Closing the Gap: Where to Find and Access New Ergonomics Research

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Program Director, SRI•Ergonomics

The 18th Annual
applied ergonomics
CONFERENCE 2015
Practitioners talking with practitioners

The Ohio State University
Topics To Be Covered

- The academic research quandary
- Methods for finding new ergonomics research
- Making the most out of easily accessible information
- Finding full research information
Problem

THE GAP
Problem

1. Scientific journals publish noteworthy advances in ergonomics...but these are usually difficult or costly to access for those not in academia
Subscriptions to Ergonomics Journals

<table>
<thead>
<tr>
<th>Journal</th>
<th>Annual Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Applied Ergonomics</em></td>
<td>$270</td>
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<tr>
<td><em>Ergonomics</em></td>
<td>$4,650</td>
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<tr>
<td><em>Human Factors</em></td>
<td>$510</td>
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<td><em>Human Factors &amp; Ergonomics in Manufacturing &amp; Service Industries</em></td>
<td>$1,486</td>
</tr>
<tr>
<td><em>International Journal of Human Factors and Ergonomics</em></td>
<td>$650</td>
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<tr>
<td><em>International Journal of Industrial Ergonomics</em></td>
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<tr>
<td><em>Occupational Ergonomics</em></td>
<td>$420</td>
</tr>
</tbody>
</table>
Problem

2. Ergonomics practitioners often are:
   ◦ Unaware of this new knowledge, or
   ◦ Unable to obtain details about the study
Solution

CLOSING THE GAP
Becoming Aware of New Ergonomics Research
Becoming Aware of New Ergonomics Research

1. Attend ergonomics conferences!
2. Conduct searches of broad-based scientific databases
3. Sign up for alerts to receive summaries of recently published ergonomics studies
Ergonomics Conferences
(not a complete list)

- **GOErgo presents 18th Annual Applied Ergonomics Conference 2015**
  - Practitioners talking with practitioners
  - November 17 - 20, 2015
  - Caesars Palace, Las Vegas

- **HFES 2015**
  - International Annual Meeting
  - October 26–30, 2015
  - JW Marriott Los Angeles at L.A. LIVE

- **AIHce2015**
  - Salt Lake City, Utah
  - May 30 - June 4

- **SAFETY 2015**
  - June 7-10
  - Dallas, Texas

- **National Safety Council Annual Congress & Expo 2015**
  - Congress: September 26 - October 2
  - Expo: September 28 - 30

- **ergoX**
  - An extraordinary ergonomics event
Becoming Aware of New Ergonomics Research

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Database Searches

- **Google Scholar** ([http://scholar.google.com](http://scholar.google.com))
  - Broad searches for scholarly and academic literature
    - Articles
    - Research abstracts
    - Books
    - Graduate theses
    - Court opinions
Google Scholar

Example Ergonomics Search

Google

manufacturing ergonomics

Scholar

About 3,550 results (0.34 sec)

Articles

Case law

My library

Any time

Since 2014

Since 2013

Since 2010

Custom range...

Sort by relevance

Sort by date

☑ include citations

☑ include patents

Create alert

A Prospective Study of Musculoskeletal Outcomes Among Manufacturing Workers II. Effects of Psychosocial Stress and Work Organization Factors
F Gerr, NB Fethke, D Anton, L Merino... and Ergonomics... 2014 - hfs.sagepub.com
Objective: The aim of this study was to characterize associations between psychosocial and work organizational risk factors and upper-extremity musculoskeletal symptoms and disorders. Background: Methodological limitations of previous studies of psychosocial and...
Cited by 3 Related articles All 5 versions Web of Science 1 Cite Save

Good ergonomics and team diversity reduce absenteeism and errors in car manufacturing industries. This study shows that high-physical workloads and homogeneous team composition are both associated with higher absenteeism and error rates. Thus,...
Cited by 1 Related articles All 6 versions Web of Science 1 Cite Save

Ergonomics Simulation and Application in Production Assembly Line
JF Liu, M Chen - Advanced Materials Research, 2014 - Trans Tech Publ...
... Home > Advanced Materials Research > Research in Materials and Manufacturing... > Ergonomics Simulation and Application in... Paper Title: Ergonomics Simulation and Application in Production Assembly Line. Periodical, Advanced Materials Research (Volumes 834 - 836),...
Cite Save

INVESTIGATING THE IMPACT OF PRODUCT ORIENTATION ON MUSCULOSKELETAL RISK IN AEROSPACE MANUFACTURING
SR Fletcher, TL Johnson - ... Ergonomics and Human Factors 2014... 2014 - books.google.com
Like most high value aerospace components, aircraft wings are held in relatively fixed positions during manufacture. Their internal systems are installed by human operators entering into the wing box cavity as it is held at a static horizontal position. These are...
Database Searches

- PubMed (www.pubmed.gov)
  - Abstracts and citations of 24+ million articles
    - MEDLINE biomedical literature
    - Life science journals
    - Online books
PubMed
Example Ergonomics Search

"musculoskeletal disorders" food processing

Results: 1 to 20 of 35

1. High intensity physical exercise and pain in the neck and upper limb among slaughterhouse workers: a cross-sectional study.

2. Risks of musculoskeletal disorders among betel quid preparers in Taiwan.

3. Potential of adjustable height carts in reducing the risk of low back injury in grocery stockers.
Database Searches

- Google News ([https://news.google.com](https://news.google.com))
  - Personalize to “ergonomics” or similar
Google News
Example Ergonomics Search

Should The Americans With Disabilities Act Be Extended To Obese Workers?

The Court of Justice of the European Union recently ruled that obesity can be a work disability under EU law. In the U.S. the Americans for Disability Act has long protected workers with disabilities from being discriminated against. But obesity itself ...

Bigging up the growing problem of obesity

You’re not disabled just because you eat junk

Related

Obesity »

Cops are the most obese workers in America, study reveals

Social workers, clergy and counsellors come in second, with 35.6 per cent having a body mass index (BMI) of 30 or more - the standard definition of obese used by the study. Home health aides and massage therapists are third at 34.8 per cent ...

Obesity can be a disability, EU court rules

“Such would be the case, in particular, if the obesity of the worker hindered that participation on account of reduced mobility or the onset of medical conditions preventing that person from carrying out work or causing discomfort when exercising ...

More employers offering programs to obese workers

WASHINGTON - More than ever, employers are helping obese workers lose weight, a growing trend that helps them save money on health care costs.
Becoming Aware of New Ergonomics Research

1. Attend ergonomics conferences!
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3. Sign up for alerts to receive summaries of recently published ergonomics studies
Ergonomics Journals Publishers

- **Elsevier** ([www.elsevier.com](http://www.elsevier.com))
  - Customized email alerts
    - *Applied Ergonomics*
    - *International Journal of Industrial Ergonomics*

- **IOS Press** ([www.iospress.nl](http://www.iospress.nl))
  - RSS Feed
    - *Occupational Ergonomics*

- **Inderscience** ([www.inderscience.com](http://www.inderscience.com))
  - Customized email alerts and RSS Feed
    - *International Journal of Human Factors and Ergonomics*
Ergonomics Journals Publishers (continued)

- **Sage** ([www.sagepub.com](http://www.sagepub.com))
  - Customized email alerts
    - *Human Factors*

- **Taylor & Francis** ([www.taylorandfrancis.com](http://www.taylorandfrancis.com))
  - Customized email alerts and RSS Feed
    - *Ergonomics*

- **Wiley** ([www.wiley.com](http://www.wiley.com))
  - Customized email alerts and RSS Feed
    - *Human Factors and Ergonomics in Manufacturing and Service Industries*
Ergonomics Forums
(not a complete list)

- **GoErgo** ([www.iienet2.org/GoErgo](http://www.iienet2.org/GoErgo))
  - Information to assist ergonomics professionals
  - Case studies and webinars
- **Ergoweb** ([www.ergoweb.com](http://www.ergoweb.com))
  - Ergonomics Today™
  - Discussion forums
Abstract Only

Biomechanics of leaning forward against a support with an extreme standing reach

Back discomfort, lower extremity loading and unbalanced positions may inhibit workers from standing for industrial stationary work. Two forward-leaning supports were compared to unsupported standing during an extreme reach with 30° trunk flexion under varied light load conditions in the outstretched hands. A total of 11 males from the university participated (mean age 30 years [SD = 5]). Link segment modelling showed a 25–30% reduction in the L4/L5 bilateral hip external moments when using a chest-height support. Ribcage expansion with maximal inspiration remained unchanged with an average 85 N of compression force, and low back discomfort remained tolerable for this difficult reach. Leaning against a work table had no influence on L4/L5 moments or back discomfort because contact was at the pelvis; the external moment at the hips decreased by 6%. Postural stability was improved with little migration of the centre of pressure under both supports. Only the chest support showed potential to influence work positioning and prevent back injuries; further study is needed on support forces and usability.

Practitioner summary: Forward leaning stabilised an extreme, standing reach; the table reduced the single hip moment by only 3%. A chest-leaning support reduced the moment at L4/L5 by 25–30% and the hip by 12–15%; moreover, back discomfort remained tolerable and chest expansion was unchanged with an average 85 N of compression.

Published: 2015
Getting New Research

Q. Is This Far Enough?

A. It depends

Full Article

Biomechanics of leaning forward against a support with an extreme standing reach

Published: 2015
Getting New Research

Q. Is This Far Enough?

A. It depends
Getting Full Access to New Ergo Research
Getting Full Access to New Ergo Research

1. Journal subscriptions
2. Conference proceedings
3. Pay per article
4. Journals with "open access"
5. Academic/technical libraries
6. Author contact
Journal Subscriptions

Impact Factor

- A measure of the number of times recent articles have been cited from that journal
- Often used to gauge the relative importance of a journal in its field
- Higher impact factors → more noteworthy and important
- Specialized journals have Impact Factors in the range of 0.5–4.0
## Journal Subscriptions

### Impact Factor

<table>
<thead>
<tr>
<th>Journal</th>
<th>Impact Factor</th>
</tr>
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<tbody>
<tr>
<td>Ergonomics</td>
<td>1.608</td>
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<tr>
<td>Applied Ergonomics</td>
<td>1.332</td>
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<tr>
<td>Human Factors</td>
<td>1.290</td>
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<tr>
<td>International Journal of Industrial Ergonomics</td>
<td>1.214</td>
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<tr>
<td>Human Factors &amp; Ergonomics in Manufacturing &amp; Service Industries</td>
<td>0.862</td>
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</tbody>
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Journal Subscriptions
Pro’s and Con’s

- **Examples**
  - Applied Ergonomics
  - Ergonomics
  - Human Factors
  - Int’l Journal of Industrial Ergonomics
  - Human Factors & Ergonomics in Manufacturing & Service Industries

- **Pro’s**
  - Full access to details
  - Electronic access prior to publication

- **Con’s**
  - Can be costly
  - Many articles of less interest
Getting Full Access to New Ergo Research

1. Journal subscriptions
2. Conference proceedings
3. Pay per article
4. Journals with "open access"
5. Academic/technical libraries
6. Author contact
Conference Proceedings
Pro’s and Con’s

- Examples
  - Applied Ergonomics Conference
  - Human Factors Annual Meeting
  - National Ergonomics Conference
  - American Industrial Hygiene Conference
  - IIE Annual Conference

- Pro’s
  - Often new research being presented
  - Opportunity to speak with researchers

- Con’s
  - Cost and time to attend conference
  - Research results may be preliminary
Getting Full Access to New Ergo Research

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4. Journals with "open access"
5. Academic/technical libraries
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Pay Per Article
Pro’s and Con’s

● Examples
  ◦ Elsevier ~$32
  ◦ IOS Press ~$35
  ◦ Inderscience ~$34
  ◦ Sage ~$20
  ◦ Taylor & Francis ~$48
  ◦ Wiley ~$35

● Pro’s
  ◦ Immediate access to research (electronically)
  ◦ No need for journal subscription

● Con’s
  ◦ Pricy for many articles
Getting Full Access to New Ergo Research

1. Journal subscriptions
2. Conference proceedings
3. Pay per article
4. Journals with "open access"
5. Academic/technical libraries
6. Author contact
Open Access Ergonomics Journals

- Scholarly journals usually available online for free
  - *The Ergonomics Open Journal*
  - *Journal of Ergonomics*

- Pro’s
  - FREE!

- Con’s
  - Few relate specifically to ergonomics issues
  - Limited number of articles available
Free, Full-Text Ergonomics Articles

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  - Ergonomics
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  - Human Factors and Ergonomics in Manufacturing
  - IIE Transactions on Occupational Ergonomics & Human Factors
  - International Journal of Industrial Ergonomics
  - International Journal of Occupational Safety and Ergonomics
  - Proceedings of the Human Factors and Ergonomics Society
  - Review of Human Factors and Ergonomics
  - Theoretical Issues in Ergonomics
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- PubMed Central® ergonomics journals

- Pro’s
  - FREE!

- Con’s
  - Only a select number of articles available
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5. Academic/technical libraries
6. Author contact
Using Libraries
Ergo Graduate Programs (US)
Using Libraries
Pro’s and Con’s

- **Examples**
  - Universities
  - Technical libraries

- **Pro’s**
  - Free or low-cost

- **Con’s**
  - Potentially limited selection
  - Time-consuming
Getting Full Access to New Ergo Research

1. Journal subscriptions
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3. Pay per article
4. Journals with "open access"
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Researcher Access

Upper extremity musculoskeletal disorders in hospital workers Original Research Article
The Journal of Hand Surgery, Volume 12, Issue 5, Part 2, September 1987, Pages 858-862

Laura Punnett

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Pro’s and Con’s

- **Pro’s**
  - More study details
  - Expertise about ergo issue

- **Con’s**
  - Possible copyright issues
Take-Home Messages

- Great new ergonomics research being conducted
- Journals are striving present findings in layman’s terms
- Accessing research findings can be challenging…but it’s getting a lot easier
- A little effort → big returns
Questions?

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