CRE-MSD
Centre of Research Expertise for the Prevention of Musculoskeletal Disorders

GLOBAL ERGONOMICS MONTH WEBINAR SERIES

Supporting remote office work, pivoting back to the workplace during a pandemic, and the future of virtual workspaces

A New Way Forward for the Prevention and Management of Discomfort in Office Personnel: Learnings From Across the Globe

Venerina Johnston
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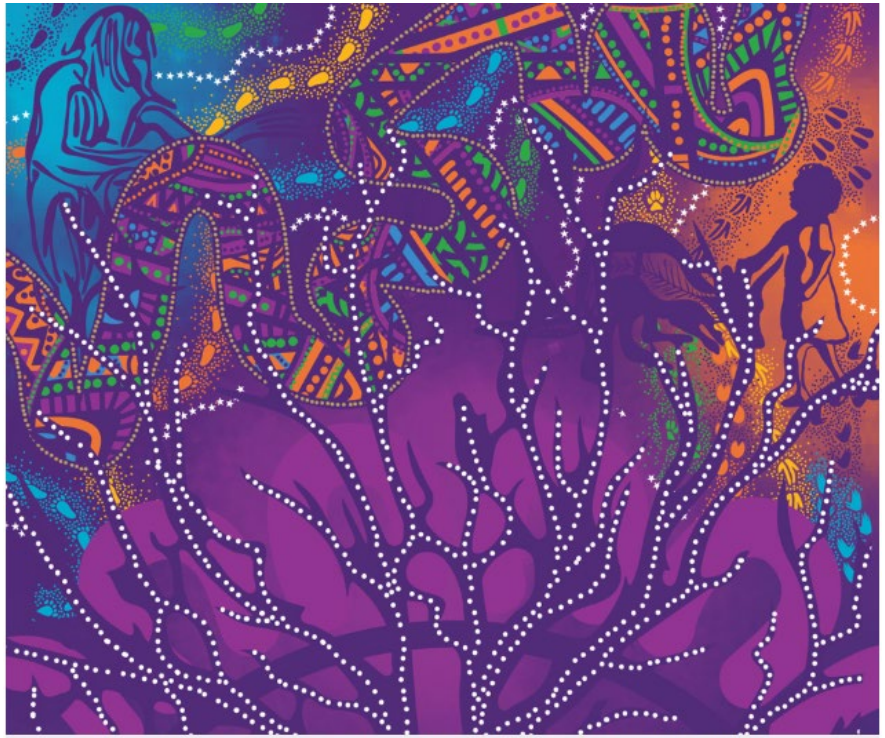
Presented by CRE-MSD in partnership with IHSA.ca Work Safe for Life | Public Services Health & Safety Association™ | PSHSA.ca | Workplace Safety & Prevention Services® | Occupational Health Clinics for Ontario Workers Inc. | Centres de santé des travailleurs (ses) de l'Ontario Inc.

Acknowledgement of Country



A Guidance in Time created by Quandamooka artists Casey Coolwell and Kyra Mancktelow

- I acknowledge the Traditional Owners and their custodianship of the lands on which we meet today.
- I would like to pay my respects to their Ancestors and their descendants, who continue cultural and spiritual connections to Country.
- I recognize their valuable contributions to Australian and global society

Topics

A. Physical and Psychosocial risk factors for neck symptoms in office workers

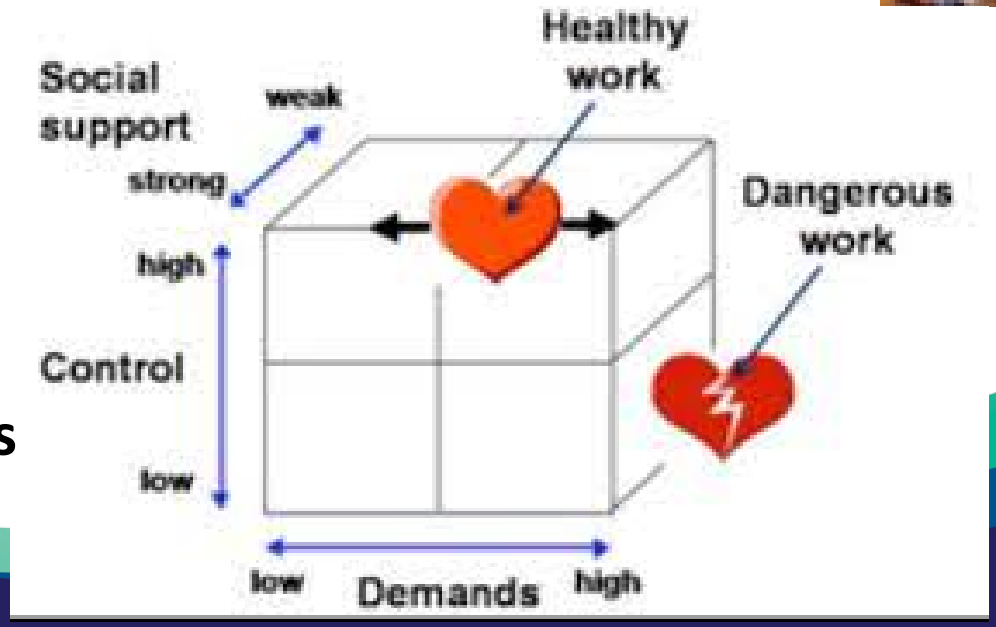
B. Impact of covid lockdown on neck pain, work stress and physical activity in a sample of Swiss office workers

C. Interventions to prevent and reduce the risk of discomfort experienced for those using a traditional office workstation and those transitioning to height adjustable workstations

Potential Risk factors for Neck pain

Individual

Work demands/workstation



Workplace Psychosocial factors

Results

Individual:

- Rarely performing physical activity
- A history of neck trauma
- Greater negative affectivity score
- Touch typing with extra force
- Use bifocals or graduated lens

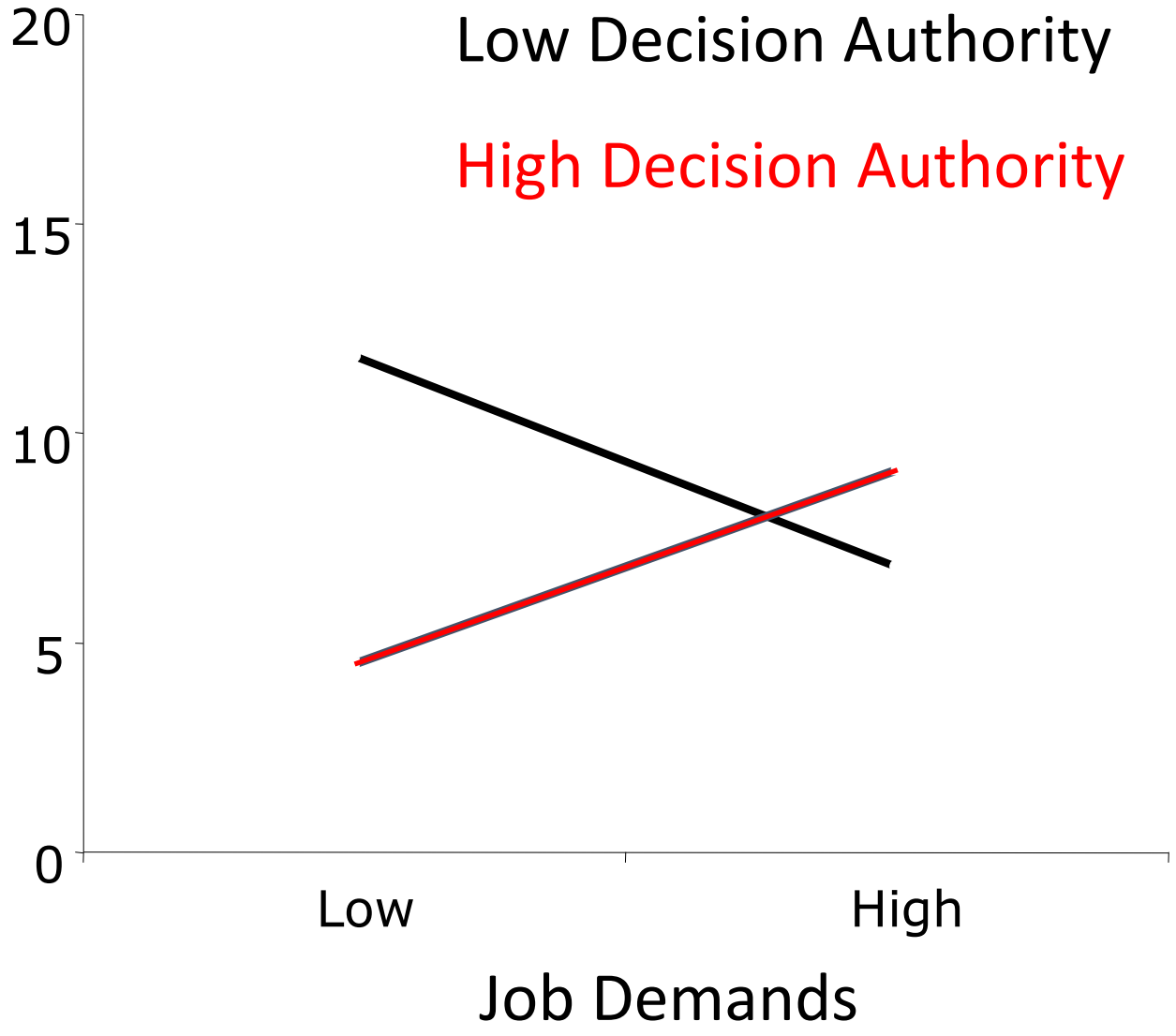
Workplace Psychosocial factors:

Low supervisor support

Work demands/workstation

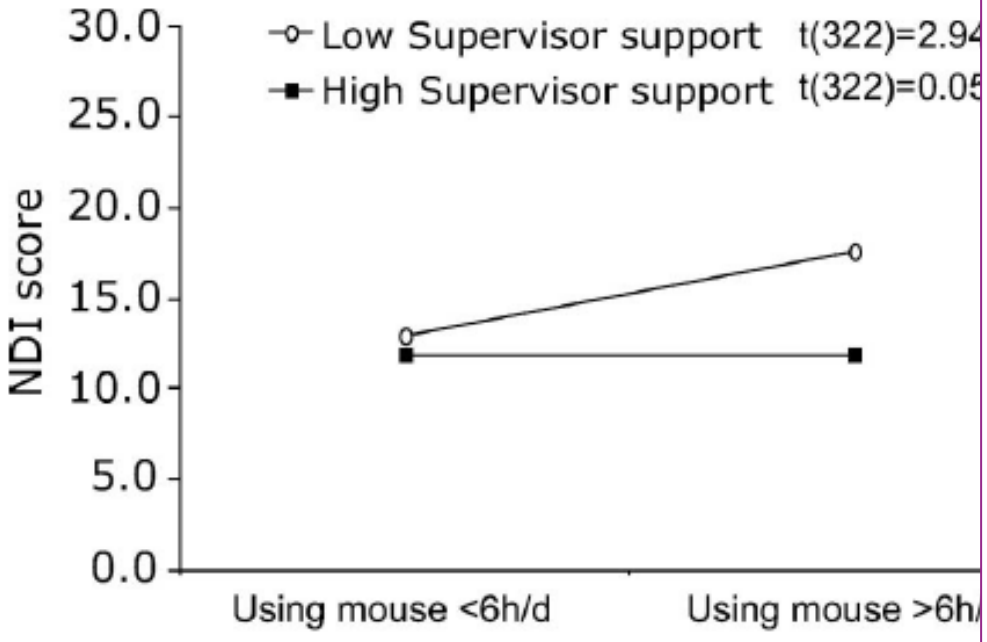
- Using keyboard or mouse for >6 hrs/day
- Sitting at the workstation for >2hrs before taking a break
- Perceiving the workstation as very uncomfortable
- Working without the arms parallel to the floor

Neck pain and disability with low supervisor support

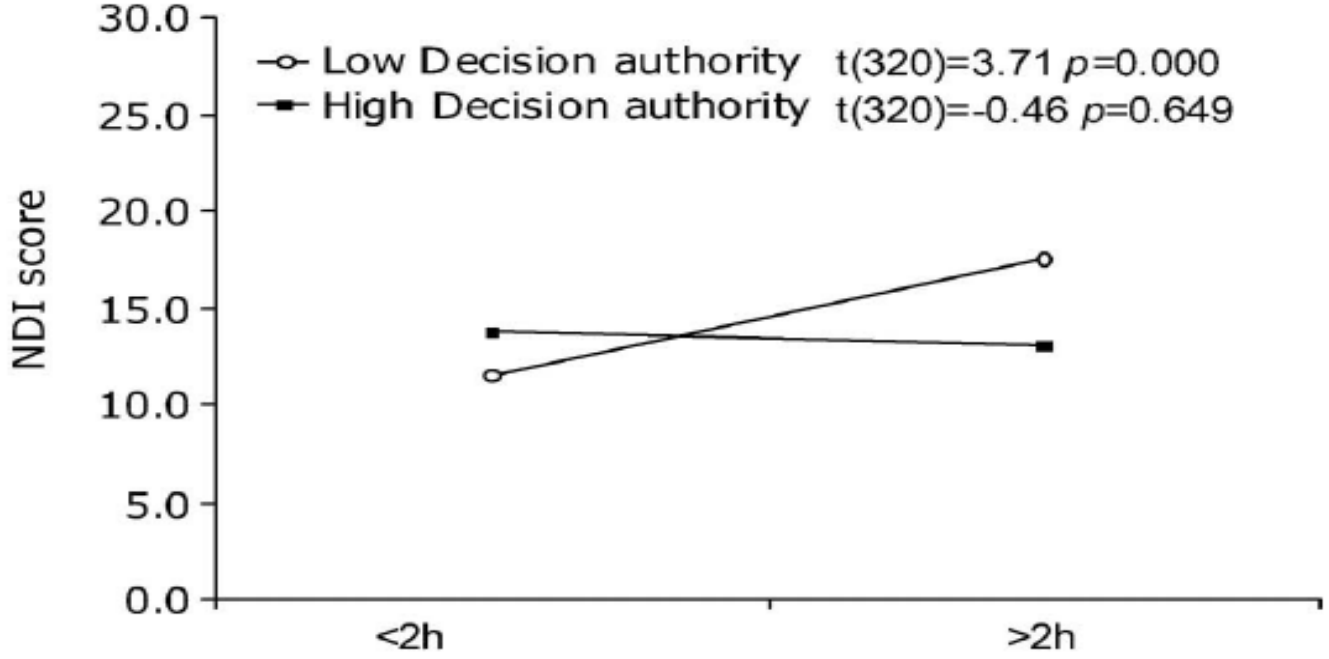


(Johnston et al, Pain, 2007)

Interaction of physical and psychosocial factors



Mouse use n = 328



a Time spent on computer-based tasks n = 326

Take home messages

- Factors at the individual and workplace (ergonomic and psychosocial) are associated with neck pain and disability in female office workers

- Psychosocial factors interact to increase the degree of neck pain and disability

- Workplace ergonomic and work practices interact with psychosocial factors to increase the level of discomfort

Which factors ‘predict’ neck pain in office workers?

Brisbane
Australia
n = 156

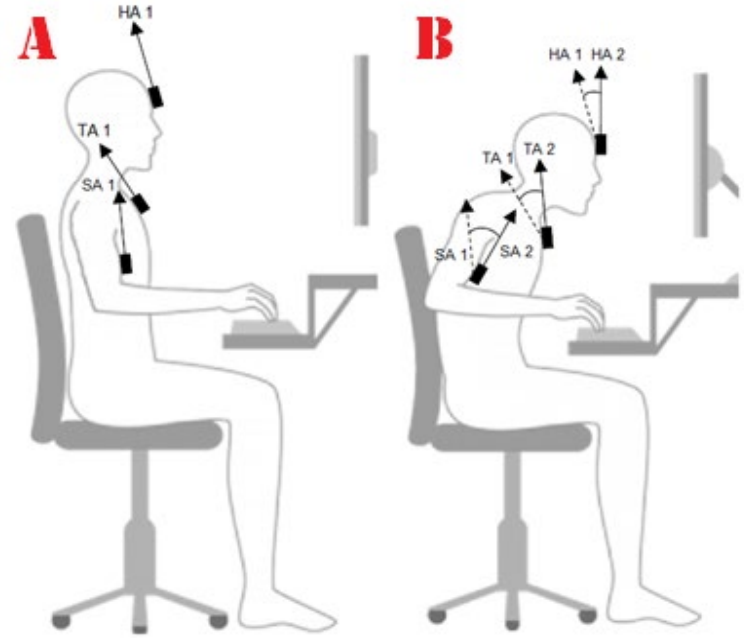
Daegu,
South Korea,
n = 58

Baseline Factors measured

Individual risk factors: Age, BMI, psychological health (depressing, anxiety), coping style, physical activity levels; physical capacity level

Workplace ergonomic and work practices: desk height, keyboard and mouse positions were objectively assessed; Working posture during 1 hr of usual work was recorded using 3D motion sensors

Workplace Psychosocial factors: based on Demand-Control-Support model –49 items



OUTOCME:
Interfering Neck Pain

Results

Incidence of neck pain: 1.93 per 100 person months. 18% new cases

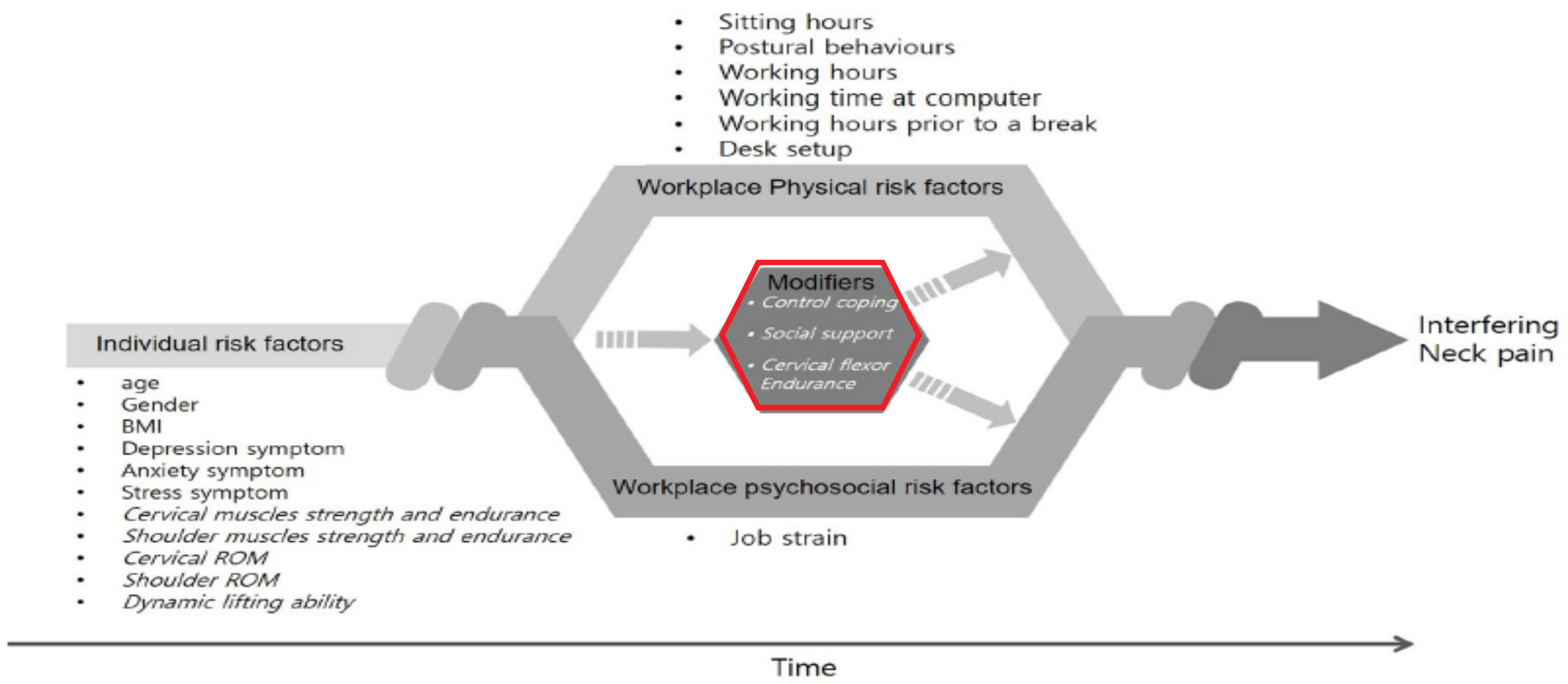
Factors increasing risk of neck pain

- Longer sitting time (home & work)
- Higher job strain
- Higher psychological distress (+older age, female gender)

Factors decreasing risk of neck pain

- Greater physical activity
- Greater time spent in neutral head and thorax posture
- Greater neck extensor muscle endurance and backward neck movement

Proposed etiological model for interfering neck pain in office workers



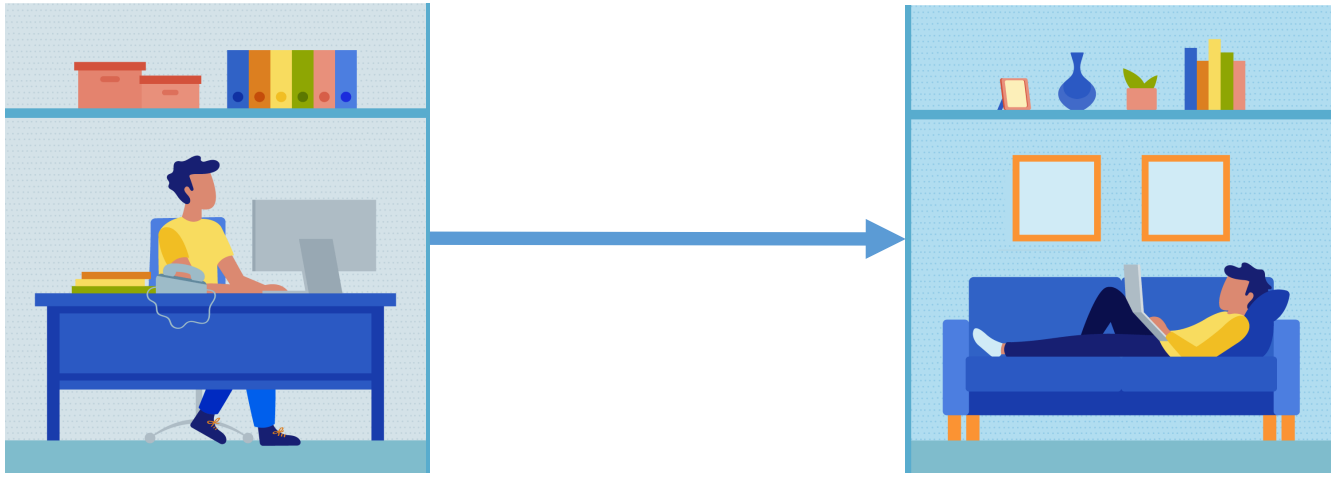
Take home messages

- Individual, physical, and psychosocial risk factors independently and in combination contribute to the development of interfering neck pain in office workers

- The impact of these risk factors may be modified by other attributes of the worker (coping style, neck muscle endurance) and the workplace (social support)

- Results are generalisable to both cultures

Working from home and Health



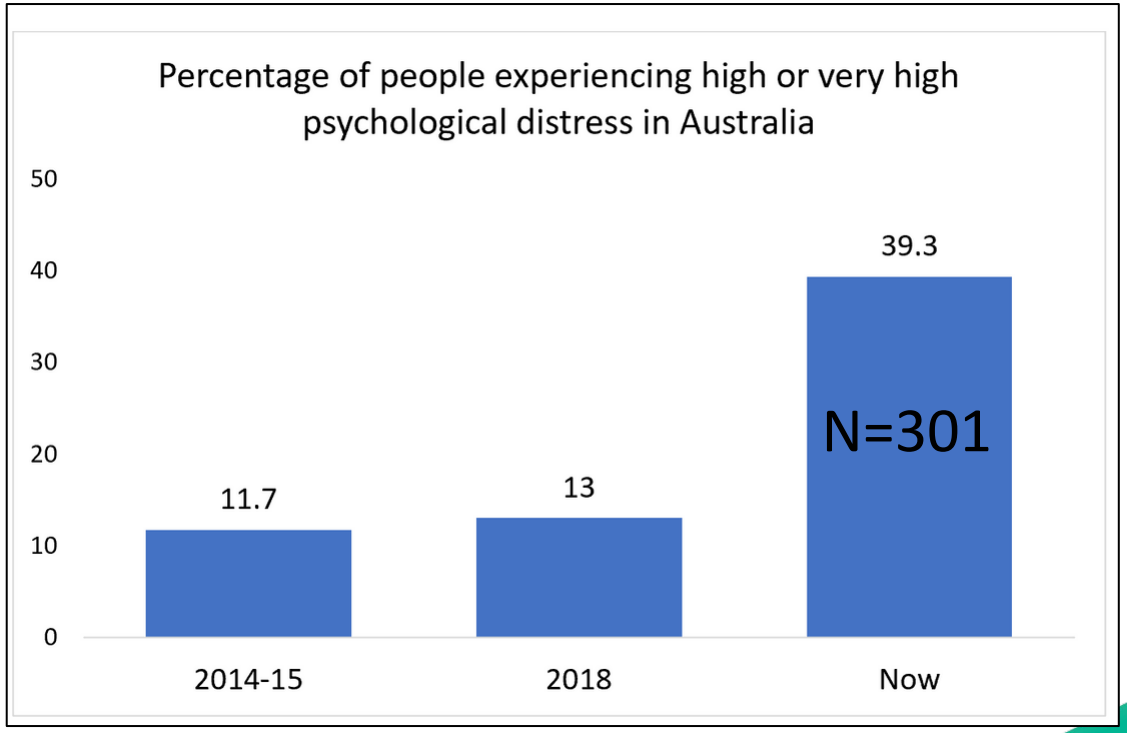
Australia: 46%
US: 40%
Switzerland: 50%

Working from home and Health

THE WALL STREET JOURNAL.

Working From Home Is Taking a Toll on Our Backs and Necks; Weeks of poor ergonomics on the bed or sofa have led to backaches, neck pain and headaches

Zitner, Aaron . Wall Street Journal (Online) ; New York, N.Y. [New York, N.Y]. 13 May 2020.



https://www.transformativeworkdesign.com/post/tripled-levels-of-poor-mental-health-but-there-is-plenty-individuals-and-managers-can-do

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The University of Queensland
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Effect of the COVID-19 lockdown on neck pain and work stress among office workers

This work was financially supported by the Swiss National Science Foundation (No. 32003B_182389)

Co-authors: Andrea Aegerter, Manja Deforth, Venerina Johnston, Gisela Sjøgaard, Markus J Ernst, Hannu Luomajoki, Thomas Volken, Julia Dratva, Holger Dressel, Oliver Distler, Achim Elfering, Markus Melloh

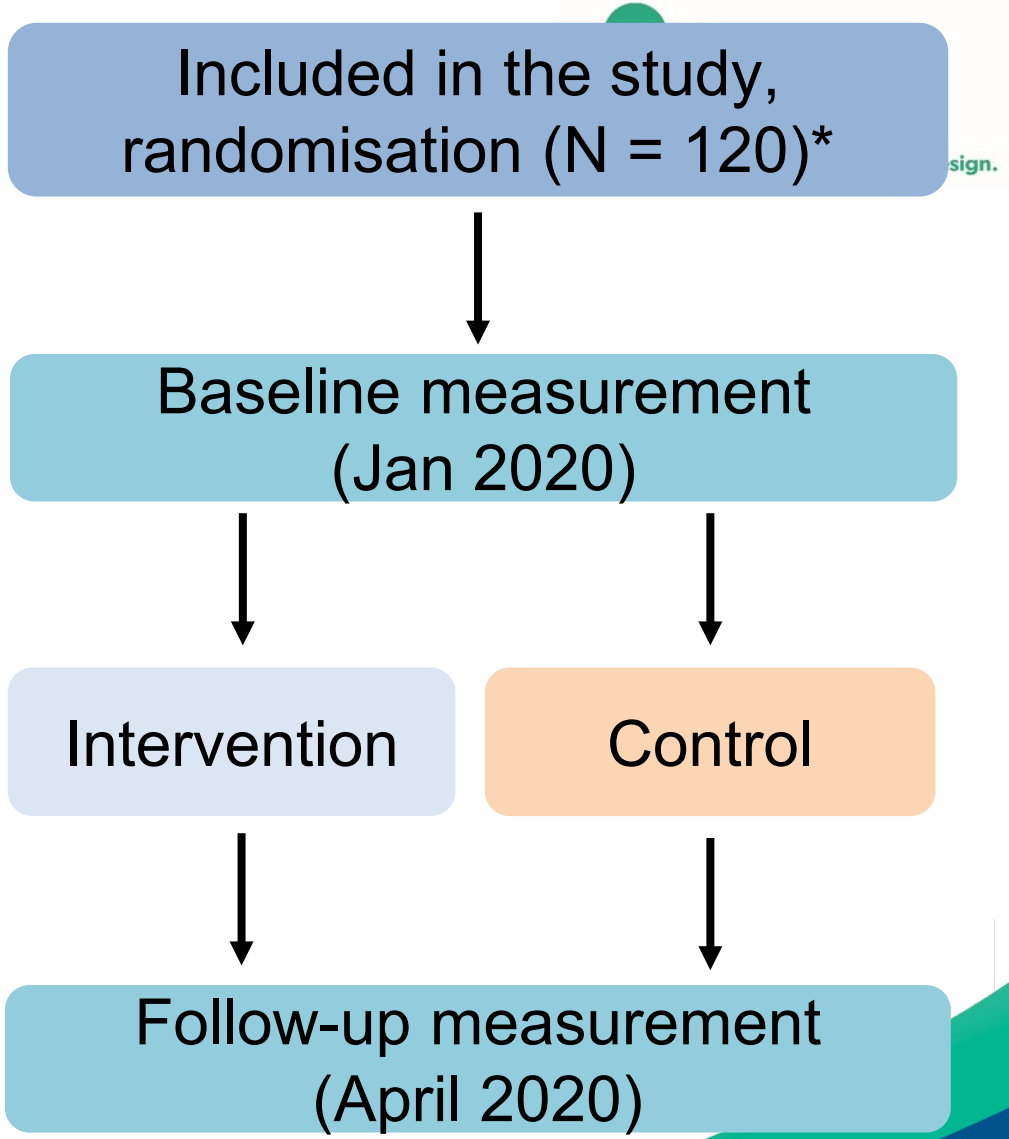
The authors declare that they have no competing interests.

Design & Participants

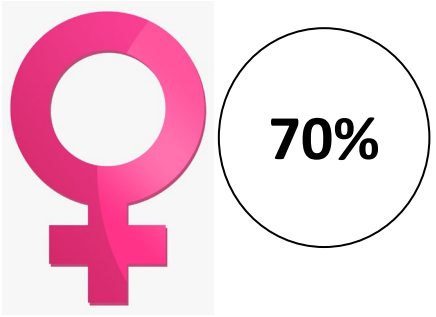
Based on data from ongoing RCT

Inclusion criteria:

- Office workers from two Swiss organizations
- 18 – 65 years
- Working ≥ 25 hours / week
- With & without neck pain
- Only participants in the control group were included in the analysis



Measures Recorded



Neck pain (N = 69)

- Intensity (Nummeric rating scale 0-10);
- Frequency (# days with neck pain last 28 days)
- Disability: Neck Disability Index (0 – 100 %)

Job Stress (N= 75)

- Job stress index – 50 items
- Ratio of resources and stressors
- Scores from 0 (stressors < resources) to 100 (stressors > resources)

Other measures recorded

Physical Activity (N=76)

- IPAQ-SF during leisure, work and transport

Workstation Ergonomics

- Self rated quality of workstation 1 (very good ergonomics) to 5 (very poor ergonomics)

Work Practices

- number of breaks during working day
- time spent working at the computer (hours)

Work Life Balance and Working Time

- Scored on 1 – 5 scale

Results: Neck pain and Work Stress

Neck Pain

- Neck pain intensity reduced 0.68 points during lockdown, not statistically significant or clinically relevant

Job Stress

- NO change in the work stress conditions ? Improved work life balance

Results: Other measures

Workstation Ergonomics:

- No change in the number of work breaks, hours of computer work
- Strong evidence that workstation ergonomics was poorer when WFH vs the office
- Each working hour spent at computer increased NP intensity by 0.36 points

Physical Activity Levels

- No reduction in total physical activity levels measured in MET min/week
- No reduction in walking, moderate or vigorous intensity exercise
- 54% maintained activity level, 17% less active, 29% more active

Work Life Balance

- 43% improved work life balance
- 38% better working times

Take home messages

- During the first 5 weeks of lockdown:
- **No change** in intensity, frequency or disability levels of **neck pain**
- **No change** in work stress
- **No change** in **physical activity levels** or type of activity

- Contributing factors: e.g., work breaks, work-life balance, psychosocial factors

Interventions to

a) prevent and reduce the risk of discomfort experienced for those using a traditional office workstation and

b) those transitioning to height adjustable workstations

Exercise and Ergonomics for Office Workers

To investigate the impact of a combined workplace ergonomics and exercise **compared to** ergonomics & health education in those with and without neck pain on:

- worker productivity
- severity of neck pain
- Incidence of neck pain

Who? General population of office personnel

How? Prospective one-year parallel cluster-randomized trial

Design & Intervention

763 participants
14 organisations

Workstation Ax + Neck specific exercise **(n=381)**

3x/wk for 12 wks group exercise training:

- 1 x 20 min supervised training
- 2 x 20 min unsupervised training
- Resistance tailored to individual strength and capability
- Performed during work time
- Exercise diary to record participation

Workstation Ax + Health Education **(n=382)**

12 wks x 1 hr group facilitated health promotion sessions

- goal setting, healthy eating, conflict management and healthy ageing
- No specific exercise topics
- Conducted during work time

Primary Outcome: Health related productivity loss

Absenteeism (self-reported days lost last 28 days)

***Presenteeism:** Being at work but not performing optimally due to ill-health

+

Presenteeism* (self-reported job performance 0-10 past 28 days)

=

$ Health-related Productivity loss (HRPL)#
[Abs(days) + Pres(days)] × Daily income

Summary of Productivity Outcomes

Participants in the Ergonomic and Exercise intervention demonstrated:

- General population of office workers - lower monetized productivity loss at 12 months of AUD276
- Lower sickness absenteeism at 12 mths in Neck pain cases

‘managing worker productivity loss through a combination workplace ergonomics and neck-specific exercise training for office workers is a sound financial investment and business strategy with longer-term gains’

Summary of neck pain outcomes

- Exercise + ergonomic intervention achieved a **clinically (and statistically**) significant **reduction** in neck pain intensity in **All Workers** and **Neck Cases immediately** following the intervention period of 12 weeks
- Intervention effect **not** maintained at **12-mth** follow-up for either group
- Exercise adherence reduced from 70% (12 weeks) to 21% (12 mths)

Take home messages

- Workstation set-up generally meets recommended guidelines
- Exercise for **all workers** – lower productivity loss at 12 mths and less likely to develop neck pain
- Exercise for office workers with **neck pain** had greater impact on **reducing sickness absenteeism** at 12 months
- Exercise intervention had a *statistically significant* and *clinically relevant* reduction (>30%) in neck pain after intervention but not sustained at 12mths

Sit-Stand workstations (SSW)

- What is the current understanding, use, and selection of sit-stand workstations
- How do organisations decide who should receive a SSW, and what training, if any, is delivered to them
- What factors associated with the investment (or not) in sit-stand workstations

Aims and Methods

ONLINE SURVEY (N = 270)

INTERVIEWS (N=24)

Aims

Extent and current use of SSWs

Training and policies on SSWs

Benefits /barriers to using SSWs

Future strategies to enhance SSW use

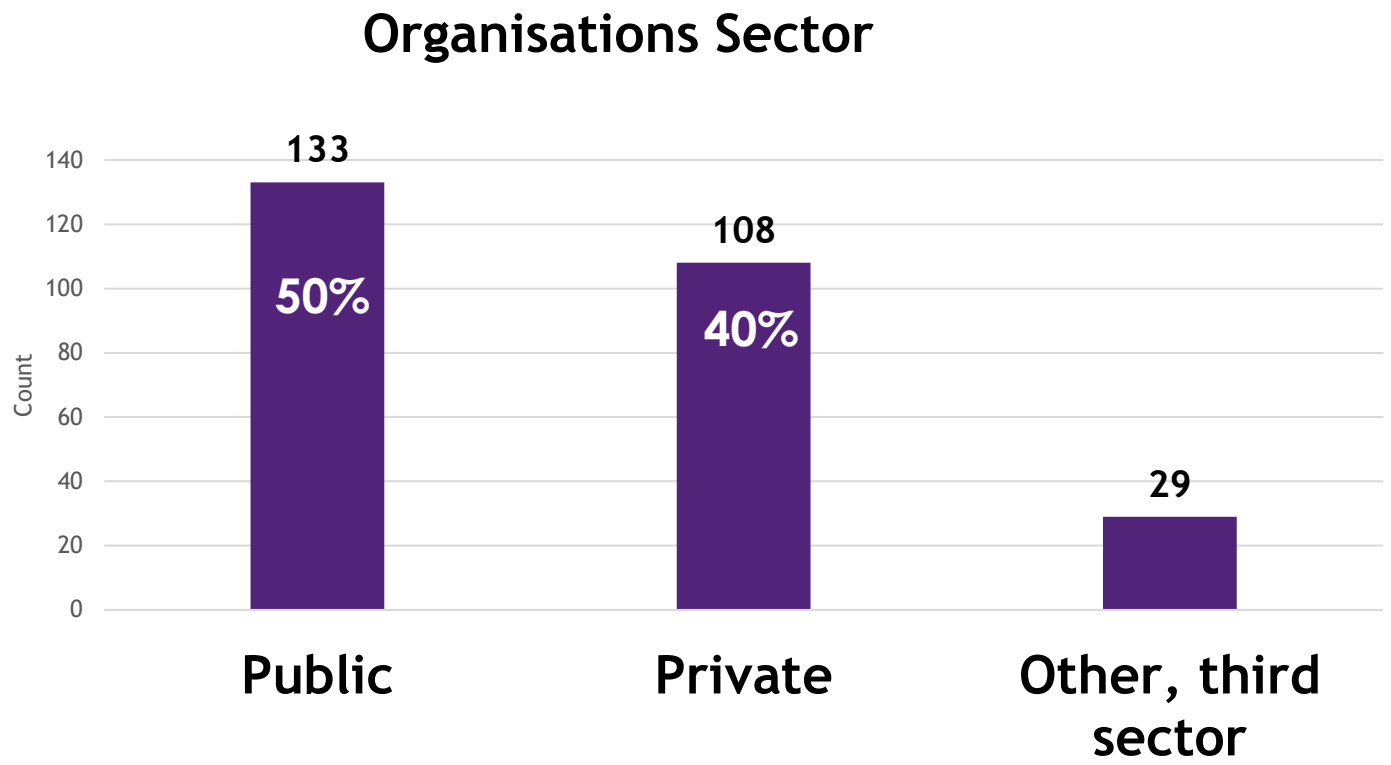
Furniture Purchasing Decision Makers (Managers, Head of departments/divisions, Head of OHS)

Online survey

♂ 57% ♀ 41%

62% Team leader / Middle Management

38% Senior Management / Executive



Sit-stand workstation

Types of SSWs

40%

Electric SSW

36%

Desk Mounted

Who has access to SSW?

- 40% On Request
- 28% Workers with medical history
- 12% Everyone

72% SSWs use is not monitored
51% Not provide training on SSW use
79% No strategy to support SSW use
61% not have, guidelines, information

Reasons for investing / not in SSW

Reasons for NOT investing in SSWs (N=54)

- 26% Budget constraints
- 26% not a priority for the organisation
- 22% office layout not enable installation
- 26% other reasons

Reasons for implementing SSWs (N=216)

- 34% to reduce MSD and injuries
- 28% to improve health and well-being
- 23% to increase employee satisfaction

Financial implications

Scepticism around regular use

Concerns on cost/benefits

Benefits to using SSW

- **SSWs promote ease of postural change, which eases discomfort and increases feelings of wellbeing and productivity**

"We do find that the people who are using the sit-stand desks actually like them. They're not getting sore backs or sore necks as much as they used to" OHS Consultant

- **Employees feel rewarded and valued when provided with SSWs**

"The fact that, if a staff member asked for something, in this case a sit stand desk, if they get that sit stand desk they actually feel that they're a little valued and they feel like people are taking notice of what they say. So, that's a really powerful thing within an organisation. It makes people happy" Safety and Wellbeing Adviser

Barriers to using SSW

- **Design limitations of certain types of SSW affect use by employees**
- **Clear guidelines and evidences from trusted sources are needed to support the use and implementation of SSWs**

"In terms of guidelines, there's a lot of conflicting information out there and we still need to do a lot more research. I haven't seen any definitive recommendations out there" HS and Ergonomics Consultant

- **Individuals' motivation to change their prolonged sitting habit impacted the use of SSWs**

"People that haven't had back issues are influenced by the fact that they don't think they need it" Business Manager

- **Practical issues in the workplace impact the use of SSWs**

"*There's a little bit of loss of privacy in certain office arrangements*"

Future Strategies to the use of SSWs

"it's just about education… providing information about good work practices, good posture and health in general could raise awareness of employee" Organisational Development Coordinator

*"**removing that authoritarian language**… It's just about explaining the benefits to each individual and giving widespread education about the **importance of changing postures and movement and avoiding static positions** and things like that*" Ergonomist consultant

*Obviously, we're becoming more remote, and there needs to be a **technology-based training**"* WHSEQ Manager

Take Home Messages

- Half the organisations provided SSWs on request and/or for employees with medical reasons
- Decision makers perceived benefits of SSWs align with studies from Australia, USA, UK ie increased staff satisfaction and productivity, greater movement and postural changes potentially reducing discomfort
- Majority of organisations neither monitor the use of SSWs nor provide any strategies to support the use of SSWs
- Financial implications main barrier for investing in SSW

Summary of today's presentation

- **New way forward** – consider risk factors across multiple domains, as they interact to increase risk; consider moderating factors like social support and coping strategies
- **Managing discomfort** – combination interventions likely to more helpful than single one-off interventions
- **Working from home** not impose negative health impact on office workers
- If **investing in SSW**, consider the why and how to support use
- **International perspective** – Australia, South Korea, Switzerland

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