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Leading Thoughts

Leading a Concentric Ergonomic Culture
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Strategic leaders understand that the science and art of ergonomics encompasses more than meets the eye, and that developing a high-performance ergonomic culture can benefit an organization on three concentric levels:

1. prevent a range of physical ergonomic-related injuries and illnesses;
2. propel overall safety results and culture, even with non-ergonomic-related issues;
3. promote a sustaining, high-performance organizational environment of engagement, creativity and quality.

A concentric ergonomic culture is one where a critical mass of organizational members direct attention, then adjust to small changes that could ripple out to the above three concentric levels of focus; these changes are forces that build toward either enhancing or deteriorating safety and overall performance.

On a physical, head-it-off-at-the-pass concentric level 1, emphasis is on reducing wear down (e.g., preventing soft-tissue injuries such as sprains and strains to the back, neck, upper limbs, shoulders, ankles, knees). Many professionals report that soft-tissue injuries are pervasive, costly and frustrating. Yet, when a strategic approach is employed, improvements are possible.

By their nature, ergonomics-related injuries refer to conditions that may be insidiously damaging over time, while often being below the threshold of "ouch that hurts" awareness. So, thinking on a broader concentric level 2, ergonomic injuries or illnesses may encompass conditions in which repetitive or cumulative forces initially reduce a worker's function or lead to outright breakdown.

Such conditions might result from prolonged exposures to sound, vibration, cold/heat, high-intensity light, chemicals, radiation and other wave-based transmissions. Again, cumulative trauma is the common thread; often, lasting damage occurs from receiving relatively small exposures of these forces over a longer term (versus one or limited acute contacts).

Furthermore, many incidents are associated with workers' reduced ability to direct attention (these include driving accidents, and struck by/struck against). Concentric level 2 ergonomics emphasizes helping workers maintain better mental control even when fatigued, rushed or distracted, so that these factors do not limit their ability to perform safely and effectively.

Ultimately, physical ergonomic injuries occur when forces persistently concentrate in a small area. It is no coincidence that soft-tissue injuries occur to relatively small body areas such as the small of the back (lower lumbar), neck, wrists, knees and ankles. Strains or sprains are less frequent in a larger body area such as the gluteus maximus where forces are less likely to concentrate. As noted, concentration of forces leads to penetration and can result in breakdown. Think of the difference between stepping on a 6-in. nail pointed up versus stepping on the same nail lying flat on the ground (no puncture). Taken further: Melt that nail into a pool, let it cool, then walk on it. It's the same metal mass less concentrated, so the potential force entering the body is dispersed thereby minimizing the danger.

Here's how to apply the same principle to common soft-tissue injuries. Think of such injuries as akin to metal fatigue. Repetitively bend a piece of metal in the same spot. Whether a paperclip or the strongest steel alloy, it will eventually fatigue/weaken. Continue to bend it in the same place and it will eventually break. However, if you spread the force on the metal by bending in many locations along its full length, it is less likely to fatigue or break. Thus, one main objective of ergonomics is to reduce the concentration of forces, especially focused on the most vulnerable (small) parts of the body.

On a concentric level 3, concentrating mental and emotional forces of fear, stress, poorly managed conflict, unrealistic

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deadlines/expectations, ineffective leadership and uncontrolled change can produce mental fatigue, push back, disengagement, lower productivity and attention-related incidents.

Highly adept leaders respond by building a stronger ergonomic culture through igniting an ergonomic mind-set, along with select skill sets and appropriate tool sets.

Three Ergo Strategies

For perspective, I define ergonomics as "improving the fit between people and their work." Ergonomics literally means "the science of work" and, by overt definition, is not limited to just tool or workstation design. In fact, let's examine three strategies for improving fit.

Strategy 1

Engineering to Bring Work Closer to People

Physically, bringing work closer to people entails designing and purchasing tools and workstations to fit workers. This strategy is most effective in planning new facilities and purchasing new tools, as well as in redesigning/retrofitting equipment. Significant design changes often require capital expenditures or time to shut down work to incorporate these changes. Such designs/purchases are site-specific and less portable to different tasks or home activities.

On leadership concentric level 3, bringing work closer to people entails improving task-worker fit by producing products/services that best fit an existing workforce (e.g., changing what the company does as its workforce ages). Alternately, it can apply to assigning workers to tasks that make the most effective use of their existing capabilities and interests. In this case, the underlying charge is to adapt to workers' current talents and limitations. Of course, these may, and will likely, change over time.

Strategy 2

Changing Actions to Bring People Closer to Their Work

In terms of injury prevention, emphasize changing what people do. For example, an organization can imbue workers with mental and physical skills to improve decision making to avert or discharge force buildup, or to more safely transfer force vectors to reduce prolonged concentration of force.

In addition to physical skills that reduce force concentration (e.g., alignment techniques, positioning to elevate leverage, boosting balance, breath coordination), a range of mental methods can help prevent soft-tissue injuries (read more on these at http://tinyurl.com/S-TMentalStrategies and http://tinyurl.com/6MentalSkills).

Organizationally, leaders can put this strategy into place by motivating workers (externally and internally), then providing them with tangible skills that help them better fit with a wide range of their daily tasks. In other words, leadership focus should be on upgrading workers:

1. personal approach and actions, to think through better ways to accomplish existing jobs;
2. fluidly recalibrating plans to ever-changing or surprising conditions;
3. reformatting how they physically perform daily, where possible.

The key is to help employees make small adjustments that produce significant improvements in their balance, usable strength and dispersal/spreading of forces that might enter their body.

In terms of concentric levels 2 and 3, elevating safety and organizational culture, leaders can bring people closer to work in several ways.

- Improve buy-in by linking personal worker benefits with desired work methods, and by making it easier for workers to become involved as early as possible in any change process (including upgrading tools, selecting PPE or modifying procedures so they are realistic).
- Elicit more creative output from safety committees, going well beyond their simply meeting or auditing/reviewing past incidents. Provide a mix of high expectations, training and resources to spur and support them to accomplish greater performance and affect the culture.
- Streamline new-hire orientations to incorporate strong safety expectations and task-specific training. Bring new hires into the safety cultural fold as early as possible.
- Build highly valued recognition systems that actually incent, rather than incense, workers to help move their attention toward improved decision making and away from "working" the reward structure.
- Shift skills-delivery systems toward peer training and support, and away from top-down, more distant communications. This minimizes blocks to receptivity (as new information/methods come from those performing similar jobs) and disentangles skill-building from issues of management-employee relations. This approach also builds in ongoing, on-location reinforcement, often through informal communications (e.g., breakroom, between tasks).
- Emphasize local/site reinforcement for action change, rather than relying on corporate directives.
- Reduce obstacles to incident and close-call reporting. Think of it this way: the easier leaders make it for someone to do something differently, the more likely they will actually do it. For example, leaders can encourage more and better reporting by designing simpler forms that can be easily completed or submitted online.

Strategy 3

Coordinating a Combined Strategy to Bring Work Closer to People & People Closer to Work

Combining strategies 1 and 2 is the most effective strategy; it utilizes two-way action to most efficiently improve fit. Strategies 1 and 2 are like moving one hand to the other stationary palm to make a clapping sound. Strategy 3 is like bringing both hands together to meet in front.

Opening a stubborn jar is another analogy. Strategy 1 is like turning the base while holding the lid still; strategy 2 might be loosening the top while stabilizing the bottom. Strategy 3 would be torqueing one hand on the lid while also turning the base the opposite direction. Two-way action applied to leadership strategy and to specific ergonomic tasks is always more efficient, yet it is surprisingly underutilized.

Strategy 3's physical analog entails combining design with actions. For example, one company trained its workers to reduce tension reduction and increase usable strength by performing tasks with elbows pointed toward their torsos (to avoid abducting their elbows). Workers reported immediate personal improvements in many dimensions. With this heightened awareness, several employees then reflected that the horizontal pushbar on their parts carts actually encouraged elbow abduction.

So maintenance workers replaced single horizontal handles with two bars that formed an open-at-bottom V-shape. Employees said this redesign further encouraged elbow position to rotate toward, not away, from the torso, and made it easier to grasp at a greater range of heights. Design reinforced personal change learned from training. Employees were engaged, used safer actions and were injured less. This is excellent two-way ergonomics.

On concentric level 3, leaders can apply two-way action by utilizing a scissors approach to change. Discussions often focus on push-pull leadership and whether it is more effective to initiate organizational change from the top down or from the bottom up. The mind-set underlying ergonomics strategy 3 is to bring both organizational levels closer to each other—activating top management safety championship while building grassroots worker enthusiasm, commitment and leadership.

Building an Ergonomic Mind-Set Simultaneous Thinking
Simultaneous thinking is the essence of strategy 3: Planning to accomplish two or more desired objectives at the same time. For example, rather than trade greater efficiency against worker morale (or safety against productivity), best leaders can first challenge themselves by asking, "What can we do that would simultaneously elevate productivity, quality, safety and health, communications and engagement?" Experience has shown that just framing this question can lead to significant improvements in two-way planning.
From another perspective, the three concentric ergonomics levels exemplify simultaneous thinking—preventing specific ergonomics-related injuries, making broader inroads toward safety performance while augmenting organizational strength.

Cumulative Thinking
Small amounts of force continuously applied can erode even the strongest object. But the opposite is also true. Acorns turn into oak trees; regular small savings can build into large accounts. As Robert Collier wrote, "Success is the sum of small efforts, repeated day in and day out." Collier was referring to small positive efforts; small deleterious actions can lead to physical or system hampering or failure.

An instant-ergonomics-fix mentality is as costly to leadership credibility as are get-rich-quick schemes to one's bank account. In both cases, someone else profits.
Culturally, many leaders and organizations default to an acute mind-set. This is embodied in finding cheap, quick so-called solutions to longstanding problems. In the private sector, this acute thinking can be seen as a reaction to pressures to show quarterly improvements, leading to a what-have-you-done-for-me-lately mentality.
In health, it might lead to seeking a magic pill/procedure that fixes a cumulative problem (as seen on a bumper sticker: "I'll do anything to lose 20 lb—except diet or exercise").

Acute thinking is visible in incident reviews that assume one causative factor, rather than an accumulation or interplay of contributing factors. When people see underlying cumulative or contributing threads, they then have the power to reduce these smaller and ongoing negative impacts in the future. Leaders help everyone look beyond the last causes to a range of contributing factors that, like mixing multiple ingredients to form an explosive device, can combine to produce the injury. For example, help everyone change default safety culture language from "what caused" to "what contributed to."

Leaders can step up ergonomics culture by exemplifying and encouraging cumulative thinking. They also should focus on changing ergonomic actions at home as well as at work. For example, because many sprains and strains are cumulative in nature, it is important to change people's actions everywhere they might increase "metal fatigue." Because people are creatures of habit, they likely do not lift one way at work and another at home; thus, it is important to develop safe, default actions they can and want to use everywhere.

Help employees recalibrate smaller actions (e.g., reaching out to turn off a light, getting into/out of a chair, bending to tie a shoe or pick up a piece of paper) that, while not generally acutely exertive, can build up to put further units of tension-mounting "bends" into their body.

Elicit everyday examples of positive cumulative thinking versus acute thinking (e.g., how even a few minutes of regular exercise can build greater fitness and potentially avert a traumatic illnesses; how weight loss can result from slight changes in portion control; how a small increase in improving listening can improve relationships).

Cumulative thinking is a cornerstone of ergonomics injury prevention. Cumulative trauma disorders develop over time. Just as it can take months for some medications to build up a sufficient blood level to work, reports have shown that soft-tissue safety can be improved in a relatively short time—months, but not days—if efforts are regularly applied. In a relatively short time, focusing on small adjustments in better planning, tool use, position, alignment and balance can reduce tension and wear, and promote personal well-being.

An Internal Ergonomic Approach That Balances an External One
Generally, traditional ergonomics is externally driven, which is the mind-set behind strategy 1, bringing work closer to people. The focus is on making improvements from the outside in, usually by experts implementing changes while employees are relatively passive; employees then use (unfortunately not always) new designs and tools the way they were designed.

The strengths of an external approach are that such redesigns and purchasing 1) can be put into place without requiring compliance; 2) are task-/workstation-specific; and 3) can be readily built into new operations. However, workers tend to be less engaged in this approach, and designs are task-specific and may not apply to nonwork tasks that might contribute to cumulative trauma. In addition, such changes may require shutdown and can be expensive.

When effectively applied, internal ergonomics complements the external approach. This is the driver behind strategy 2, bringing people closer to their work. The emphasis is on making improvements from the inside out, enlisting, rather than bypassing, human nature, with a focus on workers. Activities might include self-monitoring cumulative trauma, making mental and physical adjustments to perform tasks more safely/efficiently/effectively, and engaging attention and motivation to change actions at home as well as at work, and in a wide range of changing environments.

The processes of persuasion and discovery are key to spreading internal ergonomics. Experience has shown that placing people more in control of their own safety through their acceptance has been associated with strongest injury-reduction reports from many companies.

Best leaders combine the strengths of both approaches. Even with its strengths, an internal approach does not replace the need for expertise in design of tools, stations, jobs and workflow. Not surprisingly, the two-way strategy that brings work closer to people and people closer to work has shown to be most effective in reducing injuries while enhancing culture.

Nothing is constant. Small, physical ergonomic forces affect workers' well-being and performance. Similarly, because a range of forces—physical, market, perceptual, workforce demographics—are ebbing and receding, safety and overall organizational culture are also continually and concentrically changing.

Best leaders are keenly perceptive and action-oriented. They identify small issues before they become overwhelming, then correct course at the earliest possible time. Strong leaders elevate their leverage by employing a concentric ergonomics mind-set toward simultaneously reducing ergonomics problems and preventing other injuries while elevating safety culture and overall company performance.

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