



May, 2022

# Spring 2022 Newsletter

International Society for Occupational Ergonomics and Safety

**2022 Conference Submission Deadline Extended**  
Old: April 30th → **New: May 31st** (more info [here](#))

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## Letter from the President

Spring has arrived! Just as the temperatures in my home state of Michigan begin to rise, so does my anticipation for the 34th Annual ISOES conference, to be held this September 15th & 16th, 2022. This will be our third year utilizing an online conference format, which continues to entice academics and practitioners alike from around the globe. Thank you to everyone who has submitted an abstract. Abstract reviews are currently underway, and authors will be notified according to the schedule outlined in the call for abstracts. On this topic, there is some good news to pass along: the Executive Committee (EC) has extended the deadlines for abstracts and final submissions so there is still time to participate in this year's proceedings! Please consider submitting an abstract and sharing your research and project work with the society. See the updated call for abstracts along with everything you need to know about this year's conference on the ISOES website: [http://www.iso.es.info/conference\\_home.html](http://www.iso.es.info/conference_home.html).

Stay tuned for information about nominations/self-nominations for open positions on the ISOES EC in 2023. You will not find a more dedicated group of

individuals and I can't thank your current EC enough for giving of their time and talent to make ISOES a world class society. The EC meets each month to plan and to carry out its mission of providing value to the ISOES membership. This year's EC has done an outstanding job planning this year's free online conference (with DOI numbers assigned to each paper), launching the Research Grants and Outreach Award programs, continuing the student paper award, and planning for the ASSP Safety Conference and Expo in Chicago June 27-29th, 2022. ISOES will be one of 450 exhibitors at the Expo, where we will share the mission and vision of our society with 5,000 ASSP Conference attendees! Check out Jim Borchardt's article for more information and an invitation to join us for the Expo.

Finally, a huge thank you to everyone who has made a dues payment in the last 1-2 years! Dues are currently the only source of funding for our great ISOES initiatives so we hope that you will continue partnering with us to support the needs of those who work in, and contribute to, the fields of ergonomics and safety. If you need to renew your membership, please take a moment to do so; 1-year and 2



**Steve Fleming**  
ISOES President

-year renewals are available. See the website for details: <http://www.iso.es.info/membership.html>. For questions about your membership status or for any other questions or comments, please send us a note at [ISOESinfo@gmail.com](mailto:ISOESinfo@gmail.com).

I am looking forward to seeing you, in person at the ASSP Expo in Chicago, or online for the conference this fall!

## Exoskeletons in Patient Handling: Challenges and Future Directions

By Jaejin Hwang



Patient handling with exoskeletons (Source: <https://news.cnrs.fr/articles/exoskeletons-to-relieve-healthcare-workers>).

Industrial exoskeletons have recently been applied to various fields such as manufacturing, construction, and agriculture. The healthcare sector is no exception. Studies have been conducted on how much the burden on the upper extremity can be reduced by surgeons through the upper extremity exoskeleton. A similar logic can be applied to the back-support exoskeleton for nurses handling patients. It is well known through existing literature that handling a patient puts a great physical burden on nurses' backs.

There are the following challenges to applying the back-support exoskeleton to patient movement. First, patient handling is asymmetric and involves many complex movements (e.g., pivots). As the back-support exoskeleton is optimized for symmetrical movement, the biomechanical effect of the exoskeleton can be reduced during asymmetrical movement. Second, nurses may be hesitant to wear an exoskeleton because they perform a variety of tasks throughout the day. In addition to handling patients, nurses spend a lot of time walking, writing/checking documents, and checking the patient's health status. It is difficult to wear the exoskeleton all day in such a situation. Realistically, if a team specializing in patient handling is established in the hospital, it may be more feasible to recommend the use of exoskeletons to them.

It is unrealistic to think of using an exoskeleton to replace existing patient handling

equipment. The best practice is the complementary use of exoskeletons and patient handling equipment. For example, even with an air mattress that reduces friction, it is difficult to avoid the manual operation of placing the mattress under the patient. In this case, wearing an exoskeleton and performing a mattress preparation can reduce the burden on the nurse. Currently, it is difficult to find commercial exoskeletons that target only patient handling. Adopting the exoskeleton would be further increased if a mechanical design that can effectively reduce the loading during asymmetrical movements, a patient-friendly design that can reduce the hesitance to patients, and the usability that can be easily don on doff by a nurse are added.

"...wearing an exoskeleton and performing a mattress preparation can reduce the burden on the nurse."

## Ergonomic Chairs

By Udemba Chiemezie  
Anthony



A systemic illustration of wrong and correct sitting posture is shown above (Source: <https://ipa.physio/ergonomics-101/>).

An ergonomic chair, for example, has been created to provide the best possible support for the human body, considering factors such as posture, comfort, support, and health. An ergonomic chair should include lumbar adjustment (both height and depth) so that each user can find the best fit for their lower back's inward curvature. Having these ergonomically designed chairs with new technology, like sensors, is extremely important in the office, where workers sit for long hours. The in-built sensor will evaluate the seater's postures to detect incorrect sitting postures; for example, an ergonomic office chair's backrest should

be 12 to 19 inches wide. The shoulder should be aligned with your trunk to sit up straight. The back of the chair should be in touch with your buttocks, and all three regular back curves should be present while sitting. If not, back problems such as lordosis in the lumbar region, kyphosis in the thoracic region, and scoliosis, which is located at sideways curvature of the spine, can occur. Overall, incorrect seating posture may result in pain to the back, neck, and shoulders due to muscles, joints, and ligaments being put under strain.

## Trade Shows for the Safety and Ergonomics Practitioner

By Richard Wyatt

Trade shows are a good way to see new equipment related to safety and ergonomic-improvement solutions for manual material handling and material storage in factories and distribution centers. Within the United States, there is a good trade show held every spring, in Chicago on odd-numbered years and now in Atlanta on the even-numbered years. The Atlanta show is called Modex and involves vendors that supply goods and services to logistics operations, including safety and ergonomics. The Modex show was held March 28 through March 31st in Atlanta <https://www.modexshow.com/>.

ProMat is held every March and will be held at McCormick Place in Chicago March 28-31st, 2023. The benefits of attending one of these shows is access to not only vendors from the United States, but there are international vendors there as well, so any new approaches to safety will be on display, along with access to their equipment and ideas.

<https://www.promatshow.com/> is the website for planning a visit next year.

The nice thing about these shows is they are free to attend and there's a lot of opportunity for a safety manager or ergonomist to discuss material handling issues or storage applications with a live person. I personally have photos of an issue I'm trying to solve and visit vendors that can assist in solving the issue. Within the world of industrial ergonomics, there's many vendors that have their products on display. You can get access to factory reps, budgetary pricing, and local distributors.

At the Atlanta show, there were vendors that offer smaller sized scissors lifts (see left photo), and new ideas for warehouse operations for prevention of forklift struck-by accidents. Also, there's lots of new ideas around smaller, more mobile pallet jacks that are easier to maneuver in tight aisles. With new battery technology, batteries are easier to exchange as they

are smaller and lighter. It's a good idea to have photos or videos on your phone illustrating your issue in your production plant or warehouse so you'll have a good discussion with vendors.

At the Atlanta show, here's an example vendor where we got into detail about a current issue. I was interested in a material tipping issue. We visited some vendors that had that type of equipment and discussed the application. Since we had photos and videos of the specific application in the plant, we can get lots of detailed information about how the vendor can assist in solving the issue in the plant.

In conclusion, these trade shows are a good place to see what types of safety and ergonomic equipment is available. Both these yearly shows are free to attend and there's value in visiting the vendors to discuss whatever type of issue you are facing around material handling and distribution.



Trade show examples

**"...trade shows are a good place to see what types of safety and ergonomic equipment is available."**

## ISOES Booth at ASSP Safety 2022

By Jim Borchartd

For the fifth time, ISOES will be an exhibitor at [ASSP Safety 2022 Conference and Exhibition](#) in Chicago, IL at [McCormick Place Convention Center](#) June 27-29, 2022. McCormick Place is the largest conference and exhibition center in North America with 2.6 million square feet for exhibitors and presentations.

Our [ISOES Booth #2120](#) joins [450 national and international exhibitors](#) (see Program pages 10-11) and is strategically located near

universities exhibiting their Safety/Health and Ergonomic (SH&E) programs.

If you are attending the conference, be sure to stop by our ISOES booth when visiting the hundreds of SH&E exhibitors. If you are within driving distance of Chicago, we can invite you to register for a complimentary "Expo Only Day Pass" to visit our booth and the many other exhibitors – contact Jim Borchartd at [ConstructionErgonomicsLLC@gmail.com](mailto:ConstructionErgonomicsLLC@gmail.com) for specific details. As a further benefit the 3rd Edition of the ASSP Handbook can be pur-

chased at a 20% discount when you attend the Expo.





# XXXIV<sup>th</sup> Annual International Conference International Society for Occupational Ergonomics & Safety

## VIRTUAL CONFERENCE

### Call for Abstracts

<b>Date &amp; Cost</b>	<b>September 15-16, 2022</b>	
<b>Submission Requirements &amp; Deadlines</b>	<b>Abstract Submission (350 words):</b>	<b>May 31, 2022</b>
	<b>Abstract Acceptance Notification:</b>	<b>June 15, 2022</b>
	<b>Final Abstract/Paper Submission*</b>	<b>July 31, 2022</b>

- All submissions are to be made via EasyChair: [ISOES Submission Portal](https://easychair.org/conferences/?conf=isoes2022) (<https://easychair.org/conferences/?conf=isoes2022>)
- Final Submissions: Max 6 Pages for Full Papers OR 2 Pages for Extended Abstracts

The following types of contributions from students, academic researchers, and practitioners are welcome: original research, pilot and ongoing studies, case studies, thematic literature reviews, dissemination articles, and research protocols. These contributions will be subject to peer review before acceptance.

\* Check [www.isoes.info/](http://www.isoes.info/) for abstract/paper template and additional information on online attendance and remote presentations.

#### Industry

Aerospace  
Agriculture  
Automotive  
Aviation  
Construction  
Defense  
Electronics  
Fishing  
Forestry  
Health Care  
Info Technology  
Manufacturing Marine  
Mining  
Oil and Gas  
Office  
Retail  
Transportation  
Utilities  
Warehousing and Others

#### Topics

##### Ergonomics & Human Factors

- Physical
- Cognitive
  - Perception/Processing/Memory
  - Distraction/Inattention/Boredom
- Organizational
- Psychosocial

##### Safety & Health

- Systems/Behavioral
- Culture/Climate
- Home
- Risk Assessment/Management
- Artificial Intelligence
- Nano Products/Processes
- Automated Vehicles/Equipment
- Robotics/Exoskeletons/Wearables
- Prevention through Design
- Virtual/Augmented Reality
- User Experience/Usability
- Data Analytics

##### Workplace Exposure Examples

- Aging Workforce
- Overweight/Obesity
- Health & Wellness
- Stress & Fatigue
- Remote Working
- Sit vs Stand
- Vibration Exposure
  - Whole-body & Segmental
- Slips, Trips, and Falls
- Repetitive Motion
- Work Rest Cycles
- Manual Handling/Overexertion
- Musculoskeletal Injuries/Disorders
- Environmental
  - Temperature, Air Quality, Lighting, Noise, Electromagnetic Radiation
- COVID-19 Best Practices
- Other Emerging Topics

### ISOES 2022 Conference Proceedings will receive a unique DOI (Digital Object Identifier)

- ISOES will select up to two [student full papers](#), with the student listed as the first author, to receive a monetary award not to exceed a combined sum of \$500.
- To be considered for the student award, please [complete the online application form](#).
- In addition to the monetary award, award recipient(s) will receive an official certificate of recognition and a free two-year membership to ISOES.
- Award recipient(s) must be currently enrolled in an accredited university pursuing an undergraduate or graduate degree with an ergonomics or safety focus.
- Award recipient(s) will be expected to register and remotely present his/her research at the September 2022 annual conference.

#### Student Paper Awards

#### Conference Organization Committee

Steve Fleming (Chair), Clarence Rodrigues, Marc Snell, Anand Subramanian, Richard Wyatt, Priyadarshini Dasgupta, George Page, Jaejin Hwang, Anthony Udemba, & James G. Borchardt.

Abstracts/Papers will be published in the [ISOES Conference Proceedings](#).

Digital Conference Proceedings will be available for download following the conference.