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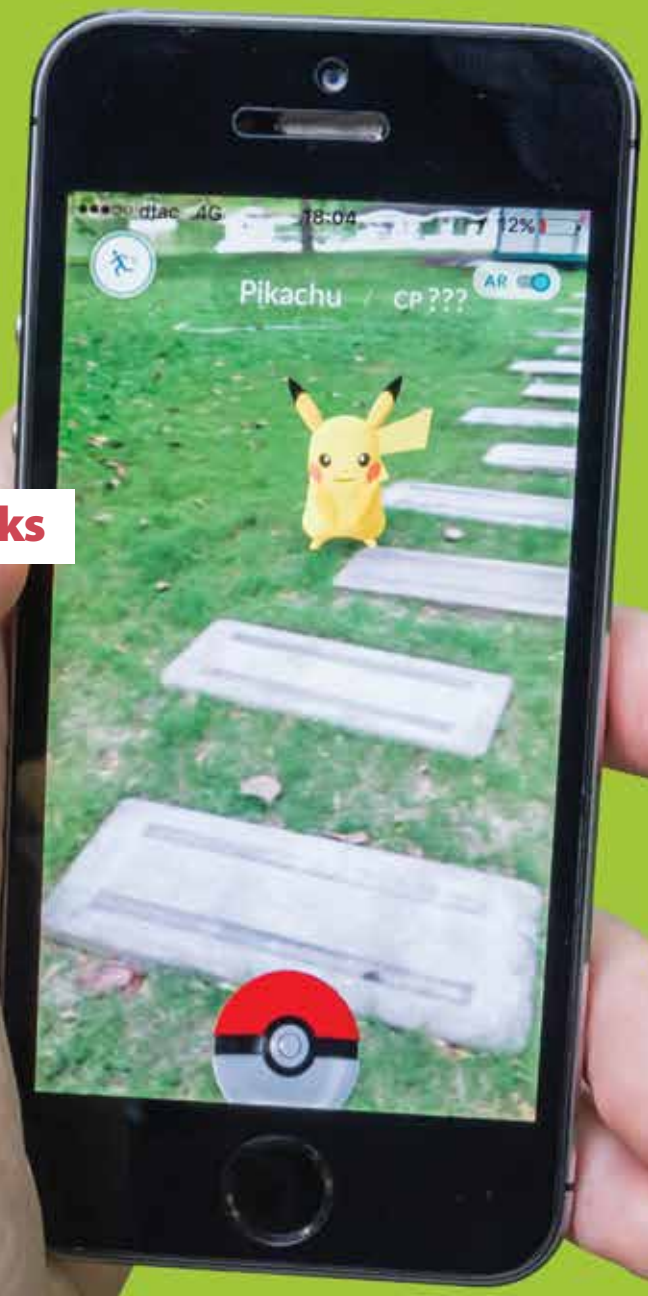
Fall/Winter 2016



Pokémon K.O.

Pokémon Go and latent health risks

Managing safety for telecommuters

A comprehensive guide

Vision needs and monitor height

Where poor vision and neck pain meets

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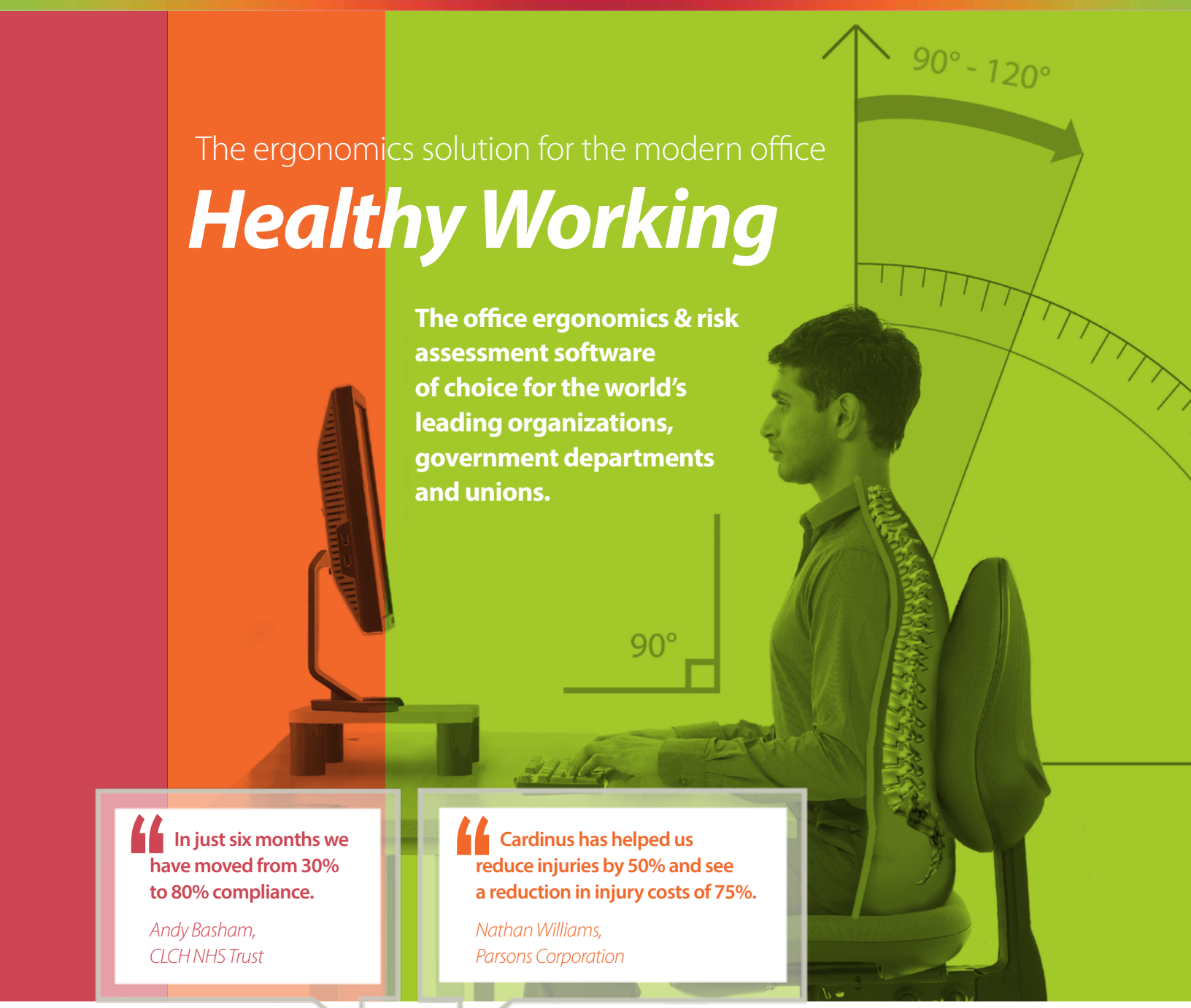

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Welcome

Hello, and welcome to the Fall/Winter edition of our popular magazine for ergonomics and safety professionals, Cardinus Connect. For this edition we've got a bumper crop of articles addressing the very latest thinking and news in the ergonomics and safety industry.

Our lead article focuses on a fun theme and one that we'll all have heard about in recent months, Pokémon Go. The success and popularity of the game has driven children, teens and young adults crazy, allowing them to experience first-hand what it really means to "be the very best, like no one ever was."* However, like all things, too much of a good thing can often have a serious impact on our health. So in this article, I take a look at the health risks that too much mobile phone playing can have on young spines and minds, as well as some of the more startling risks that have transpired and been reported in world news.

On the back of this, on page 11, we thought it would be a good idea to publish a real-life account of how using modern technology in the form of smart phones, tablets and laptops, can have a very real negative impact on a young person's musculoskeletal health. In this article from Dr Romina Ghassemi, she presents a personal and terrifying story of how poor posture, brought about by the way we play with tech, can have results way beyond what we would expect.

We take a look at information security management and how ensuring you put the correct processes in place can actually have a real benefit to your business. Particularly it's about understanding the risk your sensitive commercial information can place upon a business and how identifying those risks and putting security measures in place will minimize that risk.

With telecommuting, or mobile working, becoming a hot topic and personal choice for many individuals across the US, we have two unique viewpoints on this subject. The first, by Ed Milnes and Sarah Tapley, looks at how you can get buy-in on ergonomic compliance for workers who are by their very nature working in changing environments, often with more than one type of tech device. The second is a clear and comprehensive guide for any mobile worker to help them set up their home office environment, including tips on where to place a desk, what type of chair to choose and even how to get the lighting right.

We sincerely hope that as a safety professional we have highlighted something that can positively impact your day-to-day working life, no matter what field you work in. With Cardinus Connect you can guarantee that there'll be a wide range of opinions, views and expert thought. You can now ensure that you get this magazine direct to your inbox by signing up to our mailing list on our website. Head to Cardinus.com and click 'sign up' from the menu. Thanks for reading!

*No, I'm not going mad, these are lyrics to the theme song!!

Jon Abbott

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Pokémon K.O.

Jon Abbott guides us through the health risks of playing the most popular app in the world

POKÉMON GO is one of the most popular smart phone apps of all time, reaching over 100 million downloads and a providing a daily revenue of over $10 million for its makers. Loved by kids and big kids alike it's a multi-generational augmented reality game that has taken the world by storm. But with all the hype it's often too easy to overlook the risk, and this has led some to injury and worse. In this article I'm going to thrust you into the fantastic world of Pokémon Go and talk you through the risks and dangers that this app can bring upon players young and old.

For those unfamiliar with Pokémon Go (where have you been?), it's a smartphone app based on the popular 90s computer game and cartoon about a kid called Ash and the animals who inhabited his world, called Pokémon. In the original game, you control Ash as you wonder about his world capturing wild Pokémon, training them and bringing them into battle against other Pokémon.

The smartphone app uses 'augmented reality' technology to map Pokémon into the real world where you play the trainer. This means you get to walk around your neighbourhood finding all the Pokémon and battling them against other players' Pokémon.

The popularity of the app, one of the first of its kind that successfully uses augmented reality, has led some conservative voice to criticize the game for forcing kids to spend even more time playing with electronic devices. From my perspective though, there are many serious dangers that we need to address if we want our children and young people to reap the benefits of such games while avoiding injury.

Health issues on the go

As with all smartphone games where consumption is measured in hours rather than minutes, long-term injury can easily go unnoticed. Because smartphones are so small, around 4-5 inches in length, they're unsuitable for prolonged use. Often we hold the phone in front of our chest with our necks and backs bent. As players have to have the app open continually during play, this means that necks and backs can often be positioned at awkward degrees for sustained periods of time.

With that sort of sustained strain on muscles and ligaments it's no wonder that we are seeing a large increase in the number of children self-reporting neck and back pain, as identified in the previous issue of this very magazine (see Generation Pain for stats).

Device size also causes other issues too. When battling, a frequent occurrence in the world of Pokémon, you bash thumbs and fingers against the screen in an attempt to defeat other Pokémon. Couple that with the continued requirement of using your thumb for navigating and capturing wild Pokémon, and you've got a perfect combination for prolonged pain in the hand and forearm. You see, our little fingers and opposable thumbs are great at doing some actions, like holding and grasping tools or other implements, but when you use them too frequently for these types of mini actions it can lead to discomfort and eventually injury.

That's certainly going to cause pain for older people, but it's a particularly egregious recipe for children whose muscles and bones are still developing and to which damage can impair healthy growth.

When we consider the length of time young people spend playing Pokémon Go, often many hours at a time, the effects mentioned above can be quickly exacerbated. It is advisable to take frequent breaks during gameplay to avoid immediate discomfort and gradual damage.

Duration of play ≠ increased happiness

But the impact of extended game play doesn't just end there, there has been much research into the effects of screens on young eyes. The continual focusing and refocusing on new and different elements within the game means continual strain to eyes, and can mean blurred vision, irritation, headaches and more. These are usually temporary issues but none-the-less extremely unwelcome.

And let's not forget, there's a direct connection between the eyes and the brain, which processes those flickering and changing images as the screen changes and morphs when the player moves between different elements of the game. This processing power can be quite demanding and intense activity not only makes eyes feel tired, but makes the head feel fatigued too.

This sensory overload causes mental fatigue, which can cause problems when sleeping (particularly restorative sleep) which can make children moody and unable to pay attention. This is an uncomfortable truth about screen use and could potentially lead to long term issues if sensible gameplay isn't observed. Where sensory overload is concerned, it doesn't just stop there, we witness the impacts of these kinds of games on young people all the time. One of the most

troubling is the psycho-social effects. Young people who spend such a long-time one-on-one with devices often show signs of poor communication skills, an inability to make friends and reduced social development.

Real world, meet real problems

As the game is played in the real world, there are a number of legal and criminal issues that have often been humorously reported due to the bizarre nature of such incidences. In the US, there have been numerous incidences of reported trespass, on both federal and private property. One class action lawsuit against Pokémon Go creators Niantic has brought together private property owners, with one plaintiff claiming that at least five players have knocked on his door asking to play the game in his garden.

In the UK there have been reports of coastguard crews sent out in the early hours of the morning as 20 teenagers tried to steal a boat to catch a Pokémon. Others have become victims of crime themselves, with regularly reported muggings and robberies of distracted Pokémon players who make easy targets for criminals.

Some players, seeking to maximize their playing time and catch more Pokémon, have even been caught using the app while driving. Not only is this activity a criminal offence, it is also highly dangerous as focus is away from on-the-road hazards and on the device. Reports have shown numerous crashes representing a serious risk to safety and life.

This usage also led to a number of arrests around the world.

Despite all the negatives, as parents, friends and relatives of young players, the game isn't all bad. Like everything, moderation is key. There are a number of health benefits of Pokémon Go, such as increased outdoor activity, particularly walking and cycling to destinations. It's often the case that Pokémon Go players play with friends, increasing exposure to other young people, which is vital for good social development. Then there are also other benefits around mapping the environment, exploration and examination of the world outside. Finally, this unique app also allows the player to develop a greater understanding of the power and invention of technology, which opens up new avenues of thinking and creativity.

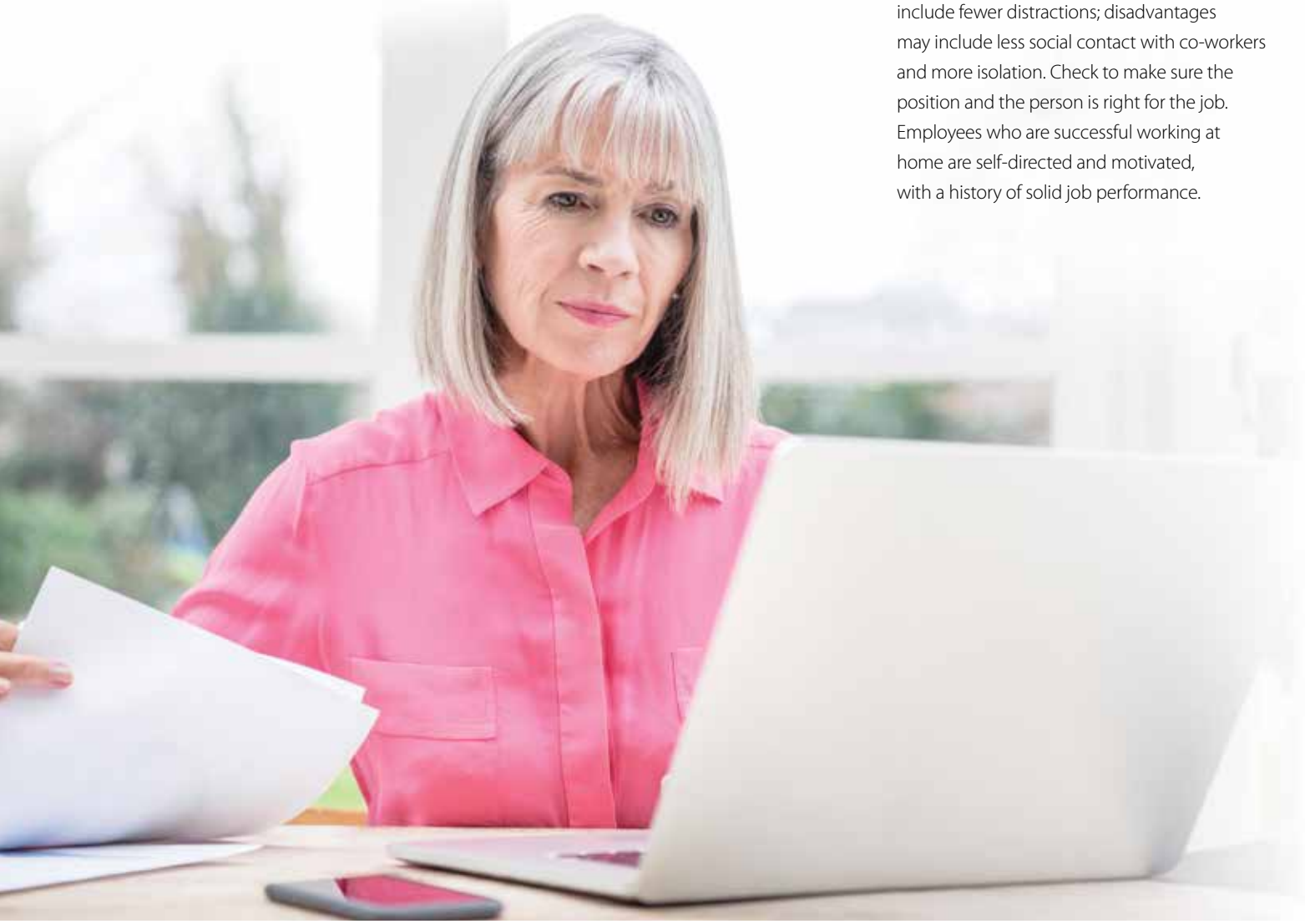
Jon Abbott is a director at Cardinus Risk Management Limited, with more than 15 years' experience of ergonomics, safety and occupational health. Over that period he has worked with a wide variety of organizations in the private and public sector providing a full range of risk management solutions including software, e-learning and consultancy. Jon was instrumental in setting up Cardinus operations in America and Holland and is currently responsible for the sales and marketing strategy at Cardinus. Jon feels passionately about the health and well-being of young people and he believes more must be done to protect the workforce of the future. This drove him to set up Healthy Working MOVE in 2013.

Managing safety for telecommuters

Your one-stop guide to managing safety for telecommuters, from expert Wayne Maynard

THANKS to advances in information technology, where you work these days is not as much of an issue as the work you do. The central work location is being replaced by the virtual work location, such as the home, hotel, airport, shared and satellite offices, client office and even the car. This trend toward "alternative work styles" is likely to continue.

Telecommuting is not for everyone. Advantages of telecommuting may include fewer distractions; disadvantages may include less social contact with co-workers and more isolation. Check to make sure the position and the person is right for the job. Employees who are successful working at home are self-directed and motivated, with a history of solid job performance.



Managing telecommuter safety

Implementing a managed safety process is critical to optimizing the working environment of telecommuters, reducing the risk of claims and injury costs, and increasing profits. Key stakeholders inside and outside the organization are essential to the success of this program. Obtaining accurate and complete injury data and hazard information to effectively manage telecommuter safety is a challenge for managers.

Three approaches are recommended:

1. Employee reports: Prompt reporting of hazards, injuries or symptoms to the employer is important for treatment and prevention. However, some telecommuters are reluctant to do so, fearing that reporting work-related hazards or injuries may result in the cancellation of the telecommuting agreement.
2. Review existing records: Records such as workers' compensation claims reports and OSHA logs provide valuable information. Check with your workers' compensation (WC) insurer to make sure worker injuries occurring off-site are properly coded and tracked in your itemized loss statements.
3. Job surveys: These include checklists and surveys dealing with hazards. Employers may not know what hazards exist in the home environment unless the worker voluntarily offers the information. Most companies rely on self-assessments of at-home workplaces.

If you have a safety program that addresses work-at-home employees, evaluate its effectiveness by answering the questions in Table 1. If an answer is "no," or "I don't know," target the item for improvement.

Table 1. Telecommuter safety program evaluation

1	Do you offer guidelines for setting up a home office, including equipment and ergonomic accessories, and provide general recommendations?
2	Do you have self-assessment surveys for ergonomics, computer workstations and home hazards? If so, are these surveys administered online or by hard copy?
3	What do you do with surveys after you receive them? What kind of follow-up exists to determine whether hazards are corrected?
4	How is survey data collected, analyzed and used for improving safety at off-site environments?
5	Do you have a policy addressing what ergonomic accessories and office furniture will be paid for by the company?
6	Do you offer training programs for work-at-home workers that include risk factors, ergonomic solutions, symptom recognition and reporting? If so, are the training programs administered via the intranet, hard copy or other means?
7	Do you assess whether training is completed and learning has taken place?
8	Is there a procedure for reporting computer and systems problems that impact the work-at-home employee? Are these problems promptly resolved? Do you know that for sure?
9	How do work-at-home employees report symptoms and general health concerns they feel are work related? Do they feel they can do so without reprisal of job action? Is confidentiality of reports maintained?
10	Does your WC insurer offer site coding in their claims databases for identifying injuries that occur to at-home or off-site workers? Do you use this data for determining safety and risk management priorities for off-site workers?
11	Do you have a return-to-work strategy for disabled workers who work at home or off-site? Are workers able to receive quality health care? How do you know?
12	Do work-at-home employees communicate regularly with their managers and peers, and are they kept current on company happenings?

Tips for working at home

If you are considering a work-at-home policy, there are several issues to consider in order to maintain a safe and comfortable work-at-home environment.

Planning the workspace

Identify a location that provides you with a physically separate work space, preferably away from the flow of activity in your house. Interruptions by family members can be distracting.

When planning your space needs, a good rule of thumb for space allowance is to identify at a minimum, a 6' by 6' space for your primary work area. Expect space requirements to grow depending on what you need for references or storage.

Walk around periodically. Do not sit continuously throughout the day. Plan movement into your office design and recognize that this adds to the space requirements.

Do not put your office in a small room without windows. A closed room needs two doors out for

life safety. Ideally, you should have ready access to a view greater than 12 feet away. A window makes this easy. The longer view will allow the eye muscles to relax.

Avoid placing the computer next to a window. Windows that are close by create problems with visually demanding work because of the glare. Be careful of extension cords and wiring that crosses the travel area, as they can produce trip and fall hazards.

Be sure you have a lockable door and can control entry into your work area. Try to have an understanding with family members or roommates that you need privacy to conduct business in a professional manner.

Your work area should have at least two means of egress. One way out can be a window if you have a safe means of getting from the window to the ground.

Select a location with access to sufficient electrical power outlets. If you have any questions about electrical supply, have a licensed electrician evaluate your needs and install additional outlets if necessary.

Selecting furniture

Select your furniture carefully, especially your desk and chair. If your company provides furniture, know in advance where you intend to place it to be sure it will fit. If you are purchasing the furniture yourself, check with your manager or someone who is familiar with getting surplus furniture. Your desk will need to accommodate your computer, keyboard, phone, paper, references, stapler, sundry items like pen holders and paper clips, and possibly fax, CD drive, scanner and printer; therefore desktop dimensions are important.

Cheap office furniture offers little flexibility in monitor placement and adjustment. Those with cubby holes for the components can create problems if you have a large terminal, want to use a document holder, or want to use a slant board to hold books or other large references.

If you have a typical VDT monitor, you will need a work surface with at least 30 inches depth. A work surface with less depth is going to create problems. It is not unusual to find that the depth of the terminal combined with the depth of the keyboard exceeds 24 inches. In this case, you will need to install a keyboard support or tray.

Do not place the monitor to the side of the keyboard. This is a poor solution because your neck was not designed to be held in a twisted position and you will eventually begin to develop neck and shoulder pain.

The desk may have a fixed-height work surface or it may be adjustable. Adjustable is better because you will be able to set it at the correct height for you. Fixed height desks or work stations are usually in the range of 28 inches to 29 inches. This is a problem for many people. Some may find the keyboard is too high, even when using a standard office chair adjusted to its highest point. This requires an adjustable keyboard holder to bring the keyboard down to a comfortable position.

Keyboard trays or holders should be at least 26 inches wide and at least 10 inches deep or more. Keyboard holders or trays have some serious trade-offs. They are generally not as stable as a desk top and can be loose or bouncy. Trays push you away from the working surface and everything you have on that surface. The phone is harder to reach, you often have to stretch out your arm and get into awkward positions just to write, and you will find yourself leaning and stretching out to read documents.

Select a solid, substantial desk or work station that doesn't tip over when loaded up or when an overloaded drawer is pulled out. Beware of raised edges, and look for good leg clearance (at least 17 inches deep at the knee) and a matte finish. Center-drawer desks are not a good choice because the drawer will not allow for adequate leg clearance. A table is better, as long as the surface has cantilever support or is otherwise designed so there is no part of the frame impinging on leg room.

The chair is a critical component to your home office. Look for a commercial office chair with height adjustability, back tilt mechanism, lumbar support and one with a seat pan that is the right width and length. Select one wisely after trying some out. Most office chairs adjust in the range of 16 inches to 21inches.

Your chair should have a 5- or 6-point swivel base with wheels, and a rounded or waterfall front edge. Some seat pans are strongly contoured; these can be a problem for some people. Be careful that armrests don't stop you from bringing yourself up close to the keyboard. If the chair has armrests, it is preferable that they are adjustable as they can limit movement. The backrest should not be so wide that your elbows bump it.

Using the laptop computer at home

Many laptops lack the image clarity of a full size VGA monitor and can create eye discomfort. Docking systems or simply attaching a full size terminal are good solutions for those whose work requires a substantial amount of visual interaction with the screen. A full size keyboard and mouse or other pointing device should be used as well.

The following tips can minimize the onset of eye fatigue and strain when using your laptop at home:

- Take "mini" breaks by focusing on a distant object for a few seconds
- Keep the screen clean at all times
- It is better to make keyboard position your primary concern
- Use drapes, shades or blinds to control glare
- Keep your head in a comfortable position, not overly turned or tilted. Adjust the screen brightness and contrast levels that allow you to comfortably view the screen

Working with a laptop keyboard for long periods can be uncomfortable and fatiguing. Especially problematic is a laptop keyboard for someone who must work with numbers. A regular size and configuration number pad as a peripheral is essential for those who work with numbers on a laptop computer.

Consider your environment

If you have a regular light-emissive terminal, the ambient lighting around the screen should not exceed 500 lux (50 foot candles). If you have a flat panel display, you can increase the lighting to around 750 lux (75 foot candles). Indirect fluorescent lighting or fluorescent lighting with diffusers that train the light directly downward is the best choice.

Avoid having any bright light sources in your immediate field of view. The preferable location for light sources is behind you, over a shoulder at an angle or at a right angle to you so that you do not see a reflection in the screen.

Walls and wall coverings should be non-reflective. Some walls have enamel paint or shiny wallpaper that can be very reflective. Avoid the impulse to put framed artwork or photographs in your immediate field of view because they tend to have a relatively high reflectance.

Most noise at home will come from televisions, stereos and conversation. Locating your office out of the mainstream of activity will allow your family or roommates to conduct normal lives while you work.

The home office should have adequate ventilation. If the home has a forced hot air system or central air, a duct should be in the work area.

Most home carpeting and carpet pads are softer and less durable than commercial carpeting used in offices. Your chair will not roll as easily and may be a problem for you to easily change position as you perform your tasks. A solid carpet protector can be helpful but can also be a problem if the chair rolls too easily.

Making a good ergonomic fit

Once you have installed your furniture and equipment, it is important to adjust your workstation to fit you.

If you adjusted the chair up to compensate for your arm position, you will find that your heels are now off the floor. You will need a foot rest sized to allow your feet to rest flat on the floor or with the toes at a slight upward angle. It is not a good idea to sit with your feet extended for long.

Position the monitor for a moderate downward gaze angle, and between 20 inches and 30 inches from your eyes. Those who are farsighted might even find the monitor comfortable at 40 inches. If you are a hunt-and-peck typist, it might be easier for you to have a closer, lower monitor so you aren't moving your head and neck up and down. For those who touch type, a monitor at a higher position will probably be more comfortable.

A word on eye wear: a very common problem is presbyopia, the loss of the eye's ability to see close objects clearly. Presbyopia is usually corrected with bifocals or trifocals. If you are a touch typist or know the keyboard so well that you need not do more than glance at it occasionally, it would behoove you to get monocular lenses to replace the bifocals while working. The strength of the monocular lens should be set for the distance from your eyes to your screen. If you are a hunt-and-peck typist, special bifocal lenses for VDT use is a good option. In this case, the top lens is set for the terminal distance and the lower lens for the keyboard.

Document holders are often a case of personal preference. In most cases, the home worker will be composing rather than transcribing, so it is often unnecessary to be concerned with a document holder. If your work involves a lot of transcription from a printed document, it will be very important to have a document holder. Generally, document holders are designed to be at the side of the terminal or between the terminal and keyboard.

Wrist rests are not for everyone and in some cases can be a problem. A wrist rest provides a soft place to relax the hands when not typing. Hands should be cupped and above the keyboard when typing while the wrist is straight or very slightly extended.

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Wayne Maynard is a Certified Professional Ergonomist and a Certified Safety Professional. He is a product director – workers' compensation, ergonomics and tribology at Liberty Mutual Insurance, Massachusetts, USA. Tribology is the study of the interaction of sliding surfaces and is applied to pedestrian slips and falls. It is an area of research at the Liberty Mutual Research Institute for Safety.

Is your child at risk?

Dr Romina Ghassemi shares a terrifying tale of poor posture and physical pain as a result of our obsession with technological devices

POSTURE problems in young people are rising right under your nose. Are you a parent reading this article? Do you suffer from neck or back pain after a long day at work? Headaches, maybe? Did you wake up with pain? Maybe you didn't, but the other 65% of working population did.

You don't stop eating because you are afraid of cavities. Then why do you expect the millennial to give up their smart devices? How many children do you see already in a poor state of health? How many do you know personally?

Just like cavities, using smart devices puts us at risk. It's not about "What is wrong?" it's about how we react to it as individuals.

Let me share a personal story…

It was a hot summer day and their laughter echoed like angels singing. The three 13 year old girls, Tina, Melisa and Helen, splashed around the pool as their parents barbecued and talked sports. Tom watched his daughter Tina play in the pool with her cousins.

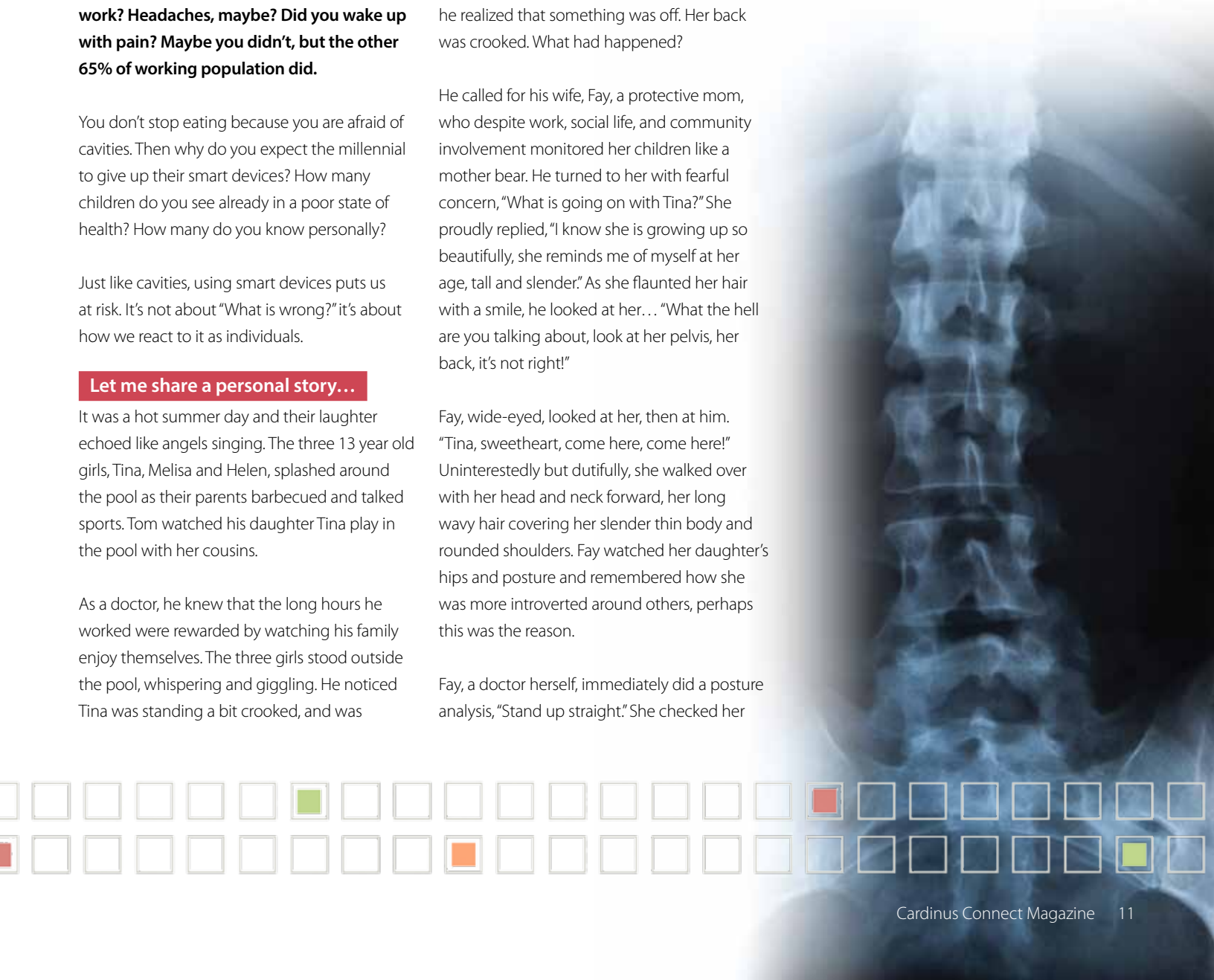
As a doctor, he knew that the long hours he worked were rewarded by watching his family enjoy themselves. The three girls stood outside the pool, whispering and giggling. He noticed Tina was standing a bit crooked, and was slouching compared to her cousins. It caught his eye and his smile changed slowly to an objective analysis. He watched Tina walk to grab towels from the other side of the garden when he realized that something was off. Her back was crooked. What had happened?

He called for his wife, Fay, a protective mom, who despite work, social life, and community involvement monitored her children like a mother bear. He turned to her with fearful concern, "What is going on with Tina?" She proudly replied, "I know she is growing up so beautifully, she reminds me of myself at her age, tall and slender." As she flaunted her hair with a smile, he looked at her… "What the hell are you talking about, look at her pelvis, her back, it's not right!"

Fay, wide-eyed, looked at her, then at him. "Tina, sweetheart, come here, come here!" Uninterestedly but dutifully, she walked over with her head and neck forward, her long wavy hair covering her slender thin body and rounded shoulders. Fay watched her daughter's hips and posture and remembered how she was more introverted around others, perhaps this was the reason.

Fay, a doctor herself, immediately did a posture analysis, "Stand up straight." She checked her head, ears, shoulder blades, back, pelvis, hips and knees. "Turn around honey." Tom stood there and looked at his daughter and wife, an unsettling feeling of concern wrapped around his stomach. Tina's head was 6" over her shoulders. Her right scapula was notably rotated back and her right pelvis was 3" higher than the left side. "Mom, are you done? The girls are waiting for me."

Fay and Tom looked at each other in concern. Fay immediately said to Tina, "Honey, we will make an appointment with your godmother Romina, she will take care of you."



Fact: **72%**
of elementary school children have suffered back or neck pain in the past year.

Fact: **64%**
of middle and high school children have suffered back and neck pain in the last year.

At the office

I greeted my best friend Fay and Tina. I love these girls. Last time they visited my clinic was when she was 4 years old and she fell off the kitchen counter.

I immediately knew there was a problem. We walked to the examination room.

Fay shared her concern about Tina's posture and how in the past year she has been lying on her beanie bag, creating movies, playing games and doing her homework on her laptop. She has been complaining of neck and back pain, with frequent headaches. She takes Tylenol to soothe them.

"We have been telling her to "stand up straight", and she slouches, maybe she will listen to you. Last week at a BBQ we noticed that her pelvis was off, can you check her?"

I proceeded with my examination and X-rays. I sat in my office, looking at Tina's X-rays with tears pouring down my face and I thought, "How do I share this with Fay?" From the mirrored window in my office I could see them giggling over her nail polish. My voice became muted; I held back the tears as I drew lines, angles and measurements on her X-rays. Oh my god, why did this happen? This is my baby girl!

I pulled myself together as I put on my white coat; "maybe the coat can give me strength," I thought. I pulled my hair back, cleared my throat, stood up and forced a smile.

I called them to the consultation room prior to showing the X-rays. I then started my explanation:

"Within the past few years there has been a notable rise in the number of young adolescents and adults suffering from neck, upper back and lower back pains. In the past we blamed heavy back packs, now we have an added insult to the growing fragile bodies of our children. The side effects of smart device integration in children's lives. In fact; Kaiser Family research states, "On average 8-18 year olds spend about 7.5hrs a day on some form of smart device.""

You see, there are three common factors that contribute to poor posture. These are:

1. Muscular problems
2. Structural problems
3. Functional problems

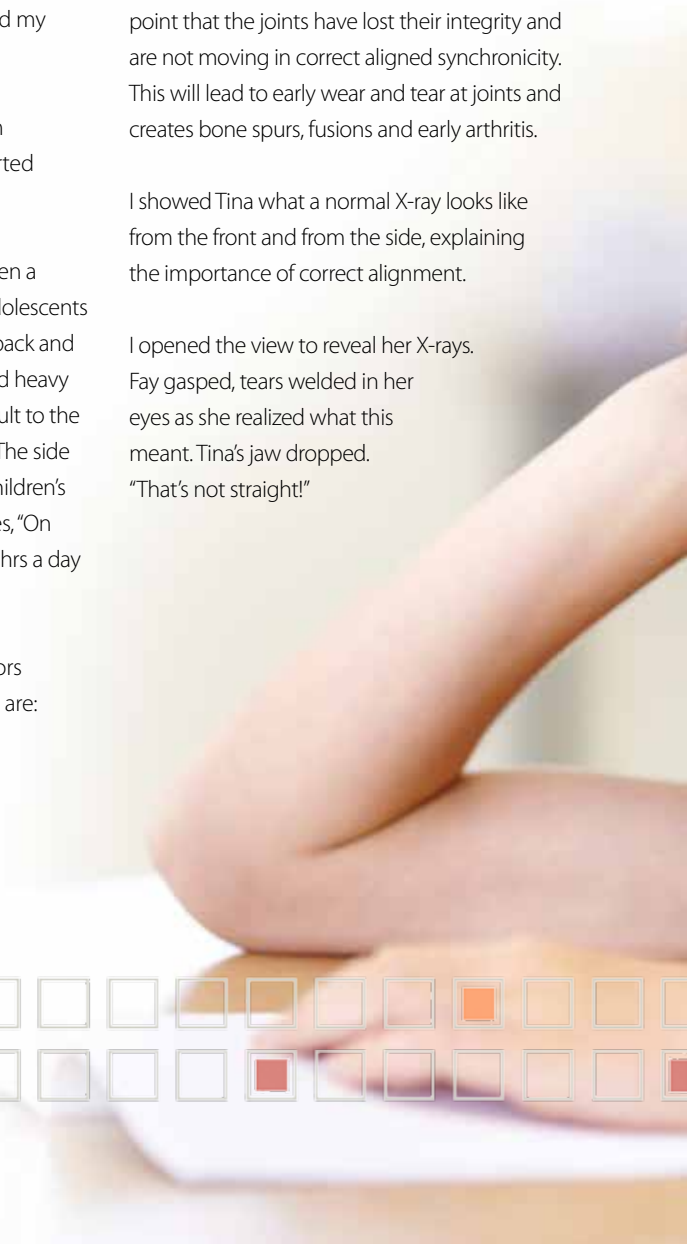
Muscular problems come from poor muscle balance, usually due to developed bad habits. Beanie bags, texting and the position of the neck while playing games on hand-held devices all contribute. In adults it could be poor ergonomics at work or when driving. Usually most noticed with stiffness and muscle aches.

Structural problems are deeper issues. Specifically speaking these are changes to the skeletal system. This generically is known as "Scoliosis". An X-ray can identify the source as being born with the problem (congenital) or as a development in later life (structural).

Functional problems are when the skeletal system and the muscular systems change to the point that the joints have lost their integrity and are not moving in correct aligned synchronicity. This will lead to early wear and tear at joints and creates bone spurs, fusions and early arthritis.

I showed Tina what a normal X-ray looks like from the front and from the side, explaining the importance of correct alignment.

I opened the view to reveal her X-rays. Fay gasped, tears welded in her eyes as she realized what this meant. Tina's jaw dropped. "That's not straight!"



"Based on your X-rays, it is evident that you do not have a congenital problem. You have a condition called adult onset idiopathic scoliosis. I believe your spine is reacting to the abnormal postures you've been adopting over the past few years and it has caught up with you on your growth spurts. Your body has changed due to the pressure loads as a result of poor postural habits and demands. This is noted in many ergonomic evaluations on adults. In the past children were more physically active and did not spend their time looking down other than at homework for few hours a day. That has changed dramatically with phones, tablets, laptops… now your body is reacting to these changes."

For every 1" that your head is off its center, there is between 10-15 lb. of pressure loading on your spine.

From that day on we put Tina on a strict program of chiropractic treatment, physical therapy, yoga therapy and hard bracing. Nine months later and $30,000 in out-of-pocket expense we were able to make some changes to her spine. Tina will have to wear a customized brace for many years on a daily basis.

As a doctor we look at anatomical changes and fail to share with parents the psychological ramifications.

A growing child needs to develop his or her personality in society and matters such as confidence, ambition and social interaction are building blocks of a child's emotional IQ.

If a child feels he or she is different or has an imperfection, they try to hide their secret to avoid being ridiculed or bullied. That child's future is then put at risk.

As parents it's important to check your child's posture. To raise our future presidents, senators and world leaders we need to ensure they do not grow up insecure, introverted and unable to make the right decisions as result of poor self-image. A simple posture analysis and prevention will change your child's future, just maybe!

This personal story is to impress upon you the importance of educating today's parents so that our children are healthier. Together we can make a difference in more ways than you can imagine. I speak out because "I care". Join our team to educate, empower and promote better health through early detection and prevention.

Dr Romina Ghassemi DC is a local practitioner and her baX-u posture support won an innovative product of the year award in 2014. For more information about Dr Ghassemi and her work on community posture evaluation visit SanPedroChiropracticAndPosture.com

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Oh my aching head:

The plight of proving the "proven" benefits of ergonomics

If the benefit of an ergonomics program is already proven, then why aren't we acting on it? Donna DeFalco looks at the proving the already proven.

DO you ever wonder why it is so difficult to engage management in the cost benefits of having a robust ergonomic program given all of its "PROVEN" benefits?

You would think it would, given the fact that ergonomics has been PROVEN to reduce MSD costs, improve productivity, improve quality of life and work, improve employee engagement and create a better safety culture. Industry across the board should be clamoring to be the first to have the most proactive solution-driven ergonomics program.

Building a team between HR, safety, facilities and wellness would be a no brainer and Total Worker Health would be at the helm. Instead corporations are silos and it is PROVEN that they are experiencing:

- Increased cost both direct and indirect for MSD claims
- Sluggish productivity
- Less than optimal quality of work
- Employee dissatisfaction
- Constant struggle to engage employees
- A culture of safety is on the bottom instead of the top of the corporate list

As Yogi Berra once said "you can observe a lot by watching" and it seems that no one is "watching". If they did they would observe that there is so much they can do to have an impact in creating a culture of safety, while cutting costs, improving productivity, engaging employees, improving quality, and they don't have to spend time trying to prove it.

IT IS ALREADY PROVEN.

So one of the potential reasons for this sluggish pace is the inadequate integration of human factors and ergonomic principles and methods in these efforts. Employee safety and MSDs are complex and rarely caused by one factor or component of a work system. Health care would benefit from human factors and ergonomic evaluations to systematically identify the problems, prioritize the right ones, and develop effective and practical solutions.

Why do ergonomic initiatives fail?

- Typically owned by a small group or one person in a corporation
- Not given priority
- Flavor of the month
- Feels like it is imposed by management
- Stuck in the traditional way of doing things
- Chasing injuries
- And I am sure a host of other reasons

So what does a successful ergonomic initiative look like?

A successful ergonomic initiative will have support from management, participation from all employees, a willingness to look at things differently and enthusiasm for the continuous improvement process.

Sounds easy right? Not! However, the proof is in the pudding and as millennials enter the market I do believe proving the already proven benefits will no longer be the struggle. Millennials as they enter the workforce will be inviting their pre-existing MSDs to come with them for some on the job training and the trend for MSDs to be one of the top 3 cost drivers for corporations will continue.

However millennials also bring with them:

- Team work/group work/group participation
- Creativity and the ability to look at things differently
- Ability to multi-task
- Purposeful action
- A sense of the wider community
- Technology embedded
- Enthusiastic about improving the process

And finally, the recipe for supporting a successful ergonomic initiative

So as millennials bring their habits and injury to the workforce, help them understand where their discomfort and injuries come from. If you show them the proof that their habits will have created their MSDs they will be the most proactive group to incorporate ergonomic awareness and education and use what they have learned as a motivation for change. They will observe and watch. They will be proactive and community minded. They will move and be healthy!

They will prove that we Boomers have the proven solution!

Donna Defalco is a consultant and wellness program developer with over 30 years of experience in musculoskeletal health and stress related disease. President of The Health Enhancement Company she overseas on-site wellness and development around ergonomics issues to national and international Fortune 500 companies.

Information security management

Information is a valuable asset. So how do you protect that asset, and how do you manage it? Andy Taylor tells all

INFORMATION has been a valuable currency for many centuries, since the very earliest civilizations. Its importance has only continued to grow in the intervening millennia. Today it is the lifeblood of most, if not all, companies and organizations who thrive in the modern world.

Whether your business is plumbing, manufacturing, logistics, financial services or retail, the information you have and use on a regular basis is critical to your business and must be looked after just as you would any other asset. It is not too trite to say that information is now probably your most valuable asset.

Business risk

Risk to your business is an everyday management issue. You would be failing in your job as a business leader if you were not considering risks to your business. Information has the capacity to become a major risk to your business. Unfortunately the risk is not directly related to the size, type, location or makeup of the organization. There is every likelihood that the smallest organization will be attacked for the information they hold, as would a major multinational one.

Some of the most serious data breaches in recent months have come about because of the inadequate security measures taken by suppliers. This works both ways: suppliers to you might be a problem and those to whom you supply goods and services might be at risk from your poor security practices. In either case the end result is likely to be the same – damage to both companies with the potential for serious consequences including bankruptcy. If information security risk management is not a standing agenda item on your management board's meetings, you are likely to be failing to do what is required.

What should you do?

You do not need to be a security expert to start the process of ensuring you are taking the necessary precautions to look after your information. The basic principles are little more than common sense.

You need to know what information assets you have, where and by whom they are held. This is not necessarily an easy step but it is crucial to understand what you are trying to protect.

First steps

This should automatically lead into why it is important to look after the information you hold. Some information may need very careful protection such as:

- Identifiable personal data
- Financial data (such as bank account details of suppliers or customers)
- Intellectual property with copyright, trade secrets and the like

Other information like marketing materials, routine administration or simple names and addresses may need less protection because it has less value. It is not necessary (nor cost effective) to try and protect all information to the same level. Do watch out though for dependencies that might not be quite so obvious. One piece of seemingly insignificant information might be the key to a whole range of other information which, if removed from the system, could result in catastrophic failure of the whole information service. Creating a topology of the way information flows around an organization can help to identify weak points, hot spots, bottle necks and critical dependencies that need to be addressed more carefully.

Once you know what you are trying to look after, where it is held and by whom (it could be outsourced for example) then you can take a measured approach, a risk strategy, to the management of the risks faced. A business impact analysis will help you decide which information is going to cause you most damage if it were lost, unavailable, corrupted or misappropriated. It will be closely linked to money and the amount you as an organization are prepared to spend on protecting your information assets. Clearly spending to look after the most critical assets, the ones with the potential to cause most damage or financial loss, is likely to be higher than for the more general information.

Next steps

It is important to understand that information like any other product has a lifecycle. Information is created (perhaps for raw data for example), then stored and processed (often repeatedly), and finally destroyed. Your risk management strategy must address all stages of this life cycle.

It might be useful to break down the requirements for each stage of the lifecycle into constituent parts each of which will need careful consideration. These elements must be present at all times, for all information and for all stages of the lifecycle if the asset is to be managed and protected appropriately. Here are some questions you should be asking, although it is not an exhaustive list:

- Training – do the people know what to do and how to do it correctly?
- Equipment – do you have the right type of equipment/process to ensure the secure creation, storage, processing, transfer and deletion of information?
- Personnel – do you have the appropriately skilled people available to you to advise on security, to design secure systems and to manage security on a day-to-day basis?
- Information – are you collecting the appropriate information on threats and weaknesses (vulnerabilities) in and about your systems to make the right assessment of the risk?
- Policy – do you have the right set of policies that make it clear to everyone what they must, can and should do with regards to information security?
- Organization – do you have the right people making the key decisions in a timely manner based on good information, experience and advice?

- Infrastructure – do your IT systems facilitate best practice security management because they have been designed with security as a basic principle?
- Logistics – do you have the appropriate money, resources and related logistical requirements to manage and maintain your systems?

The risk from a cyber-attack is best managed if a formal systems engineering approach to design, development, maintenance and disposal of system is used. It has to be a cradle-to-grave approach and, as ever, the weakest link in the security chain will always be the place where the successful attack will be targeted. Well implemented service management should deliver security as part of their everyday activities.

Ongoing steps

Once you have the basic principles of security in place, the ongoing maintenance is critical. The people in an organization are still widely accepted as the primary weak point in cyber security as it is often staff members that cause major problems when they do something they shouldn't through ignorance, accident or deliberate act.

It is often an excellent idea to train up and appoint "champions" who are workers throughout the organization to whom questions can be posed by staff, who can be seen as the first port of call with regards to security and who can help to spread the key security messages to the entire workforce. They should not be technical people necessarily. They need to speak plain language not "techno-garble" and must be regularly trained and updated on the current threats and events to which staff might be exposed. They should be given ownership of information assets, processes and/or the defensive measures to be taken ensuring, of course, that there is no conflict of interest.

How good do we need to be?

The simple answer is good enough but of course that should not lead to complacency. There are many ways of assessing how well your organization looks after its information. In the UK the government has developed a "Cyber Essentials" guideline to help businesses understand what they should do. For larger and more security conscious businesses this guideline leads into international standards. The international standard ISO/IEC:27001:2013 certification can be used as a higher level measure of assurance. Penetration testing of your systems both internally and externally can also be undertaken and should be considered as mandatory for any system that is internet-facing.

These certifications all have their place (and there are plenty more of them) but they should also be considered with some care. They are all really little more than a snapshot of the security in place on the day the assessment was done. If the system

changes, the threats change, the staff change or indeed virtually anything changes in relation to the information system, there is a risk that the overall security will not be as effective as it was thought to be.

True cyber defense must be a proactive process if real threats are to be stopped or at least have their impact minimized effectively. To be proactive, there must be continual improvement in the way all security controls are implemented and operated. Only if that is happening will the defenses continue to work effectively against the newest and latest threats and vulnerabilities. So a measure of the maturity of the implementation of the controls is paramount. If this is done appropriately and the results passed to the relevant board members, they should then be able to see where they need to reconsider their security defenses, where there is need for more (or perhaps less) expenditure and what the company is facing in terms of the real potential financial impact risk.

Once this is understood a proper plan of action, appropriately resourced in all respects, can be put in place to provide the level of protection the board feel is appropriate. This is likely to include some transfer of risk to an appropriate insurance policy. The cost and coverage of the policy is likely to reflect the degree to which the organization has taken measures to protect itself.

Once the maturity has been benchmarked, changes in policy, technology, risk or anything else can be considered with a repeat of the assessment either carried out by internal staff or by external independent assessors. This is then the hall-mark of a mature organization that is least likely to be attacked successfully from the internet or anywhere else!

How good do we need to be?

1. Know your business and the digital assets upon which it depends
2. Agree an overall risk strategy that you intend to manage
3. Include cyber defense management as an equal stakeholder in the strategy
4. Quantify and evaluate the financial impact of data loss or business outage for your business
5. Break your strategy into the operational risk management of lifecycles covering training, equipment, personnel, information, policy, organization, infrastructure, logistics
6. Assign the responsible "champions" to each business asset and defensive strategy (threats c.f. control list), de-conflict these!
7. Create the topology of what you are protecting and the dependencies of each business component
8. Benchmark against known cyber security outcomes of how well you currently perform against each of these controls and publish the findings to the risk board and non-executive directors.
9. Agree plans that include the cost to remediate problems, to transfer risk to insurance or decide what you are prepared to self-insure
10. Repeat the quantification and business strategy assessment whenever the business, the systems, the threats or the vulnerabilities change.

Andy Taylor is the lead assessor for APMG International in several cyber security disciplines. These include the schemes set up by GCHQ to assess the competence of individuals, cyber security training and the organizations that provide the courses. He has worked in security since the mid 1980s and is a qualified lead auditor for ISO27001. APMG's Cyber Portfolio includes the Cyber Defence Capability Assessment Tool (CDCAT®), developed by the Defence Science and Technology Laboratory (Dstl) and industry supported certification scheme Cyber Essentials, developed by the UK government which provides criteria for organizations to measure their cyber-security systems against. CDCAT® is available through Kyngswoode Services Limited, a Channel Partner with APMG International.

Some of the most serious data breaches in recent months have come about because of the ***inadequate security measures taken by suppliers.***

ISO 45001 – the new safety management standard

Within the next 12 months ISO 45001 will replace the existing BSS OHSAS 18001 occupational health and safety management systems requirements, says Andy Hawkes

The current standard has been around for a number of years and has been the way many firms have developed their safety systems. This new standard will build on previous standards, specifically in planning, organization, control, monitoring and review.

So what are the key changes under ISO 45001?

A review of the series of early drafts sets out three distinct and important changes.

1. The new organizational clause

In order to meet the new standard, managers will need to link the SMS to their organization's wider context to ensure that it is fit for purpose. This means that organizations must consider all stakeholders, including employees, as well as relationships with third parties and all dependencies. In practice, this could mean outsourced services and even separate businesses on the same business park. You will also need to consider all suppliers of goods and services.

2. Senior managers should build in health and safety, not bolt it on

The new standard places much more emphasis on leadership and on aligning health and safety with other corporate objectives. Health and safety policies and procedures will need to be compatible with the firm's strategic direction and should be embodied in the overall management system and not be an added extra. In essence health and safety must be integral to, and no different from, managing all other functions within the business.

3. New annex SL structure

ISO 45001 will follow "Annex SL", the new Standard Structure for ISO Management System Standards. The main benefit of this will be easier read-across between different management systems, for example, quality 9001, and, especially environment 14001. This common core structure should save money, resources and time and ensure different standards do not conflict with business objectives such as cost control, quality control and productivity initiatives.

When creating an SMS, choose the simplest system that still meets your legal requirements. Match your systems to your organization's size, complexity, hazards and risks.

So, if you are a small, low risk business a simple document of a few pages will probably suffice whereas larger, more complex businesses will need more elaborate procedures.

With the final version due to land soon, the practical considerations of creating and implementing an SMS will bear heavy on the minds of safety managers everywhere. Proper preparation will be needed to ensure that you can meet this new, expanded standard.

Andy has worked in the insurance and risk management sectors for 30 years. He is currently CEO of THB UK and Cardinus Risk Management, part of AmWins, a global insurance and risk operation. He has operated at main board level of a FTSE 250 plc as well as an AIM listed entity and has founded and sold a number of companies in the insurance profession. He has written widely on insurance risk management issues and has specific expertise in speciality commercial insurance as well as compliance and governance risk. Andy is a IIRSM Council member as well as a Trustee of The Alchemy Charitable Trust and a Non-Executive Director of Risk Alliance Group.

Growing green workplaces: The latest from LEED

Learning to LEED? Jennifer Law guides us through the ups and downs of green, sustainable and ergonomic design.

MY first encounter with 'green' ergonomics was around 2007 when I met with a local furniture dealer to review some of their new office products. As I toured their showroom they were using terms like cradle-to-cradle to describe keyboard trays, Greenguard for chairs, and daylighting in new workspace layouts. What did these words mean? After doing a quick internet search to learn more, I was led to other sites that referenced sustainability and LEED (Leadership in Energy and Environment Design). Then there were more questions. What was the difference between green and sustainable? How would this affect the very basic goal of ergonomic design; to improve the comfort, productivity, efficiency and wellbeing of employees?

Therefore aside from obvious desk components that affect user posture and comfort, the surrounding environment is just as important. Decades of related scientific research has shown that certain environmental conditions, specifically in workplace settings, can either positively or negatively affect our minds and bodies as a whole. This includes but is not limited to light, air quality, temperature, noise and color.

The U.S. Green Building Council (USGBC) was founded in 1993 as a non-profit organization that promotes sustainability in building design, construction and operation. The USGBC developed the LEED Green Building Rating System that provides third-party verification of green buildings from commercial to residential, retail, healthcare, schools and neighborhoods. In addition, through its partnership with Green Business Certification Inc. (GBCI), USGBC offers a suite of LEED professional accreditation that denotes expertise in the field of green building. Projects may earn one of four levels of LEED certification. The current point system is as follows: Certified = 40-49 points, Silver = 50-59 points, Gold = 60-79 points, Platinum = 80-110 points.

With LEED being widely used across industries, several studies explored whether the needs of building users were being met with respect to office layout, lighting, temperature and acoustics. For this reason, the USGBC recognized the need for an enhanced focus on the building occupants.

In March 2012, a formal pilot credit (Pilot Credit 44) was developed to recognize ergonomics. The intent of this credit was to provide 1 point towards LEED certification for the incorporation of an ergonomics strategy during the design process.

Adding an ergonomics requirement to the LEED system was a vital yet natural extension because the overall goal is the same - designing the workplace to accommodate its users' health, wellbeing and productivity. There were even indications of harmony between the traditional LEED categories and ergonomics credit. For example, a basic desk chair may be replaced with an ergonomic task chair constructed with a percentage of recycled material, thereby contributing to both occupant comfort/health and environmental sustainability efforts.

On April 2, 2015, The National Institute for Occupational Safety and Health (NIOSH) announced its recognition of LEED. Participation in NIOSH's Prevention through Design (PtD) activities became available as a possible 1 point LEED Pilot Credit towards LEED certification. PtD addresses occupational safety and health needs by eliminating hazards and minimizing risks to workers throughout the life cycle of work premises, tools, equipment, machinery, substances, and work processes including their construction, manufacture, use, maintenance and ultimate disposal or re-use. The ASSE/ANSI Z590.3 Prevention through Design Guidelines was first published in 2011 to address occupational hazards and risks in design and redesign processes.

Since then, the USGBC and NIOSH have worked to recognize and support high-performance, cost-effective employee safety and health outcomes across the building life-cycle through early attention to safety and health hazards. Many U.S. companies openly support PtD concepts and have enhanced their management practices to implement them.

As of January 2016, the LEED Ergonomics Pilot Credit 44 was refined yet again to specifically address "computer users", defined as full time equivalent staff that utilize a computer for more than 50% of their workday. The new requirements entail applicants to engage an ergonomist or health and safety specialist to assist in the development of an ergonomics strategy to include reviews of design options, mock-ups and user feedback. This would be followed by one year of tracking the performance of the strategy to ensure all goals were met in order to obtain 1 possible point towards LEED certification. The goals include meeting the standards/guidelines of HFES, ANSI, ISO or CSA.

Recognizing that green or sustainable does not always necessarily mean comfortable or safe, was a pivotal element in this guideline. For example, sustainable wood flooring may earn LEED points, but if its Slip Index is under 0.2, it will increase the risk of slips and falls while also preventing an office chair's casters from staying in place as desired. No matter how environmentally responsible the product, if it does not uphold the best practices for human interaction and performance, it will have little value. As stated in the Pilot Credit 44 description, the intent is, "To improve occupant well-being (human health, sustainability and performance) through integration of ergonomics principles, specifically in the design of work spaces for all computer users."

Between OSHA, HSE, ISO, ANSI, BIFMA, etc., adding the LEED element seems like just another guideline in which to adhere. Plus there is still controversy as to whether green buildings are truly more energy efficient and cost effective. Various research has found conflicting results; especially if participants can pick and choose the easiest points to take the cheapest road to certification. Therefore it is best for each organization to carefully weigh the benefits and drawbacks of implementing a LEED program and to determine the intended returns. It may depend on the company's values – similar to one's personal reasons for eating the more expensive organic vegetables versus the affordable conventional varieties. Others may be driven by energy savings, water preservation, social responsibility, human health or all of the above.

Regardless of the intended impact, LEED will certainly plant the seed of environmental quality improvement within a building; if not raise awareness of environmentally responsible choices if that is part of the end goal. From an occupant health and safety perspective, it could spare some office employees from headaches resulting from wall paint emissions containing VOCs (Volatile Organic Compounds) and save others from tripping over recycling bins placed in unfavourable locations which had not been considered in the design process.

Therefore if the root of LEED programs is to cover the same goal of occupant comfort, health and wellbeing while also branching out to make environmentally responsible choices for your company, perhaps the green concept may grow on you.

Further reading

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Jennifer Law is a Certified Professional Ergonomist and a Vice President of Marsh's Workforce Strategies Practice. She has over 12 years of consulting experience within various industry sectors developing strategic corporate safety and ergonomics programs, with an approach that emphasizes organizational culture, collaborative teams, workplace design, emerging risks, innovation and sustainability. She also serves as an advisor in commercial/industrial product design. Jennifer is an active member of the American Society of Safety Engineers (ASSE). She serves as an Advisory Committee Member, Mentor and Local Chapter Representative for ASSE's Women in Safety Engineering (WISE) group.

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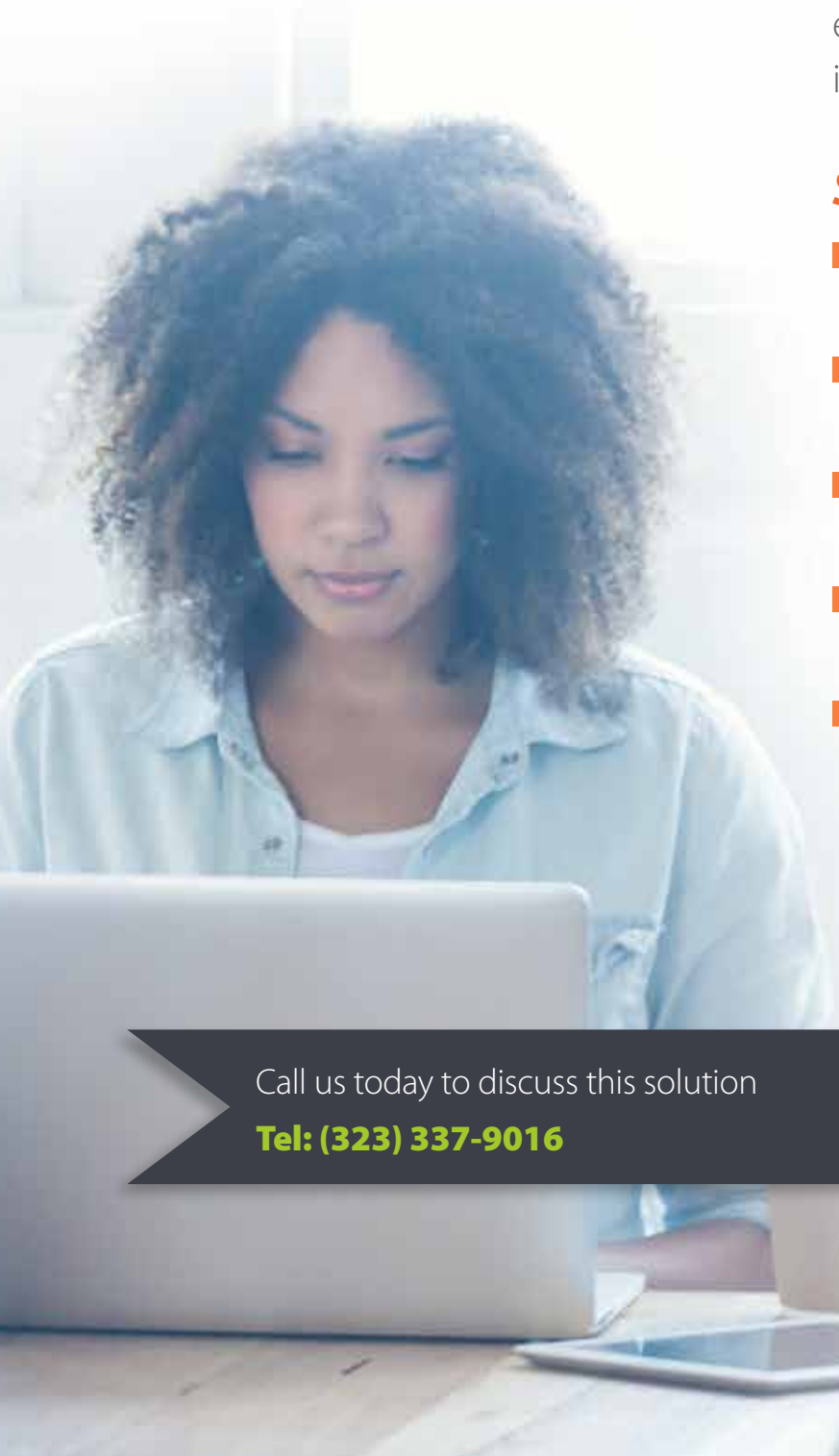

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Too high? Too low? Just right!

We often forget about vision when considering monitor height. Robin Cyr tells us how important a factor it can be when attempting to lessen neck pain

THE viewing angle when looking at one's desktop monitor, laptop, tablets, and smartphones is an ergonomic risk factor receiving a great deal of deserved attention. Injuries related to neck pain and potential damage to the cervical spine and discs are well documented in users of all ages. Lately, the focus has been primarily on teaching avoidance of "looking down" and flexing the neck while doing so. This is an especially significant risk with constantly used hand-held devices and to anyone of any age sustaining this awkward head-on-neck position for hours each day.

There are, however, a host of associated risks with monitors that are too high to view with one's head level that are not currently garnering as much attention. While use of small, portable gadgets is on the rise, many workers are still tethered all day to desktop systems with or without sit/stand capability or monitor arms. Monitors are often too high as users' vision needs change over time and their workstation set-ups do not, or there is simply a lack of understanding about what "viewing the screen with head level" means. Let's take a look at those risk factors and how to recognize them through responses to computer-delivered risk assessments or in person in the field during ergonomic desk assessments.

First, a brief review of human anatomy and physiology. The human head weighs around ten pounds. Visualize a 10 pound bowling ball perched on your shoulders and supported by your neck. When your head is level, your bowling ball weight-skull is virtually weightless on your shoulders and you have no physical sensation of the weight being carried. When you lean forward, your head automatically tilts back extending the neck and compressing the discs between the cervical vertebrae, resulting in tightening the muscles in the neck, upper shoulders and between or beneath the shoulder blades to bear its weight.

Second, consider that most workers at or over the magic age of 40 begin to experience age-related farsightedness (presbyopia) and now need reading glasses, over-the-counter or prescription, to see clearly up close. Keep in mind that for human eyeballs, close focus involves the slight rotation inwards (convergence) at a downward angle to view something closer than about 36 inches. That's why when you sit down to read a book or newspaper, you automatically hold it well below "eye level" because this is the most comfortable position for your eyeballs to do their job of focusing on something close to you. Note, too, that gazing downward to read a book or magazine does not necessarily cause you to bow your head by flexing your neck.

What does vision have to do with neck posture and monitor height? Here's how the answer to that unfolded for me. Having worked with the same population of workers for many years, and having adjusted their workstations several times for their comfort during that timeframe, I was initially puzzled to start receiving calls that, "My neck hurts!! Would you please come take another look at my workstation?"

Workers are used to hearing that they must be able to view the monitor (digital screen equipment) with head level. However, the admonition to "view the screen with head level" usually doesn't include the caveat "with head level while wearing whatever vision correction is

required to see the screen in focus." As a practicing ergonomist with 20 years of experience, I'm finding many monitors much too high for safe, ergonomic posture. I routinely have to remove monitor risers rather than add them to a workstation. What follows are the clues that worker vision is at the heart of neck extension and pain when seated at a too-high monitor.

Upon visiting employees with newly reported neck pain, I noticed that the most common change in their work environment had been the addition of non-prescription, "over-the-counter-readers" to their repertoire of daily-used equipment or tools. Onset of neck pain may occur only days or weeks following adding glasses into their lives. What follows are three examples of what to look for.

Employees who have had success with these often fashionable "readers" assume that if they work for reading, they will work to see their now-fuzzy monitor screen. When given an opportunity to simply watch them work, most would grab their "readers" and pivot to face the monitor, tilt their head back (visualize a turtle seated upright at a computer monitor with head thrust forward) to see through their glasses, and begin to work. The problem of head tilt/neck extension is even more exaggerated when tiny, tip-of-the-nose or "half-readers" are the employee's selected option to needing help with close vision.

Why won't "over-the-counter-readers" work at the computer? Because regardless of the magnification strength (+1.0, +2.0, +3.0, etc.), the focal range to see clearly using them is only about 18 inches from the eyes. Because none of us sit that close to our monitors, leaning forward to about 18 inches is the only way to bring the screen into focus when wearing them. A similar problem exists for long-time prescription glasses wearers who now need extra help with close focus. The typical lens of choice is an unlined, multifocal range "progressive" lens. The sweet spot for mid-range viewing is in the middle portion of the lens just below pupil height, as it must so the wearer can see distances clearly with head level looking through the distance-focal range in the top half of the lenses. If the monitor has been set at eye level, as it was before they got their new glasses, they now have to tilt their head back to see through the "sweet spot" in that progressive lens.

The last most common clue that vision is driving awkward head and neck posture at the monitor is seeing someone without glasses constantly leaning forward when working. Given that this is a posture that also reflects intense focus or concentration, have a conversation with your employee about causes. They are likely completely unaware of doing this. Denial of need for vision correction is common for assorted reasons ranging from not recognizing that vision has changed sufficiently to warrant a visit to one's optical provider, to not feeling able to invest the time or money into having one's eyes checked, to simply not wanting to acknowledge it is something that finally has to be addressed. Use this opportunity to engage your employee to help them become aware of a posture you see that you know will ultimately cause harm to them and to help guide them to a range of solutions.

The quickest way I have discovered to demonstrate problems with monitor height for employees with or without glasses is to have them sit in whatever their preferred posture may be when viewing the monitor. Next, ask that they simply focus on your finger as you point to different areas on the monitor face. Point to the bottom of the screen where it is likely the toolbar resides. Point somewhere near the middle, to one side or the other. Finally, point to the top of the monitor. As soon as you see their head bobble and chin tilt up, you have the evidence provided by their own body that the screen top is too high.

Repeat, if needed, so your employee can feel the shift in head position. I never try to "eyeball" monitor height based on my observation of an employee in profile seated at their monitor. My only criterion is evaluating their head position when asked to focus their eyes on something at the top of the screen.

Remember from the discussion above that for human eyes to work properly for close focus, they must rotate slightly down and in? That automatic head adjustment is the signal their body is sending that the eyes are compensating for the need

to gaze down at something that is too high by tipping the head back. Once your employee understands that when they are not thinking about head position the body will readjust in whatever way it must for the eyes to focus on the screen, persuading them to allow you to change the height is easier. Ultimately, the monitor will be the correct height when tilting the head back is no longer required for the eyes to view the top of the screen clearly.

If viewing the monitor requires head tilt all day every day when seated at the computer, neck pain and physical alteration in the muscles and discs over time will be the result. Most of my colleagues "get it" right away and report immediate relief to neck discomfort when we lower the monitor. For those employees that protest the change is "uncomfortable," try suggesting that perhaps they mean "unfamiliar" rather than physically "uncomfortable or painful." Ask if they will give the new monitor position a try for a week to ten days to allow their muscles to readjust and for this change to become "comfortably-familiar." Finally, be sure to follow up by phone or in person to see if the change has relieved their symptoms.

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Forming good ergonomic habits for mobile working

Ed Milnes and Sarah Tapley look at how forming good habits happens and how to encourage long-term good ergonomics among your employees

EQUIPMENT like laptop stands or tablet risers, combined with external keyboards can significantly improve posture and reduce musculoskeletal strain when we are mobile working, but most of us can probably relate to letting equipment like this gather dust in a drawer somewhere.

One of the biggest challenges for managers is getting people to actually use equipment given to them to reduce risk. As consultants we often speak to someone who has been given a laptop stand but when asked if they actually use it answer, "No, it's one more thing to carry around" or, "It takes too long to set up." We take a look at why this happens, and how to improve uptake of these beneficial ergonomic aids.

Why do we avoid our ergonomic aids?

Latency of risk

It is always a challenge getting people to change their behavior to deal with latent risks. Unless something is going to hurt us there and then, we don't see why we should deal with it so we tend to ignore or neglect the risk controls.

We don't feel pushed to work ergonomically

We often don't associate less apparent musculoskeletal effects like tension headaches or gradually rounding and hunched shoulders with poor ergonomics in mobile working arrangements. Even connections like painful wrists from holding tablets or phones, are not always so obvious. Also we can start working on mobile devices, intending to stop after a short period, then hours later find ourselves still at it. This means we often underestimate the musculoskeletal risks when we set about mobile work.

We feel pulled to work un-ergonomically

Mobile working is often about grabbing time, quickly switching our devices on and doing what we can, where we can. The implicit philosophy is about using every spare moment to be productive. We just don't view time spent setting up ergonomically as productive (even though we will probably be able to concentrate better, work quicker, and for longer without needing a break).

It's interesting that these push and pull factors are based on perceptions that are often false. Popular psychology books like Freakonomics or Thinking Fast and Slow show that our perceptions are often at odds with reality, we believe this is a good example.

For instance, a laptop stand will generally take less than 10 seconds to set up, including getting it out of your bag – to put it into perspective that's about 0.03% of a 9-to-5 working day! Is that really too long, when the upside is not having a sore neck?

How to improve things

Neither the carrot nor the stick is really going to be useful. Remote workers are generally not present so they can be neither fed nor whacked! You are also unlikely to have any reliable information to inform that decision.

The answer lies in helping employees form good habits and give up bad habits. There's little point telling people to work in a way that feels counter to their perceptions, without acknowledging the psychological barriers and giving people a plan for overcoming them.

First try framing the issue – announce it as an initiative, such as "Mobile Working Health Month." Raise awareness levels, make sure people are engaged with it in some way even if they are initially skeptical. Some skepticism is good, it helps you identify barriers and weed out inadequate kit.

We recommend a 5-step approach to habit forming. This is a simple set of steps that can be sent out to staff by email or done as a short toolbox discussion during a team meeting.

5 steps to good ergonomic habits for your employees

Step 1. SMART TARGETS: Set yourself micro-quotas of the behavior that is realistic and clearly defined e.g. "Each week I work two afternoons at café X, so I will start by just using my laptop stand there for an hour each time." You could keep a record of your success in meeting your target.

Step 2. LINK IT: Identify your usual sequence of actions when you are setting up to work and keep it simple e.g. "Sit down, open bag, laptop onto table." Write it down and add a step e.g. "Sit down, open bag, get laptop stand out, put laptop on stand." Visualize your actions as a chain and add a new link.

Step 3. MOTIVE: Establish in your head a clear reason why you are going to introduce this new habit, focus on your most effective motive, e.g. either to prevent strain and long-term musculoskeletal effects, or to improve concentration and work more productively.

Step 4. RELAX: Don't be too hard on yourself if you miss a target. Don't see it as the beginning of inevitable lapse back to old ways. Just view it as a blip, we all have them.

Step 5. PERSIST: Stick with the program for at least 21 days, ideally a month. There is conflicting research on time needed to form a habit. It varies depending on a range of factors, but we recommend a month, assuming work throughout that period is consistent and involves multiple opportunities to practice the new habit each week.

After a month on your initial smart targets, think about setting a new target.

Another useful trick is to pair up with someone trying to achieve the same thing, this will help to motivate you. This is especially useful for something like laptop stands where you can swap reassuring stories of sideways glances at your kit, or people wanting to talk to you about it. Kit can initially feel a bit geeky to use, so knowing you are not the only one is useful and pairing up at the same location is even more ideal (but not always possible).

The ultimate aim with establishing a habit is that you don't think about it anymore. It's just what you do; you are someone who does things a certain way, and that's that.

Finally as ergonomists we are duty-bound to say - make sure that any ergonomic aids are lightweight and compact. Employees will feel more justified in not using equipment if it is bulky and or heavy to carry. Sure it is always going to add some additional weight, but when was the last time we went through our bags and got rid of unnecessary weight? A good bag clear-out can easily compensate for any weight of ergonomic equipment.

Sarah has been a consultant with the Robens Institute since 2011. Prior to this she was a Specialist Inspector in Ergonomics and Human Factors at the HSE where she had extensive experience of identifying, assessing, inspecting, investigating and advising on ergonomic and occupational health and safety issues across the whole spectrum of working environments in the UK, including the pharmaceutical industry.

Ed Milnes is a director at Mobile Office Ltd, and a chartered ergonomics and human factors specialist. Ed has over 17 years applying physical ergonomics and psychology to health and safety at work, first at the Health & Safety Laboratory and then as a Specialist HSE Inspector. Mobile Office is run by Ed and Sarah Tapley, and provides consultancy and management systems for improving the ergonomics of how mobile technology is used, helping companies identify healthier, more efficient and more productive working practices for remote and agile staff.

Bitten by bytes, computer pain is growing

What could those little pains and aches be that we feel when working with computers? Ian Chong is here to explain what it means when you've been bitten by bytes

So you think you know pain?

Do you know what it really feels like to experience high-level debilitating computer pain and associated frustration? Have you been "bitten by bytes"?

Many computer users do!

Have you ever felt like:

- Your wrists have a spike driven through them?
- Your fingers are squeezed in a vice?
- Your hands are dipped in alcohol and set on fire?
- Your elbow got hit with a baseball bat?
- Your back just had a knife pushed into it?
- Your neck just met with a karate chop?
- Your shoulder had an anvil dropped on it?
- Your eyeballs are sizzling in a frying pan?
- Your derrière is sitting on a cactus spiked with poison ivy?

Do you feel something gnawing at your flesh causing all these maladies?

That gnawing is you. Yes, you yourself. You are directly responsible for allowing these disorders that attack your anatomy, causing ongoing disruption, pain, frustration and down time. It's not because of using a keyboard, mouse, stick or whatever. It's from not paying attention to your health and especially your pain.

These insidious results are injuries from everyday use of computer devices, all of which could get seriously worse if unattended.

Hard to believe, is it not?

You see, all these pains and symptoms affecting your well-being, getting in the way of your work, pleasure and every day activities are the result simply of your inaction.

Pain is a message to your brain from your body. Are you listening?

Unfortunately, your attention is mostly directed elsewhere to work on:

- Getting that database done
- Finishing that report
- Completing that spreadsheet
- Polishing up that digital graphic
- Finalizing that design

Your attention is also focused on:

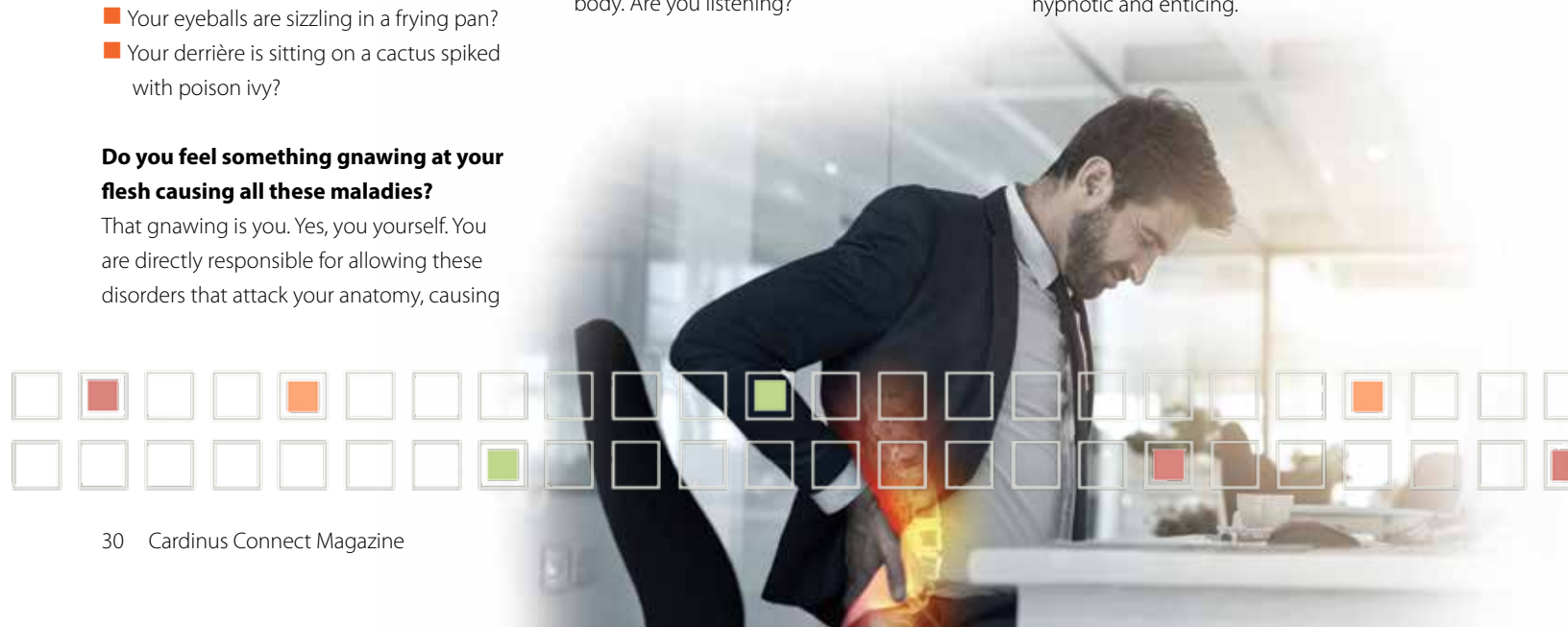
- Getting to the next level
- Shooting that alien
- Beating the Mario Brothers
- Texting your BFF
- Scanning that Facebook
- Snuffing those Twitter flames

Almost every waking moment you interact with a computer, a peripheral, device or attachment. Your office ergonomics transcends into personal ergonomics.

It is not only the desktop or laptop affecting you. It is also the multitude of other devices to which humans are becoming addicted.

- Mobile phones
- Tablets
- E-readers
- Gaming devices
- MP3 players
- Remote controllers
- Electronic toys

Yes, the allure of these devices is all around us, hypnotic and enticing.



Many cannot do without them for even a moment, as these devices replace:

- Dinner table conversation
- Face-to-face social interactions
- Social graces and manners
- Needs to see other humans

Entwined in both our professional and personal lives, these have become a constant companion, a friend, a conversationalist, a playmate and a distraction, one we can access at a moment's notice. And how do we use the fantastic devices? These things that can show us the universe, that can perform amazing feats and take our imaginations to untold levels?

We adopt bad postures and pain-inducing positions of hands, arms, shoulders and backs. Our children use continual bent thumbs, rounded shoulders and bent necks as they incessantly work their smart phones and tablets.

By doing this, we inadvertently damage ourselves, we invite these painful episodes. We invite the potential to be debilitated in our aging process. We go faster, faster, faster for longer, longer, longer and our bodies pay the price.

Are you reading this now on a mobile phone with a bent over neck posture? Are you reading this on your computer, sitting on the front edge of your chair hunched over or slouched without any back support?

Do you feel a twinge in your neck right now? Or perhaps in your fingers or in your rounded shoulders as you mouse?

These are warnings, which if left unchecked, will get worse, much worse.

Currently about 3 billion computers exist in the world. It is estimated they will soon outnumber the human population and even now many people are attached to a computer device in some form 24/7, even sleeping with phones as these have moved from the nightstand to the bed. Truly, humankind is becoming inseparable from these machines.

Understand, these pain elements and gnawing also take place even when we are not connected to these devices.

Do you feel a twinge here or there when you:

- Open a jar?
- Hold a gallon of milk?
- Button your shirt?
- Pick up your new born child?
- Carry a bag of groceries?
- Brush your hair?
- Turn a doorknob?
- Work in the garden?

Do you feel these aches when performing any other innocent task or chore?

These unconsciously triggered twinges or pain symptoms are the residue of our recent interaction with computer devices.

Understand, these twinges and injuries occur when we are both in session with computer devices and when we are away from them.

We cannot escape their influence and should make a conscientious effort to mount a rigorous defence against such peril.

Yes, we are killing ourselves and soon these machines will eat us up, literally and figuratively.

Maybe we should call all these little innocuous computer injury events… bites, caused by "Biters", more appropriately spelled BYTR.

The name obviously fits.

So, what's the name of your computer?

Ian Chong CPE is a real life, vastly experienced (lots of gray hairs), highly credentialed (plenty of boot marks on the backside), award-winning (numerous wall hangings), Certified Professional Ergonomist AND performing Magician, with an outstanding sense of humor, albeit somewhat nerdy.
He also heart-warmingly admits to receiving many Starbuck lattes and gifts from the company store (mostly flashlights and golf balls) in thanks from workers, helping them keep their jobs, supporting families.
Both his books "Ergonomic Mis-Adventures" and the ALMOST R-rated "Ergonomics of the Absurd" (pen name Alex Victor) are available on Amazon.

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