

DESIGN at WORK

A Humanscale Publication

Winter 2007

Issue 1 | Volume 2

IMPROVING HEALTH
& COMFORT
IN THE WORKPLACE

The Seating Issue

Design to Implementation:

5 Key Features of Ergonomic Seating
Closing the Adjustability-Usability Gap
Corporate Space Planning: Seating Implementations
Comfort = Productivity at Trustmark

On Design

with Niels Diffrient & Elizabeth Whelan

Humanscale®

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FEATURES

3 Ergonomic Seating: Criteria for Selecting a Well-Designed Task Chair

Selecting a well-designed task chair for today's office workers is critical. Ergonomist Benjamin Doyle of Humanscale Consulting highlights the essential features and adjustments to look for when choosing seating, and what researchers are saying about task seating design.

7 Comfort = Productivity at Trustmark

Steven Bell, Vice President, Regional Facilities & Development Manager for Trustmark National Bank, discusses selection criteria for seating and the positive impact of ergonomic design within Trustmark's workforce.

DEPARTMENTS

8 *At Issue* Interior Design & Ergonomics; IIDEX ErgoForum Recap

Leading designers Colleen Baldwin of Straticom Planning Associates and David Meckley of Huntsman Architectural Group talk about promoting the benefits of ergonomic design to their clients. Also, highlights from Humanscale's ErgoForum at last fall's IIDEX/NeoCon Canada.

10 *On Design* Niels Diffrient and Elizabeth Whelan

When Niels Diffrient first connected with textile designer Elizabeth Whelan in 1999, the two began work on innovative fabrics for the Freedom chair. That collaboration continues today with Diffrient's revolutionary Liberty chair and its award-winning mesh, designed by Whelan, which is integral to both the chair's performance and aesthetics.

EDITOR'S NOTE



The typical office worker spends more time sitting in their office chair than they spend anywhere else, with the possible exception of their own bed. Unfortunately, for many office workers and their companies, all of that sitting can come with a painful price.

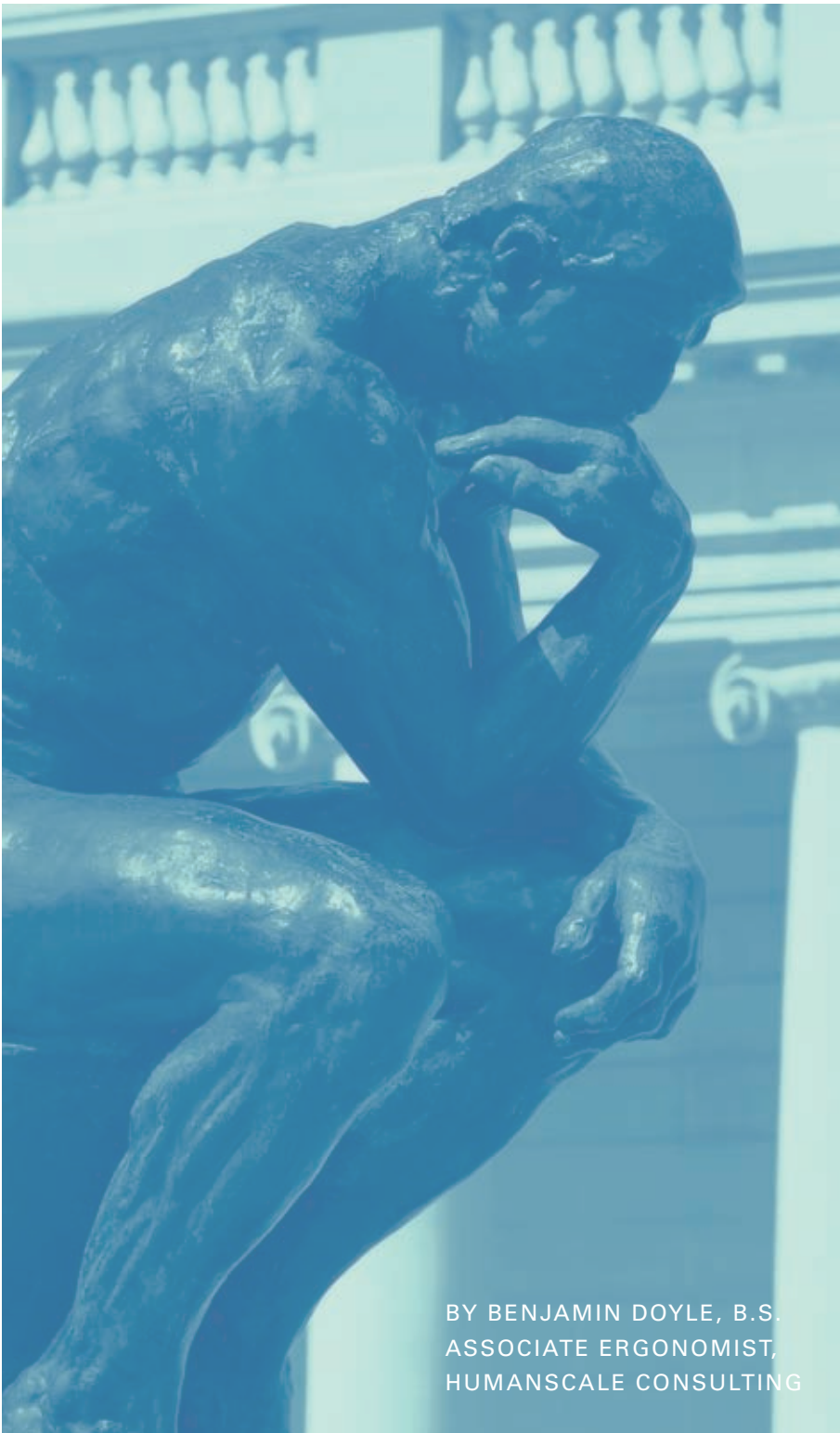
Millions of workers in the United States alone spend eight or more hours a day in seated postures, yet many companies make little or no effort to ensure that workers who sit for so long do so in well-designed chairs that are comfortable and provide optimal ergonomic support for the tasks they perform. In fact, Liberty Mutual Insurance Company identifies sitting-related discomfort associated with low back pain, most often the direct result of long-term sitting in poorly adjusted chairs, as the most prevalent and costly work-related musculoskeletal disorder facing industry today. The awareness of the importance of ergonomic design in the workplace is certainly growing, but we're not there yet.

In this issue of DESIGN AT WORK, we examine seating—from initial design, to specification and selection, to implementation—with the goal of supporting your efforts to improve health and comfort in the workplace.

Thank you for reading!

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Ergonomic Seating: Criteria for Selecting a Well-Designed Task Chair



BY BENJAMIN DOYLE, B.S.
ASSOCIATE ERGONOMIST,
HUMANSCALE CONSULTING

With over one-third of the American population currently using a computer for at least four hours a day, and some 70 million of those working in seated postures for up to eight hours, the selection of a well-designed task chair has never been more important. Yet with so many seating options available, how are individuals or corporate buyers supposed to make knowledgeable seating decisions?

What's in a Name?

The fact that chair selection has become such a daunting task stems partly from the reality that there is no standard in place governing the use of the term "ergonomic." Flip through any retail catalog and you'll find that almost every product category boasts the ergonomic label. The world of task seating has certainly not been immune to this phenomenon, as the term "adjustable" continues to be used interchangeably with "ergonomically designed." Every manufacturer today seems to have a spin on how their chair will address complex organizational issues ranging from employee discomfort and injury, to lost productivity, employee turnover and absenteeism. Yet few manufacturers have any data to substantiate their claims and the label continues to be used inappropriately.

User Knowledge of Chair Controls

There is no question that several types of adjustments are crucial, as we'll discuss, but at what point does a chair become so complex that its users will not bother to make a single adjustment? The research on this topic paints a rather grim picture.

A 1995 study conducted by Professor Martin Helander et al. found that only two percent of those surveyed could correctly identify the purpose of the tension control knob on several chairs being studied. It is therefore safe to assume that the percentage of those actually benefiting from this particular adjustment is, at best, two percent.

Not surprisingly, the researchers also found that as the number of chair controls increased, the amount of time and the number of adjustments required to adjust the chair into a comfortable position also increased. Decades of usability testing have taught us that as the complexity of any system increases, the likelihood of user adjustment decreases.

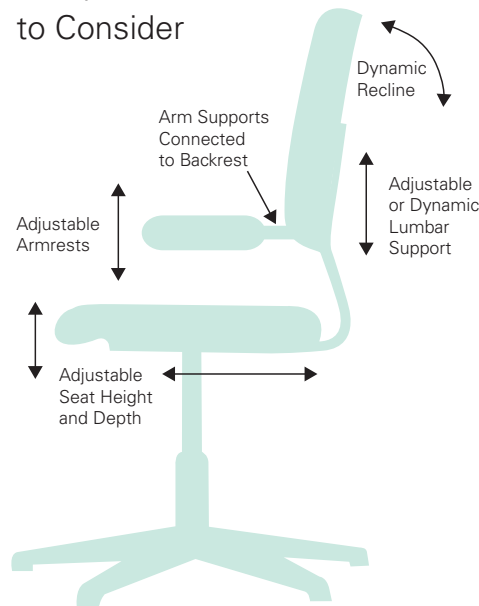
Seating appears to be no exception as chair usability has emerged as one of the most important principles in chair design.

According to Dr. Alan Hedge, a preeminent researcher in the field of office ergonomics and head of the Ergonomics Laboratory at Cornell University, chairs with excessive manual inputs effectively dissuade users from maintaining proper adjustments, and oftentimes prevent them from adjusting their chairs in the first place. It is therefore a misconception that more chair adjustments make for a superior ergonomic task chair.

Five Key Features to Consider

Dynamic recline – Despite what your mother may have told you, sitting up straight is not the healthiest posture! A sufficiently tensioned backrest that allows you to easily recline, and allows for regular shifts in the weight of the

5 Key Features to Consider



upper body is critical in reducing spinal disc pressure and maintaining long-term comfort.

Adjustable armrests – Armrests aid with egress and can reduce muscle loading. Sufficient padding with foam or gel and ease of adjustment are important features. And, the ability to lower the arms below thigh level is important for proper use of an articulating keyboard tray.

Arm supports connected to backrest – Armrests should be attached to the backrest of the chair—not to the bottom of the seat pan—to ensure they will move with the user as the user reclines in the chair.

Adjustable seat height and seat depth – Properly adjusted seat height helps to distribute body weight evenly and allows for a knee angle of at least 90°. Seat pan depth adjustments are critical for accommodating smaller individuals. If the seat pan depth is greater than the distance between a user's buttock and the back of their lower leg, they will likely sit forward and not use the backrest.

Adjustable or dynamic lumbar support – This adjustment is necessary for

achieving proper lumbar support across a population that varies considerably in height.

Features to Avoid

Back lock – A back lock restricts movement required for spinal nutrition. It is not uncommon for users to be unaware that the lock is even engaged. Removing the lock promotes movement by design.

Seat pan tilt adjustment – This is not an essential feature in most situations according to researchers at Cornell University. Individuals often report feeling unsupported in chairs offering seat pan tilt, as they tend to slide out of the chair when it's tilted forward. This adjustment also adds cost and can complicate the operation of the chair.

Recline limiter – If the backrest tension is appropriate for the user, a recline limiter should never be necessary. This adjustment can also complicate the operation of the chair.

What is Dynamic Sitting?

Dr. Marvin Dainoff of the Center for Ergonomic Research at Miami University of Ohio contends "any fixed posture, no matter how closely it approaches optimal, will generate muscle fatigue." In short, the body was designed to move. Chairs that fail to support natural movements and frequent postural shifts, either because their backrests are locked or because they are difficult to adjust, put the user at risk for developing discomfort and subsequent injury.

The concept of dynamic sitting assumes that the worker, while seated, will make frequent changes to their posture throughout the day. A chair designed to support this seated behavior without manual adjustments will promote such postural changes.

Cornell researchers Hedge and Ruder investigated seated postures in 2003 and found that the most common positions

sustained by intensive computer users were reclined postures. They found that sitting with backrests in the “free-float” mode improved users’ back support as they worked on a computer. This was consistent with the 2001 observations of professional and technical workers by Dowell et al. Hedge and Ruder concluded that the value of a dynamic chair back may not be in encouraging a greater frequency of movements, but in providing better support for such back recline movements.

These research findings raise an interesting question: Why do intensive computer users spend most of their time in reclined postures when given an opportunity to do so? Van Dieën et al. offered some insight to this question in a 2001 study which found dynamic chair backs decrease spinal compression. Wilke et al., in a 1999 issue of *Spine*, found that intradisc pressure during reclined sitting was 50 percent less than during erect standing. Van Dieën suggested that an ergonomic chair should be able to move with the worker rather than being locked in a given position. These results further validate the need for chairs that dynamically support reclined postures.

There is even more evidence of the benefits of reclined postures. A 2006 study by researchers at the University of Alberta Hospital in Canada found that a 135° reclined posture was demonstrated to be a better sitting position than the traditionally held 90° cubist posture. The data was collected using a new form of magnetic resonance imaging (MRI) and involved scanning the spines of 22 volunteers with no back pain history. The subjects assumed three different positions: slouching, sitting up straight at 90°, and sitting back with a 135° posture.

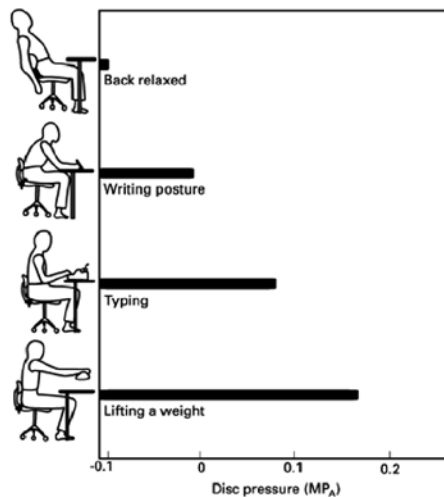
These ideas are not new: In 1976, Professor Alf Nachemson showed that intradisc pressure was lower while reclining than while sitting upright or leaning forward. The chart to the right summarizes his research findings.

Applied Ergonomics

Many chairs available today offer dynamic back support but continue to require significant user knowledge and manual input to operate. Oftentimes, the user is required to unlock the backrest and locate the tension control knob, which is usually out of sight on the underside of the chair. Once the knob is located, the user must then determine which way to turn the knob to achieve the desired result. This process requires more time, thought and effort. Tension knobs on some chairs can require more than 300 turns for proper adjustment. By that time, users often give up, assuming the chair is broken.

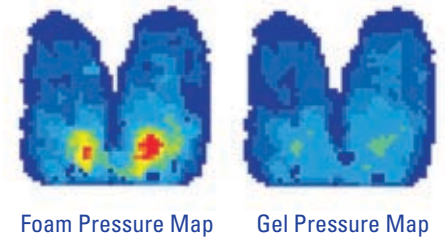
But there is an alternative. Self-adjusting recline mechanisms automatically determine the proper amount of backrest tension based on an individual’s body weight. These advanced mechanisms require no manual input and do not allow a person to sit in an unsupported posture. Chair usability is improved because there are fewer controls to operate, and the barriers to movement—such as an engaged back lock or incorrect recline tension—are removed entirely.

Chair manufacturers are slowly embracing “passive” adjustments, which remove the need for user input and therefore benefit the user with minimal thought or effort. Since the technology was introduced in 1999, several major chair manufacturers have integrated dynamic recline mechanisms into their designs.



Advancements in Cushion Design

Previous research on seat pan pressure by Treaster in 1987 found that as a seated user’s center of gravity shifted posteriorly, more body weight was supported by the backrest, reducing contact pressure on the seat pan. The amount of weight over the ischial tuberosities—commonly known as the “sit bones”—was the major determinant in the location of peak pressure.



This research laid the foundation for the development of materials that would work to better distribute body weight over the course of a workday. Since then, cushion design has taken a dramatic leap forward. A 2005 study by Dr. Carlo J. De Luca, Ph.D., a neuromuscular researcher, investigated the benefits of a proprietary gel long used in bicycle seats called Technogel. He found that a Technogel seat cushion reduced the activity of some back muscles up to 28 percent by improving pressure displacement across three critical dimensions: front to back, side to side, and up and down. Technogel is now being utilized in office chairs for maximum weight distribution and comfort.

Mesh vs. Cushions

Research by Helendar and Zhang in 2001 has shown that aesthetic trends are driving many organizations to purchase chairs with mesh seats over traditional foam or gel designs. One reason is the claim that mesh is more breathable and thus provides greater thermal comfort. However, evidence to the contrary was recently brought to light.

Dr. Alan Hedge found in a 2005 study

that there was no correlation between the insulation value of a given task chair and thermal comfort. Clothing appears to have a much greater impact on thermal comfort than chair material, especially in temperature-controlled office environments.

Although there is currently little evidence to support the use of mesh as a seating surface, recent research has shown that certain mesh applications can achieve adequate lumbar support. A 2006 Cornell University study conducted by Agarwal and Hedge compared two mesh-backed chairs utilizing a 3-D body scanner. Chair A employed a single panel of stretch mesh, while Chair B utilized three panels of low stretch mesh. The goal of the study was to determine which design offered superior lumbar support. Results showed that the deformation of the backrest was 46 percent higher for Chair B than for Chair A, which suggests a three-panel mesh backrest provides better lumbar support than traditional single-panel designs.

How Important is Chair Training?

A 2003 study by Amick et al. found that workers who received both a task chair and office ergonomics training experienced reduced symptom growth over the course of a workday. Workers that received training only did not experience the same level of reduced symptom growth. These differences highlight the need to address workstation ergonomics from both a product and training perspective. Employees rarely understand the benefits of making postural changes without first understanding why those changes are important. Similarly, providing training alone will not overcome the need to provide workers with products that meet minimum ergonomic criteria.

Return on Investment

Now that we have set some criteria for the selection of an ergonomic task chair, you are probably curious as to what this technology might cost your organization. The short answer is “less than you might think.”

Professor Dainoff, in a 1985 review, stated, “Fatigue and discomfort deplete energy, which inevitably detracts from the task at hand. When discomfort is reduced through the elimination of excessive strain on the body, more energy is left to work and improve job results.”

In other words, uncomfortable workers are unproductive workers. And lost productivity associated with discomfort is expensive. Consider the following:

An employee making \$45,000 annually loses, on average, just 10 minutes per day due to fatigue or discomfort. That worker's discomfort will cost the organization \$900 annually – not including the value of the lost output.

*10 min/day @ 480 available work min/day = 2%
0.02 x \$45,000 = \$900 (cost of lost productivity/per worker/per year)*

Nine-hundred dollars will not only afford an organization the ability to purchase a high-quality ergonomic task chair, but would leave additional funding for other critical work tools such as an articulating keyboard tray, a task light, or a monitor arm. These tools only need to be purchased once, as many are indestructible. Some chairs even offer modular cushions, which allow for low-cost quick replacement so that the life of the chair can be prolonged.

To compound this example, the U.S. Bureau of Labor and Statistics found that in 2005, offices lost an average of \$7,300 per employee in lost productivity and compensation claims. An initial investment in ergonomics can pay great dividends over the long term, especially when you consider the potential human costs of not making any changes. ■

Key Features to Look for in a Task Chair

MUST-HAVE FEATURES

- Dynamic weight-sensitive recline encourages movement and reclined postures
- Easily adjustable arm supports accommodate different tasks and seated positions
- Arm supports that connect to the backrest provide continuous arm support during recline
- Seat height and depth adjustments ensure proper fit
- Adjustable or dynamic lumbar support provides customized lower back support

GOOD-TO-HAVE FEATURE

- Gel seat cushion maximizes weight distribution and long-term comfort

FEATURES TO AVOID

- Recline locks or limiters encourage static postures, which can lead to injury
- Manual recline tension adjustments are seldom used, leaving chair adjusted incorrectly
- Arm supports that connect to seat pan provide inadequate support during recline
- Mesh seating surfaces do not distribute weight as well as contoured foam or gel cushions

The Human Factors and Ergonomics Society offers recommended dimensions and adjustment ranges for ergonomic task seating in the HFES100 Standard. Learn more at www.HFES.org

Comfort = Productivity at Trustmark National Bank



Ask Steven Bell, Vice President, Regional Facilities & Development Manager for Trustmark National Bank, if his bank's ergonomic seating standard has yielded positive returns for its workforce, and he'll tell you the many ways it has been "overwhelmingly positive!"

When it came time to evaluate task seating for 2700+ workers in Trustmark's 160 retail branches and operation centers—from Houston to Memphis and throughout Mississippi—Bell says it was absolutely essential to standardize the workplace with chairs that have a high level of ergonomic integrity.

"Most chairs have a lot of adjustability, but what we're looking for the most is functionality," he says. "The chair standard we have now is mostly intuitive, is very easy for our staff to operate, and requires little training."

According to Bell, Trustmark's successful seating standard begins with a solid decision-making process and selection criteria for ergonomic seating.

"We feel it's important to look at a lot of seating solutions, but we try to avoid overkill. Every year, we bring in the newest chairs from various manufacturers to see if technology is surpassing our current seating standard. Simply put, we want a chair that can fit a multitude of workers and support them in the most comfortable positions possible."

Trustmark uses both Freedom and Liberty chairs throughout their locations and Bell says no other product has been able to provide the same level of comfort.

"Individual comfort is what we're concerned about most and selecting a chair that can offer this level of support for our employees is what we want every time.

"We've seen too many chairs with too many features and adjustments, and our own evaluations tell us that our employees are not going to make those adjustments the way they should," he adds. "Ergonomics doesn't have to be complicated and we certainly don't want our seating standard to be any different."

Regarding the reception of positive user feedback following ergonomic seating implementations, Bell says it's been very tangible. He also believes the chair is just one component of an ergonomic workstation.

"We've definitely seen a dramatic improvement in all areas with regard to worker comfort and we believe it's a direct result of not only having an ergonomic seating standard, but we have standardized on several other ergonomic tools as well. A good chair won't solve all of a worker's comfort issues. Ergonomics is more than just a chair." ■

PROFILE



In each issue of DESIGN AT WORK we profile leaders from companies that are part of Humanscale's Global Account Program and that have made creating a healthy, comfortable and productive workplace a top initiative.

Special thanks to Steven Bell of Trustmark National Bank and Steve Taylor of Humanscale for their help with this Profile.

When it comes to ergonomic design and corporate space planning, interior designers play an important role in the process.

DESIGN AT WORK asked leading corporate interior designers Colleen Baldwin and David Meckley to discuss how ergonomics fits into their work, and to share some of the ways they help promote the benefits and value of ergonomic design with their clients.

AT ISSUE

Interior Design & Ergonomics

Colleen Baldwin

Principal, Straticom Planning Associates, Toronto, Ontario, Canada



Are you seeing ergonomics integrate more and more into the design of corporate interiors?

I'd say yes. Clients are becoming more aware of the health and welfare of their staff and are trying to ensure that their employees stay healthy and productive in their jobs. Many clients are also realizing

that as their workforce ages, these issues will only compound. In this way, ergonomics is now being dealt with more proactively by our clients than reactively.

What challenges do you face when selling the value of ergonomic design?

The single biggest stumbling block to ergonomics in the workplace that I see is when clients attach a dollar figure to implementation rather than see the cost benefits/potential savings by having healthy, productive employees. Luckily, this view is changing. But like any good thing, it will take time and education.

How can designers help educate clients about the benefits of ergonomic design?

We can help clients be proactive about ergonomics. Designers are a very good source for taking the ergonomic message to the workforce in this way because we deal with the budget and design issues and can help to place ergonomics at the beginning of the design process rather than at the end.

What resources have you found useful in supporting successful ergonomic implementations?

I've found that working with companies in the furniture industry that specialize in ergonomic products and that work to educate the general workforce on ergonomic issues can be a good resource and support partner.

David Meckley

Senior Designer, Huntsman Architectural Group, San Francisco, California



What issues do you regularly face in regards to ergonomic design in your work with corporate interiors?

Ergonomics is certainly important, but it always comes down to balancing multiple factors. With seating, for example, in addition to ergonomics, we also have to address price

within the marketplace, matching the style and image of the project, the manufacturer's reputation and chair quality, the function of the seating area, optional features, and lead time. All these factors ultimately play into the final decision, with each client's business objectives determining their order of importance.

Are clients asking for true ergonomic design these days, or just the iconic chairs?

A little of both. If we remember back, many of these chairs started out as marketing gambles because the aesthetics of the ergonomics seemed so foreign. Then, those aesthetics made them iconic. The good news, however, is that many iconic chairs of today are now based on enhanced ergonomics.

What are some ways to help clients better understand the benefits of ergonomic design, and communicate the positives of ergonomic seating and workspace design?

Ergonomic design makes economic sense if you look at employee satisfaction, health claims and employee retention. Any extra initial expense pays for itself in a fairly short time. Some clients can't look past the aesthetics or price, others have had limited success in the past almost always due to poor training—but that's a whole article in itself. We always make an effort to educate them of the importance of ergonomics. We do our best to tie all of our design decisions, including ergonomics, to their business goals. ■

ON SEPTEMBER 29, 2006, HUMANSCALE HOSTED ANOTHER ERGOFORUM, HELD IN CONJUNCTION WITH IIDEX/NEOCON CANADA, AT THE DIRECT ENERGY CENTRE, TORONTO, ONTARIO.

Architects and designers, facilities managers, and safety and health professionals from across North America gathered for a lively discussion on the role of ergonomic design in creating healthy workspaces, and to share experiences on implementing ergonomics programs in various workplaces, including health care settings.

Panelists for this ErgoForum were: Bea Hertz, Director Department of Justice Canada, National Accommodations and Occupational Health and Safety Division; Kathy Kawaja, Ergonomics Consultant, Human Factors North, Inc.; Janet Suchanek, Ergonomics Consultant Trillium Health Centre; and Colleen Baldwin, Principal, Straticom Planning Associates, Inc. The panel was led by DESIGN AT WORK Editor Dan Cannon.

Topics included aging workforce issues, product design, purchasing criteria and training. One area of discussion that stirred much dialogue was achieving management buy-in for ergonomics. Panelist Janet Suchanek took particular interest in the topic and shared these insights:

"To help sell the value of ergonomics to upper management, we provided data on the dollars spent on our WSIB (Workers Safety & Insurance Board) costs and compared these to the cost of providing ergonomic equipment and workstations."

Suchanek explained that the cost of providing ergonomic equipment and well-designed workstations is minimal when compared to the cost of a repetitive strain injury and/or having to train new staff. And the WSIB costs for an injury are usually quite an eye opener for management.

According to Suchanek, the key is educating the managers and demonstrating that the investment is worthwhile not only from a savings in WSIB costs, but for staff retention and productivity.

As the event wrapped up, panelists and attendees agreed that the discussion had just begun and dialogue must continue around the important role of ergonomics in improving health and comfort in today's workplace.

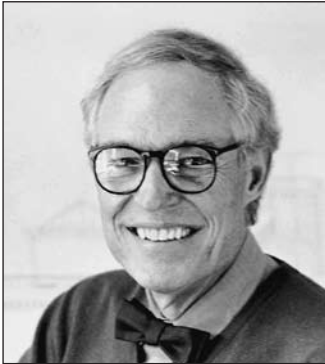
In closing comments, panelist Colleen Baldwin said, "I really thought this ErgoForum went well, and I was pleasantly surprised how much everyone cares about ergonomics. Times are changing." She added, "And it's all about people now...that's what matters."



On Design

Niels Diffrient and Elizabeth Whelan

with DESIGN AT WORK Editor Dan Cannon



ON DESIGN

Soon after their serendipitous encounter at NeoCon in 1999, Elizabeth Whelan and Niels Diffrient teamed up to create innovative textiles for Humanscale's Freedom chair. The result was a stylish and durable four-way stretch fabric that met Diffrient's high ergonomic standards and supported his design mantra for Freedom—that sitting comfortably should be the easiest part of our day.

Diffrient and Whelan's collaboration continues today, with new materials for the Freedom chair, and more recently, Diffrient's revolutionary Liberty task chair and its award-winning and back-supporting Luminesce mesh, designed by Whelan.

Textile Design with the User in Mind

Before she collaborated with Diffrient on the Freedom and Liberty chairs, much of Whelan's work involved designing upholstery and wall covering for general interior applications—where human contact with the textile wasn't much of a consideration.

"The design considerations were mostly about the yarns available at mills, aesthetic ideas, price point and passing basic testing for the application."

Whelan says her scope of considerations for textile design were greatly broadened when working with Diffrient, and she began focusing her designs on a specific purpose such as conforming to the requirements of his chairs, and keeping the end-user in mind.

"Niels told me from day one that all the textiles we use have to perform on several different levels, and must successfully meet both the aesthetic and performance criteria. This opened many avenues of exploration and led to innovation, and a new and better way of working."

The Mesh Dilemma

It was during their initial work on the Freedom chair that Humanscale founder and CEO Bob King called Diffrient to discuss the design of a new task chair with a mesh back. At first, Diffrient wasn't keen on the idea, believing mesh to be inadequate for maintaining lumbar curvature and addressing other critical support issues, such as stress reduction, load concentration, and load distribution.

"I felt the mesh fabrics available at the time were too stretchy to provide any real ergonomic support," he says. "And I was against the idea of having to add an adjustable lumbar support to make up for stretchy mesh, as many seating manufacturers were doing. It just seemed totally self-defeating."

From his Connecticut barn-turned-studio, Diffrient thought about ways of using stretchy, one-dimensional mesh for human back support: a three-dimensional objective. Whelan, in her New York studio, did the same, contacting mills around the globe in search of fabrics that would meet their demand for translucent aesthetics that melded strength, flexibility, and resiliency.

Performance & Aesthetics Combine for Ergonomic Support and Comfort

Eventually, they produced a textile and a design solution that didn't involve inadequate materials or even the need for a lumbar support retrofit. Rather, it offered a highly supportive, transparent, and breathable solution that Diffrient says accomplished their objectives far better than they had expected.

"It occurred to me that if we took a limited stretch mesh—less than 5% stretch—cut a pattern, and then bonded the pieces together, much like the pattern of a fitted shirt, we could accommodate lumbar curvature. In fact, we achieved self-accommodating support for the entire back."

A New Standard in Mesh Seating

Recently, the Liberty chair and Luminesce mesh received design honors when both were chosen to be a part of the Smithsonian's Cooper-Hewitt Museum National Design Triennial. Diffrient's chair design and Whelan's mesh textile were recognized for their performance and aesthetics, as well as their contribution to ergonomic seating.

The Liberty Chair and Luminesce mesh reflect one of Diffrient's other design mantras: When design springs from an understanding of the people who are going to use the product, you end up with forms that you would never have imagined.

Whelan says she was inspired to design the "moving" luminescent quality into her Luminesce mesh when she realized that true ergonomic seating is about supporting the human body—seated yet still in motion.

"I really kept the whole idea of movement in mind when creating the textiles," she says. "The chair is not static. Its performance issues are not static. You're constantly

able to adjust and move and provide support. I wanted the mesh fabrics to somehow communicate that idea by actually changing color and shades during movement and with changing light."

Continuous Improvement

When asked what's next, Whelan says she and Diffrient will continue their collaborations with ongoing textile innovations for both the Freedom and Liberty chairs, including new materials to be unveiled this June at NeoCon 2007.

Diffrient says there's always more to do when it comes to seating, and at 78, he maintains a lengthy list of design projects that will keep him busy for years to come.

"Seating is so compromised to begin with that there's always something else to do and to try and improve," he says. "Since there's no such thing as the perfect chair, there's plenty of latitude to keep trying." ■



Humanscale's Liberty chair and Luminesce mesh were recently chosen to be a part of the Smithsonian's Cooper-Hewitt Museum National Design Triennial for their functional yet striking design, and the ergonomic seating issues which Diffrient's chair design, working in conjunction with Whelan's mesh textile, has now solved.

"We've seen too many chairs with too many features and adjustments, and our own evaluations tell us that our employees are not going to make those adjustments the way they should. Ergonomics doesn't have to be complicated and we certainly don't want our seating standard to be any different."

—Steven Bell, Vice President,
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