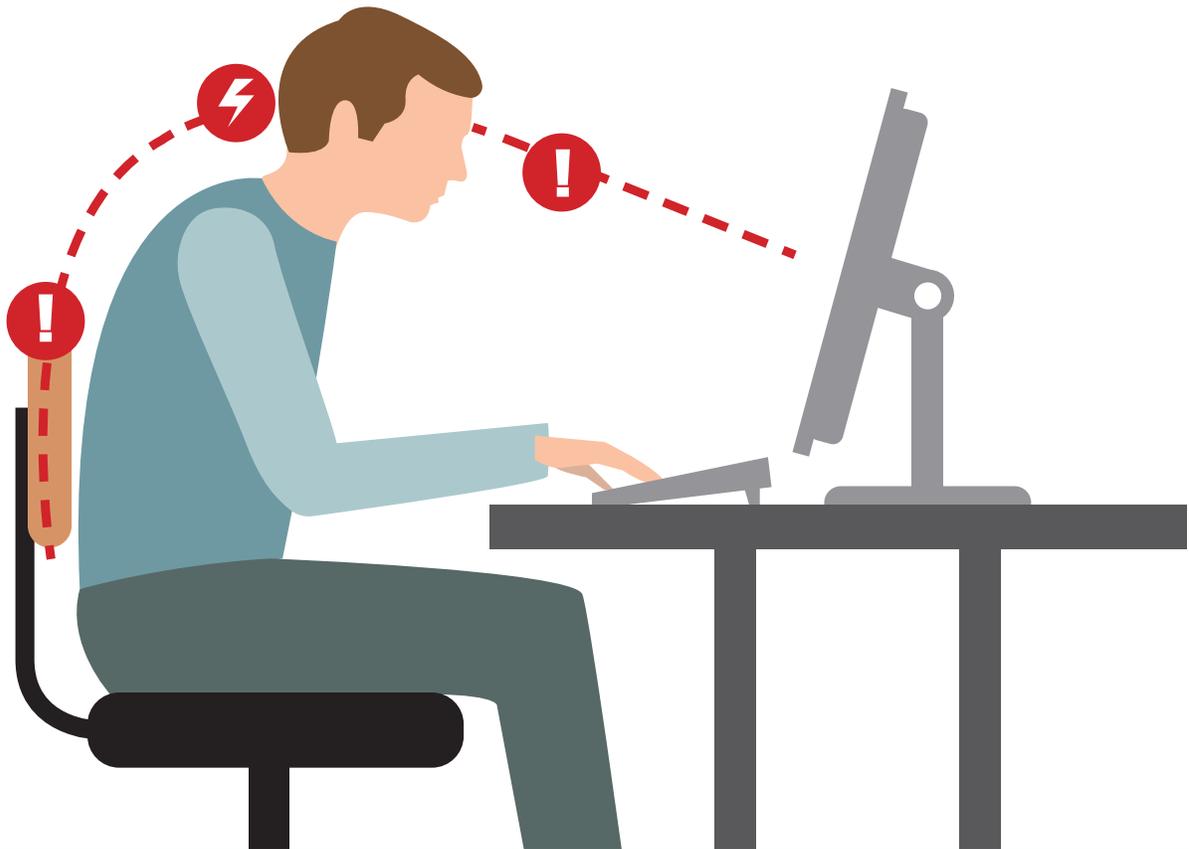


THE VALUE OF WORKPLACE ERGONOMICS



AN EXPERT INTERVIEW WITH ERIK NIEUWENHUIS

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THE VALUE OF WORKPLACE ERGONOMICS

with
ERIK NIEUWENHUIS

ABOUT ERIK NIEUWENHUIS, MS, PT, CAFS



Erik Nieuwenhuis MS, PT, CAFS leads the Industrial Athlete WorkSmart Ergonomics and MSD Injury Prevention Program within UnityPoint Health - St. Luke's in Sioux City, IA for the past 18 years, and has led this program across 150+ company's since 2001. He was recently recognized by the WELCOA dish competition to be one of the Top 10 health promotion professionals nationwide. He is a physical therapist who specializes in leading and empowering workplaces to transform the musculoskeletal well-being of their employee's by using ergonomic principles, WorkSmart posture habits and body mechanics, dynamic stretching, musculoskeletal self-care techniques, and healthy lifestyle habits which has transformed St. Luke's culture and has led to an 88% reduction of OSHA recordable MSDs to the lower back and shoulders for all patient care employee's since 2001!

ABOUT RYAN PICARELLA, MS, SPHR



As President of WELCOA, Ryan works with communities and organizations around the country to ignite social movements that will improve the lives of all working people in America and around the world. With a deep interest in culture and sociology, Ryan approaches initiatives from a holistic perspective that recognizes the many paths to well-being that must be in alignment for long-term healthy lifestyle behavior change. Ryan brings immense knowledge and insight to WELCOA from his background in psychology and a career that spans human resources, organizational development and wellness program and product design. Prior to joining WELCOA, Ryan managed the award winning BlueCross BlueShield of Tennessee (BCBST) Well@Work employee wellness program, a 2012 C. Everett Koop honorable mention awardee. Since relocating to Nebraska, Ryan has enjoyed an active role in the community, currently serving on the Board for the Gretchen Swanson Center for Nutrition in Omaha. Ryan has a Master of Science in Industrial and Organizational Psychology from the University of Tennessee at Chattanooga and a Bachelor of Science in Psychology from Northern Arizona University.

Standing desks, ergonomic work spaces and other tweaks to the environment are showing promise in increasing total employee well-being and decreasing worksite injuries and pain. But what is the financial and health impact of these interventions? Workplace ergonomics expert and physical therapist Erik Nieuwenhuis gives us the total value story in a brand new expert interview.

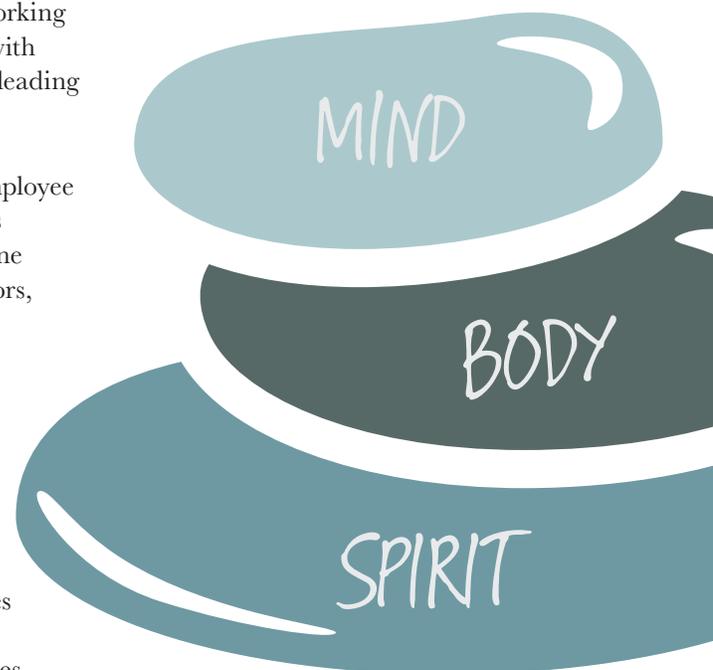
★ **RYAN PICARELLA** I think the field of ergonomics is definitely on everybody's mind. The workplace, the physical environment, how we work and how we interact with our workspaces has really been changing with the popularity of alternative workstations that allow us to walk or stand. You have been immersed in this for a long time, so I would love to hear in your words how you think the field of ergonomics has changed over the last 20 years?

ERIK NIEUWENHUIS Ergonomics originally was a science of engineers that was focused only on what was accomplished at work. Ergonomics looks to design the layout and organization of the workplace, the tools and equipment used, and the processes of daily workflow to reduce musculoskeletal disorder (MSD) risk factors and injuries. Ergonomics is also meant to improve employee safety and workplace productivity too. In the last five to ten years the well-being of the employees at work, their home lifestyle habits and even their play or hobbies outside of work began to be addressed to look at the whole person—not just focus on the workplace itself! NIOSH has defined ergonomics as the science of fitting workplace conditions and job demands to the capabilities of the working population. Initially the focus on ergonomics was performed by engineers with Environmental Health and Safety (or EHS) specialists or HR professionals leading the ergonomics effort on-site at many companies.

Initially ergonomics programs were much more reactive to injuries and employee complaints of pain, stiffness, or after a sprain or strain occurred. The focus on ergonomic programs was on MSD injuries and was done with one on one ergonomic evaluations or assessments and training for managers, supervisors, employee's and an ergonomics team.

Over the last ten to fifteen years more physical and occupational therapists are entering the ergonomics specialty, becoming certified professional ergonomists (CPE) or being certified in an ergonomics program such as the IMPACC Industrial Athlete and WorkWell programs. I was trained in the Industrial Athlete IMPACC program, and my focus has always been more holistic, looking at the whole person and focusing on the human body's three dimensions of body, mind and spirit that moves in three planes of motion. So for example, using physical therapy principles, I look at each worker's posture, habits and body mechanics. I address ergonomic principles,

“NIOSH has defined ergonomics as the science of fitting workplace conditions and job demands to the capabilities of the working population.”



the past medical history of the worker, musculoskeletal self-care techniques such as snakebite technique, ice massage or friction massage to reverse tennis elbow and carpal tunnel syndrome very quickly. And then dynamic stretching is used to reduce daily stiffness and pain and reverse our daily awkward, repetitive and high force postures. I believe the physical therapy profession has done well to bring the well-being and ergonomics or MSD injury prevention fields together in the Industrial Athlete WorkSmart Ergonomics program that I have led at UnityPoint Health – St. Luke’s in a proactive and preventive fashion since 2001.

In 2000, NIOSH began a program called, “Total Worker Health,” and this strategy integrates occupational safety and health with health promotion to prevent worker injury and illness to advance worker health and well-being which is a multi-dimensional issue and must continue to be viewed as such! Then in 2011, Gallup found with the *Well-Being Index* that eighty-six percent of our current workforce who work thirty or more hours report more than one episode of musculoskeletal pain. When I talk to groups now, Ryan, I say *how many of you have had muscular skeletal pain in the last three to five days?* Every hand goes up. Musculoskeletal stiffness and pain affects everybody and everything—the way we behave, our energy level, the way we treat the customers coming into our company, the way we treat our spouse and kids. When we are in pain, life is not a whole lot of fun, and may be a daily challenge. I know a lot about this personally from my history of motor vehicles accidents and headaches which got me interested in the career of physical therapy and ergonomics.

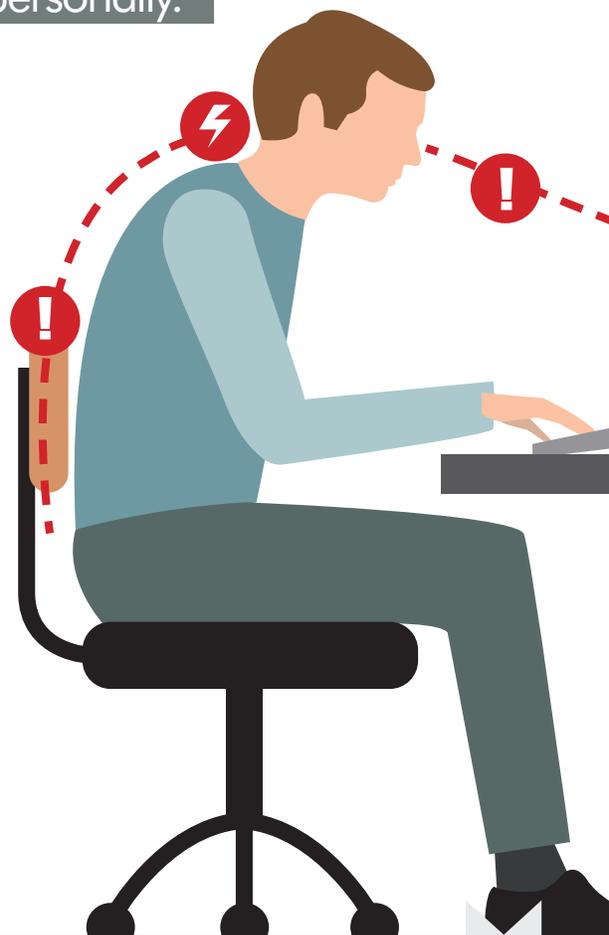
“When we are in pain, life is not a whole lot of fun, and may be a daily challenge. I know a lot about this personally.”

★ **RP** That brings me to my next question. What first stirred your interest in ergonomics?

EN What got me interested in the profession of physical therapy and the specialty of ergonomics was a motor vehicle accident that I had after my sophomore year at college, with the result being chronic headaches, and rib pain. At that time, I had terrible posture and I was always slouching, or sitting with my hips spread wide apart. This is a typical male awkward posture habit, seen often with men today. My body and hips were extremely stiff and tight, due to my daily slouching sitting posture habit, and I was educated from a physical therapist that my headaches will rarely go away if I continued to stay in these slouching and forward head posture positions.

Once I learned these lessons from a physical therapist—he taught me the chin tuck dynamic stretch, doorway chest stretch, and many others—I improved my sitting posture habits, improved the functional strength of my upper back, shoulders and core, and my symptoms cleared up and went away. This is what sold me on the profession of physical therapy and specialty of ergonomics as I thought about all of the awkward postures I see on a daily basis both in the workplace and outside of work. And this is what I wanted to devote my life to, helping educate and lead others in improving their posture habits, dynamic flexibility, and functional strength to

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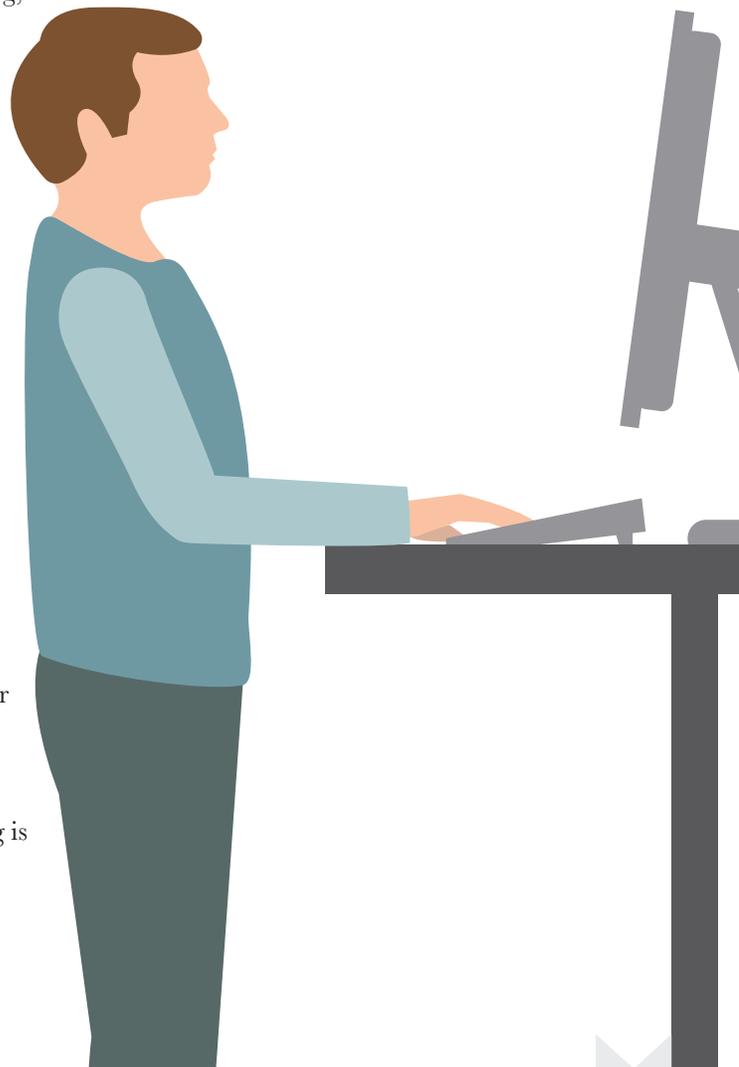
be the best they can be! I am extremely grateful for the mentors I've had over the years to lead me in the ergonomics profession; Lauren Hebert of IMPACC USA and SmartcarePT, and Kory Zimney, DPT, CAFS, ISPI Assistant Professor at the University of South Dakota. Now people know me as the *Industrial Athlete WorkSmart posture and stretch guy*, and typically improve their posture habits when they see me coming too [laughs]!

★ **RP** We definitely were not designed to sit for such extended periods of time, and I think that as more and more jobs have required us to be tied to our computers and tied to our desks, it is certainly impacting our health. How do you see things changing? What does the new future of a workplace look like in terms of the environment and how we interact with it?

EN The workplace of the twenty-first century is about freedom of movement and variability. It is about following proper body mechanics and ergonomic principles. This can be achieved through sitting and standing adjustable workstations, nudges to *move* more daily by performing dynamic stretching, taking the stairs, having stand up or walking meetings and more. That is what I love about all these companies now that are coming out with the sit to stand desks such as Varidesk, Stand Desk, and ErgoTron because every worker is different. Every day is different. Every hour is different depending on what you did the night before, stresses that you have, stiffness or pain you are dealing with daily and so on. Having workstations that offer daily sit-to-stand variability that are following ergonomic principles along with employees using WorkSmart posture habits is—and will be—one of the most important things that is really going to transform our workplaces across the United States and the world!

When I first started my work in ergonomics, if people had a back injury while working at a computer, the physician would almost always write out an order for a standing desk; however this desk didn't have any variability. Some companies purchased tall stools to allow these workers to sit what was designed to be a standing workstation. If that employee had a job where they were required to stand, move and lift objects they would almost always place them on a sustained sitting job. So the majority of workers were either standing at their computer workstation for the majority of the day or sitting, and from what we know now, sustained sitting and even standing in one spot and not moving isn't the best either especially after a back injury. The most important factor for lower back rehab is ease of adjustability and movement for all jobs, however standing is almost always better than sitting.

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★ **RP** One of the things that I hear from a lot of the organizations I work with is *no way we can afford to buy everybody standup workstations*. What are some things that organizations can do that are really sort of cost effective and impactful ways that they could begin to start incorporating more movement and different types of working environments into their workplace?

EN I believe many companies and leaders don't truly understand what a typical shoulder or lower back sprain, strain, or carpal tunnel syndrome claim actually costs. According to the National Council on Compensation Insurance, the true cost of an ergonomics-related injury is \$60,000 to \$82,000 per case. I have worked with a company that would set aside \$100,000 to \$130,000 whenever they received a carpal tunnel claim. Many of today's sit-to-stand adjustable desks such as the *Varidesk Pro Plus 36* which starts at \$395, or the *ErgoTron WorkFit S* with dual monitor support and work surface is \$515, to *Standdesks* ranging in prices from \$569 for the standard model to the deluxe model for only \$824.

A joint study by Washington State Department of Labor and the Puget Sound Human Factors and Ergonomics Society found that on average after the introduction of an office ergonomics program with new furniture, ergonomic tools and equipment and training, workplace MSDs were lowered by sixty-one percent and reduced workers compensation costs by eighty-one percent. If you would prevent only one to two OSHA recordable MSD's this next year, that money can and would pay for many sit-to-stand adjustable desks from the three companies noted above. I would recommend working to purchase these for all employees overtime, but begin with those workers with a past medical history of lower back, neck, shoulder, or carpal tunnel syndrome MSDs.

Other methods Erik suggests to add more movement into your work environment:

1. Make the stairs highly visible, open, bright, fun and inviting with positive and stress-reducing messages.
2. Make walking paths at work.
3. Have an onsite gym or fitness club.
4. Consider an onsite massage therapist.
5. Consider an onsite Physical Therapist or contracted Physical Therapist to evaluate and transform ergonomic issues at your workplace, and treat workers after MSD injuries or follow up with worker ergonomics or MSD complaints.

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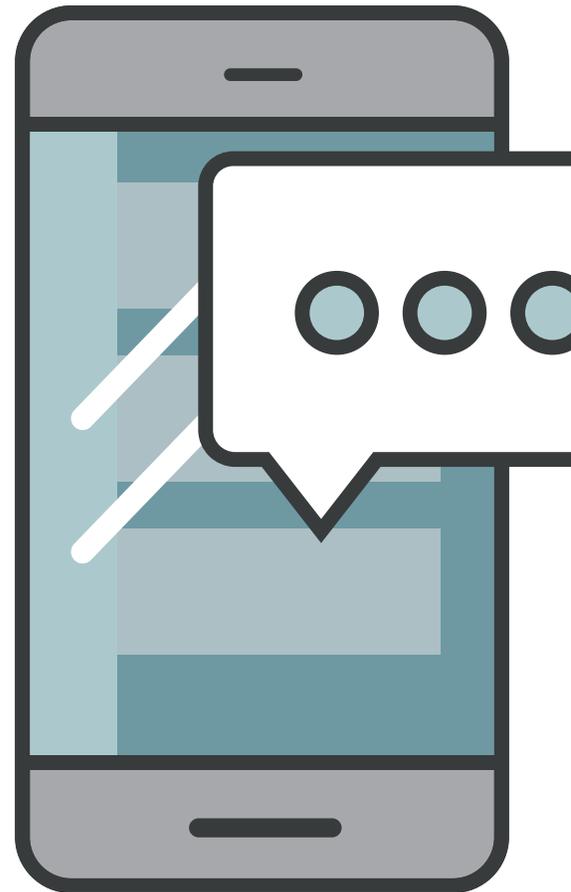


Some other cost effective means to reduce MSDs in the workplace is a dynamic stretching program like the one I have led at St. Luke's since 2001 and through 3D Lifestyle Athlete™. I have created a DVD through 3D Lifestyle Athlete™ of the eighteen dynamic stretches from the St. Luke's program and added twelve additional dynamic stretches, plus three functional exercises that reduce the stresses of sitting, and education on the importance of the staggered stance when lifting that allows the employee to watch me demonstrate each simple move (dynamic stretch and functional exercise) so that they know they are doing it correctly. People want reassurance that they are doing dynamic stretches or exercises correctly, and this DVD offers that in a personal trainer style. If dynamic stretching is performed one to two times daily as a group or department at work, it helps companies be extremely successful when added to their ergonomics, wellness, or MSD injury prevention programs. I have worked with multiple companies that have done it as a group at the beginning of their work shift or after mid-shift break, and it has been absolutely transformational for the employees' well-being and the company's reduction of OSHA MSDs, MOD and DART rates.

★ **R P** What are some ways that you think people can look into incorporating these types of techniques into their programs? For example, for the employees at UnityPoint Health – St. Luke's, are ergonomic stretching techniques something that they teach new employees about during orientation? What does the culture look like and how do you guys really take this and make it real at St. Luke's?

E N We set the groundwork for our Industrial Athlete WorkSmart Ergonomics program at orientation with all new employees. This groundwork was set in 2001 when we approached administration and leadership of St. Luke's, along with getting all employees to buy in and understand their roles and responsibilities in MSD injury prevention through evaluation, assessments and then training. I have a half hour with each new employee first thing in the morning when they come in for orientation. First I talk about some of the key awkward sitting posture habits that lead to the majority of our stiffness and pain to the lower back and knees such as pulling our legs back underneath our chair. The more you flex your knees greater than a 90 degree angle, the faster you wear out the cartilage in your knees, along with maximally tightening the hamstrings and calf/Achilles tendon too. I bet many of you may be sitting this way right now. It is one of the most common awkward sitting posture habits that is damaging to our bodies and well-being. I educate employees to sit with their feet flat on the floor or to use a footrest, which is the healthy way to save your knees, your back and your hips. We also discuss forward head posture (FHP) one of the leading risk factors for headaches, shoulder tendonitis, tennis elbow and carpal tunnel overtime and strategies for reducing time spent looking down when walking, using your smartphones, tablets, and laptop or personal computers too.

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We talk about WorkSmart Ergonomics and dynamic stretching in yearly department meetings that are part of our OnPoint for Health wellness program. We have yearly net learning Industrial Athlete WorkSmart Ergonomics reviews that all employees are required to take, and we give two hundred points to spouses to take part of our OnPoint for Health wellness program too! I am writing articles each month for the Siouxland Business Journal about ergonomics, MSD injury prevention, healthy lifestyle habits and self-care techniques to reduce stiffness and pain, numbness or tingling. We have 11x17 laminated color posters for the dynamic stretching program in each department at St. Luke's and in multiple areas of each clinic location, and Four Seasons Health Club that has a location onsite at St. Luke's which is a wonderful reminder or nudge for employees to stretch. Most employees at St. Luke's also have a personal copy of the dynamic stretching handout at their workstation and at home too. We are always putting up different ergonomic tips and recommendations on our bulletin board outside of Employee Health and Wellness office that also gives wonderful success stories of well-being transformation. We have a weekly newsletter at St. Luke's called First Look Employee News, that I occasionally place ergonomic tips, WorkSmart posture habits, awkward posture habits to avoid and self-care techniques to reduce daily stiffness and pain, improve energy and well-being!

Another transformational culture habit at St. Luke's is being proactive and preventive with our ergonomics program using a Continuous Process Improvement (CPI) approach. In 2013, when we transferred to the Electronic Medical Record, we partnered with Ergotron to provide sit-to-stand desks or carts in patient care areas for sit to stand variability in all patient care areas. In the patient care rooms we also have the adjustable arms on the wall so the staff member can sit down if they want to document for a while or they can stand up. We also have laptop carts that are mobile on each patient care floor for variability and improved comfort and options for all staff involved in patient care to sit to stand throughout each work shift based on their body's needs that day or time.

Early reporting of MSD signs and symptoms has been one of the most important cultural changes we made at St. Luke's in the early 90's. It is important to create a culture that encourages people to turn things in like minor injuries, numbness and tingling, or pain early and to know that it is okay to talk about it. You do not want to set up safety goals that discourage early reporting or reporting at all. So many organizations will do things that ultimately discourage reporting like telling employees *if we do not have any reportable or OSHA claims, then we will have a pizza party* or some other incentive. That peer pressure from fellow employees and management most often keeps workers from telling Employee Health and Wellness, HR, their supervisor or onsite nurse when they are having pain, stiffness, or a suspected injury. We must recognize that it is okay to admit that you hurt or are having pain because then we can work together on transforming the way that you perform your work tasks daily and remind you of ergonomic principles, dynamic stretches or self-care techniques that could reduce stiffness and/or pain. This is a win-win for the employee and the company every time!

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★ **RP** How do you measure the impact that doing these types of things has on the total health and well-being of employees, whether it be less pain or improvements to their health?

EN We measure value in multiple ways at St. Luke's. We perform ergonomic profiles or ask the workers to assess changes in severity and the count of body parts with stiffness and/or pain both before and after an ergonomic intervention has taken place. We ask how their daily functional tasks at work, home, or with hobbies has improved or changed since the ergonomic changes were made. I also ask the employee or department how this change has affected their daily attitudes, productivity, and energy level.

We look at variance log MSD injuries data and OSHA log injuries quarterly and yearly. We look at what body parts are affected, departments are involved, how injuries occurred, how we may have prevented the injury claim, age of worker and time employed at St. Luke's. We evaluate the days on work restrictions, and days away from work for severity of MSD injuries. Since 2001, St. Luke's has seen an eighty-eight percent reduction in OSHA recordable MSDs for patient care employee's, from seventy-five in 2001 to only nine in 2015!

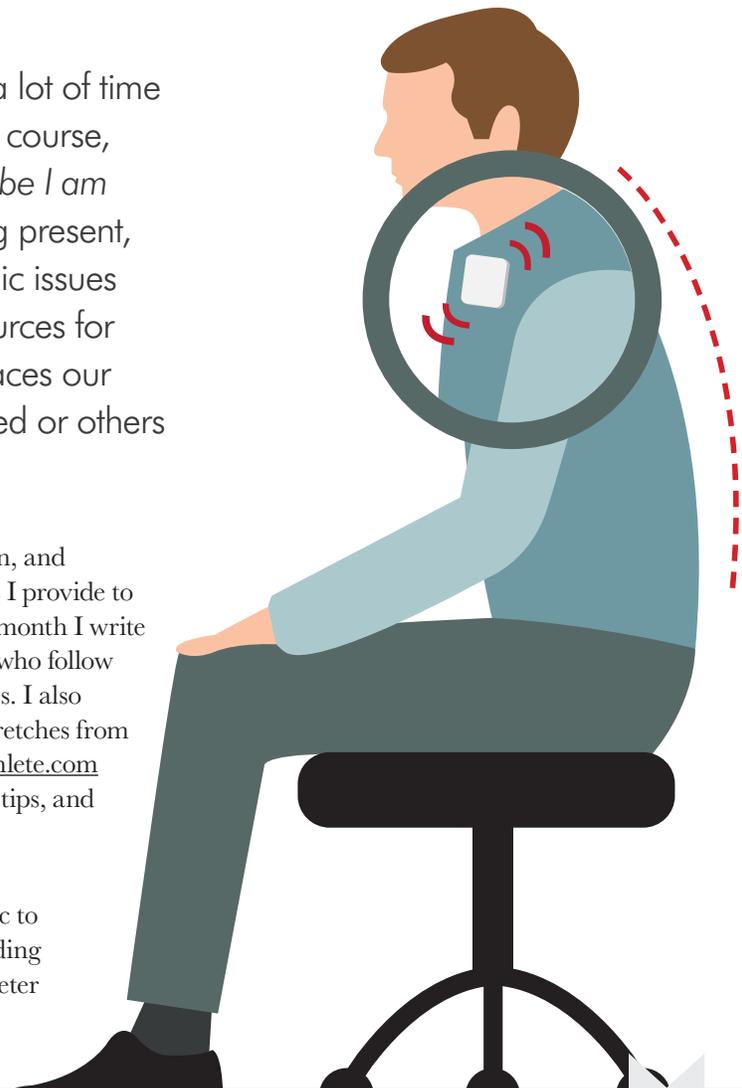
★ **RP** Honestly, I do not think a lot of people spend a lot of time thinking about the right posture until it starts hurting of course, and then once something starts hurting they think *maybe I am doing this wrong*. We talk about mindfulness and being present, and I think that would include thinking about ergonomic issues like our posture or body position. Let's talk about resources for educating people about this stuff. Where are some places our readers can go to find great resources you have created or others you would suggest to get them started?

EN One of the easiest ways I think is to actually follow me on LinkedIn, and check out www.unitypoint.org and search Industrial Athlete for services I provide to companies and many of the articles I've published over the years. Each month I write a Siouland Business Journal article and share it on LinkedIn for those who follow me. So follow me on LinkedIn and you can get access to all those articles. I also have a YouTube channel that I use to share a handful of my dynamic stretches from the 3D Lifestyle Athlete DVD. Lastly, on my website www.3dlifestyleathlete.com you can find more articles, a lot of specific ergonomic and posture habit tips, and recommended resources for optimizing your body's vital mobility™!

There are a couple different wearable technologies now that are fantastic to help workers improve their posture habits, and monitor sitting and standing time daily. One is called Lumo Lift, which is actually like a little pedometer that is magnetic and attaches around your collarbone that allows you to

Erik's List of Sit to Stand Desks (ordered from less expensive to more expensive)

1. Varidesk
(www.Varidesk.com)
2. Ergotron
(www.Ergotron.com)
3. StandDesk
(www.StandDesk.co)
4. Workrite Ergo.
(www.WorkriteErgo.com)



set up what your normal good posture is, and if you slouch more than thirty degrees forward, it will buzz to alert you to sit or stand up tall again. They also have another device called Lumo Back that you can put around your waist and it actually measures how much time you are sitting versus standing. It also looks at your sitting posture habits and it reports it all out for you on a daily and weekly basis.

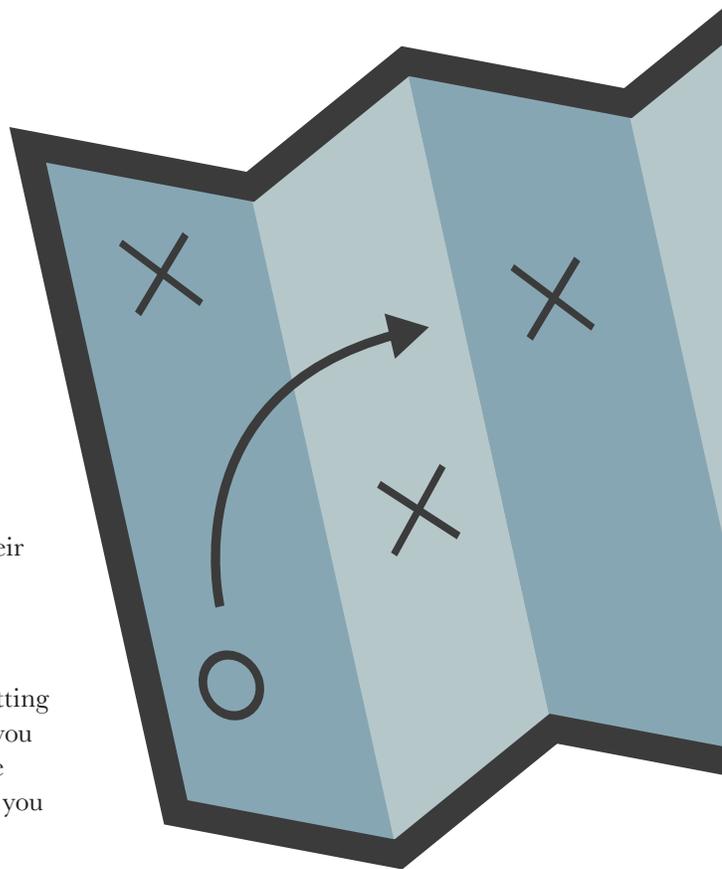
For resources on the business case for ergonomics, visit www.ergo-plus.com, www.humantech.com, www.ergoweb.com and www.impacttraining.com. They also have assessment tools for ergonomics and resources to go to and to check out. If your organization is interested in sit-to-stand desks and wants to see some of the research behind it, I would look at an organization called www.juststand.org. Ergotron has partnered with that organization, and they have got tons of research out there that is absolutely wonderful. I also recommend that you do an online search for the Washington State Department of Labor and Industry's WISHA Caution Zone Checklists that will help you understand and assess ergonomic risk factors in your workplace and with yourself!

★ **RP** These are great resources, Erik. Thanks so much. Is there anything that we did not discuss that you would like to add before we end today?

EN I would just close with a bit more information about the power of asking your employees to get involved with the continuous process improvement of reducing MSD risk factors while improving well-being and vitality of your workforce! What we began doing at St. Luke's in 2001 with the Industrial Athlete program is creating ergonomic profiles—these symptom surveys we give to all employees—where we would collect information by asking them questions like *what do you do each day that you feel is the hardest or most difficult for you? What body parts get the most stiff, sore or painful throughout a workday and a typical week? How do you think your job may be made easier and more ergonomic? What ergonomic changes have been made to your job this past year, and how has this affected your body, mind, and productivity?* We ask employees if they perform dynamic stretches daily, and if so how many times they perform them and how this affects their body, mind, and productivity. This has allowed us to collect tips from the employees about how their jobs could be made better.

I have been blown away by the awesome wisdom and transformation of getting this information right from the employees that do the job tasks every day; you can watch them and listen to them, and develop a cheap, easy and effective solution to their problems. Awesome transformation and well-being awaits you and your company, your family, and those you serve daily! 🏠

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