and seemingly not enough support. The understandable default for many leaders is to ramp up, go faster, and attempt to carry too many items in their arms, where, often inevitably, one or more drop away.

Partly the issue is that most of us are submerged in a sea of serial thinking – first approaching one safety issue at a time, then another, usually as quickly as we can. Certainly, addressing one problem at a time is preferable to becoming overwhelmed or sinking by the weight of multiple pressing demands; however, the risk of this approach is getting stuck on trying to "fix" just one issue, while others, sometimes even more pressing, run rampant. Or of perpetually playing catch-up, like almost desperately attempting to plug a hole in the dike while others break open.

The flipside can also be limiting – trying to take in every issue, then make change-the-culture plans for transforming the entire company all at once, usually by large leaps in outlook. Such biggest picture thinking is helpful in long-range visioning, but often doesn't help address current pressing issues. For more on visioning, see my article, "Keensighted Leadership for Cultural Change: Developing Vertical and Horizontal Vision" in the January 2013 issue of Professional Safety.

There's a third, more strategic approach that balances the above two: *Where possible*, synchronize safety approaches so that one set of methods and actions "solves" two or more related problems. Think of the difference between trying to lug two bulky packages as opposed to tying them together; the latter is usually much easier to handle (perhaps this is why pouches, packs and straps were invented?)

Strategic thinking often means putting attention in one area that generates simultaneous results. (For a take on how this applies to ergonomics, see my article, “Leading a Concentric Ergonomic Culture” in November 2012’s Professional Safety.)

So in this time-limited work world, look to craft a combined approach that harvests multiple fruits. Not *any* two problems arbitrarily - e.g. it makes little sense to put office safety together with preventing falls from heights - but there are many safety issues where significant overlap does exist.

Case in point: simultaneously addressing contributing factors to two common and vexing safety problems: hand/arm and soft-tissue injuries (the latter usually to the back and other areas.) Many companies report these injuries coincidentally occur to employees working with a range of tools, power equipment, on machines, lifting-pushing-pulling and performing other physical tasks that require a mix of fine control and applying force.

Granted, only a percentage of hand injuries are strains or sprains (these are typically cumulative and usually affect the dominant side, as this is more often worked.) Other hand injuries involve cuts, abrasions, punctures, contusions/bruises, smashes, crushes, fractures, vibration-related problems, carpal tunnel syndrome (in essence, short-circuiting of the median nerve from wearing of insulating myelin sheathe), contact injuries (burns, chemicals, cold.) These can result from a range of activities that are often acute in nature, where a single incident can erupt into a serious problem.

In contrast, soft-tissue injuries generally affect areas of the body where force is likely to concentrate over time during the course of many exposures (lower back, shoulders, neck, knees, ankles, etc.) They tend to be “straw that broke the camel’s back”-type injuries where a relatively small done-it-a-thousand-times-before exposure tips over the edge towards a muscle, tendon or ligament injury.

While there certainly are differences between any two types of injuries, there are plenty of similarities between these. First off, aging can put each worker at greater risk for sustaining both these injuries. Sarcopenia, age-related muscle loss, can lead to lessening strength, which in turn increases the likelihood of cumulative wear-down injuries (lifting the same weight at age 55 may be more difficult and dangerous than for that same worker at 25.) This affects gripping strength as well. And sarcopenia doesn’t affect our muscular system “equally.” As people age, they tend to lose quick-twitch muscles (tasked with quickening reaction time) at a greater rate than slow-twitch muscles (responsible for sustaining strength over time.) This can slow reactions so that what was a close call at age 30 might become a hand injury at 50.

Second, many workers frequently use both their hands and bodies daily. All safety strategies are based on the principle of reducing risk exposures. The fewer and more potentially benign the exposures, the less likelihood of sustaining a larger number of or more serious injuries. Both hand-arm and soft-tissue injuries are prevalent in many companies because of number of exposures. Think how many times certain workers move their fingers and hands during the day. Consider how many times an employee lifts one- or two-handed, carries, pushes, pulls, holds, wrenches/torques, climbs and maneuvers loads, even those that are relatively light (and, as

indicated earlier, with soft-tissue injuries someone can pay painful prices for a backlog of previous exposures.)

The Three Similarities

There's always a range of factors – never just one - that contribute to any type of injury. These include environmental/design/tooling and administrative/organizational inputs.

Hand and soft-tissue injuries share common work contributors: Repetition, design constraints (e.g. not suitably accommodating left-handed workers), working in uncontrollable environments or where risk factors frequently change, repetition, force required, positioning (static or inability to assume stance that affords best leverage and control), vibration, PPE that doesn't fit, is absent or is relatively inaccessible, working with relatively little close supervision, previous training in prevention is either not offered or not practical, and more.

But hand-finger-wrist-arm and soft-tissue injuries are especially “personal”; experience has shown that understanding contributing human factors is a critical precursor to synchronizing a strategy to tame these problems.

Both broad types of injuries are strongly impacted by:

1. Attention. What you see is what you can adjust to; what you don't see can blindside you. And “paying attention” is not just an issue of having enough fortitude or will; it's a set of (at least) 8 “S” skills that include:

- Style assess (being able to identify your own default attention style).
- Sensing/awareness of internal cues (such as weakness in one arm).
- Scanning the near and intermediate areas for changing risks.
- Selecting where to place attention.
- Switching quickly to see unexpected changes.
- Sustaining attention on a high-risk task such as when working on a drill press.
- Sequencing/ordering where to place attention (best to lead movements first with the eyes.)
- Self-monitoring/”checking in” periodically to notice areas of force building/muscular tension/alignment/balance and become more “off-hand aware” (in order to better protect the too-often “forgotten” nondominant hand,)

2. Balance is critical to high performance in any hand or whole-body activity, both at work, hobbies and at home. It's the ability to stay on your feet with minimal extraneous tension. Strong stability is necessary for supporting the hands being in control and coordinated, with adequate grip. It *also* facilitates applying greatest usable strength in lifting, pushing, pulling, manipulating tools and more.

Even a slight diminishing of balance can result in a worker abruptly thrusting out a hand to protect herself – too often where that hand shouldn't go. Handling materials with weak internal linkages can transfer extra force into the arms, shoulders and back, adding to potential soft-tissue problems.

Most important, improving Balance, like Directing Attention, is a trainable skillset.

3. *Habit control.* A range of off-work contributors can affect hand injuries and soft-tissue problems. These include diet, side effects from over-the-counter and prescription medications, fatigue from “overdoing it” and even minor tweaks emanating from home/sport activities.

People tend towards default actions. Everyone uses their hands at home and off-work in addition to what they do at work. And each employee probably uses their body to push-pull-lift off-the-job as well. These accustomed actions form a set of autopilot methods for accomplishing tasks. It’s unlikely someone will lift one way at work and a totally different way at home. Or operate a machine at work very differently than how they use power tools in their own garage.

Especially when time presses, most tend to slip into without-thought methods of working (unless something unexpected occurs.) Further, tension from off-work activities can accumulate and build to at-work strains and sprains.

Therefore, to make sustaining reductions in both hand and soft-tissue injuries, it’s essential to help workers elevate their default actions both at work and at home.

Synchronized Strategy

It makes sense to first do what you cost-effectively can to engineer, design out and purchase away reasonable risks. But you won’t get them all (unless you totally automate all tasks.) Further, we’ve seen people sustain hand injuries and strains and sprains even at the “safest” worksites.

Then simultaneously place people more in control of their own hand and soft-tissue safety. You can accomplish this by:

1. Reminding workers that self-controlling their attention, body and hands is doable – and that many of the same skills further both hand safety and body integrity.
2. Transferring skills – and allow some time for these to become part of their autopilot - that work for both hand and soft-tissue safety:

Mental skills include: Directing 8 elements of attention, thinking of making small adjustments that result in large improvements, “Body accounting”/checking in to self-monitor hands and body condition, recognizing “hidden” risks early, encouraging applying skills and methods to at-home activities, becoming more aware of nondominant hand and side of body, preparing for activities through appropriate and effective warm-ups and more.

Physical skills include: improving eye-hand coordination (leading with eyes first), elevating leverage, reducing fatigue through efficient arm/hand/leg paths, heightening natural alignment of wrists/elbows/shoulders/neck/spine/hips/knees/ankles, maximizing balance through proprioceptive awareness and adjustments, positioning for support, safe bracing, transferring force away from concentrating in vulnerable areas of hands/wrists/lower back, breath synchronization for mental clarity, decision-making and to unload tension, and more.

Outlook is ultimately the most important element in injury prevention, the perspective that it is desirable, efficient and highly possible to synchronize safety efforts. That by aiming at multiple targets with one planned set of actions, leaders can effectively address common safety problems systematically – especially with several priorities and minimal time.