

ERGONOMICS AND GENDER

WHY OBSERVING AND LISTENING TO WORKERS RESULTS IN A GENDERED APPROACH TO PREVENTION

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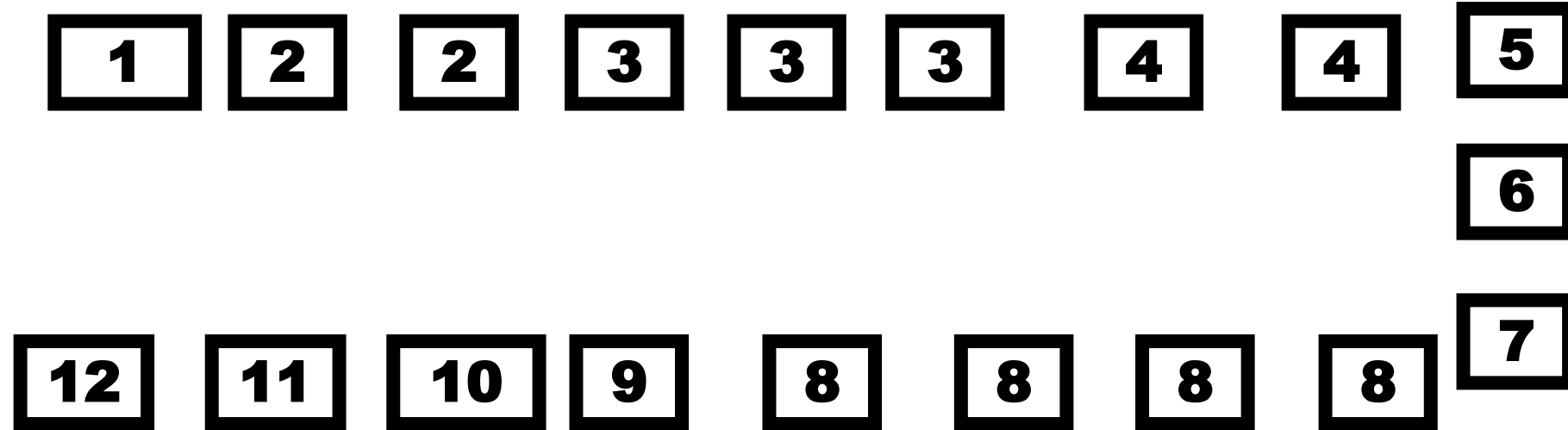
THREE QUESTIONS



1. Why do preventionists need to think about sex and gender*?
2. What are the obstacles to including gender in practice?
3. What could help?

*and other sociodemographic issues

Cadena de despiece de pavos (observaciòn por Nicole Vézina)



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1. Enganche

2. Corte alas

3. Corte patas

4. Retirada piel muslos

5. Volcado muslos

6. Despiece muslos

7. Retirada piel pechuga

8. Despiece pechuga

9. Cuchillo rotativo

10. Cuchillo regular

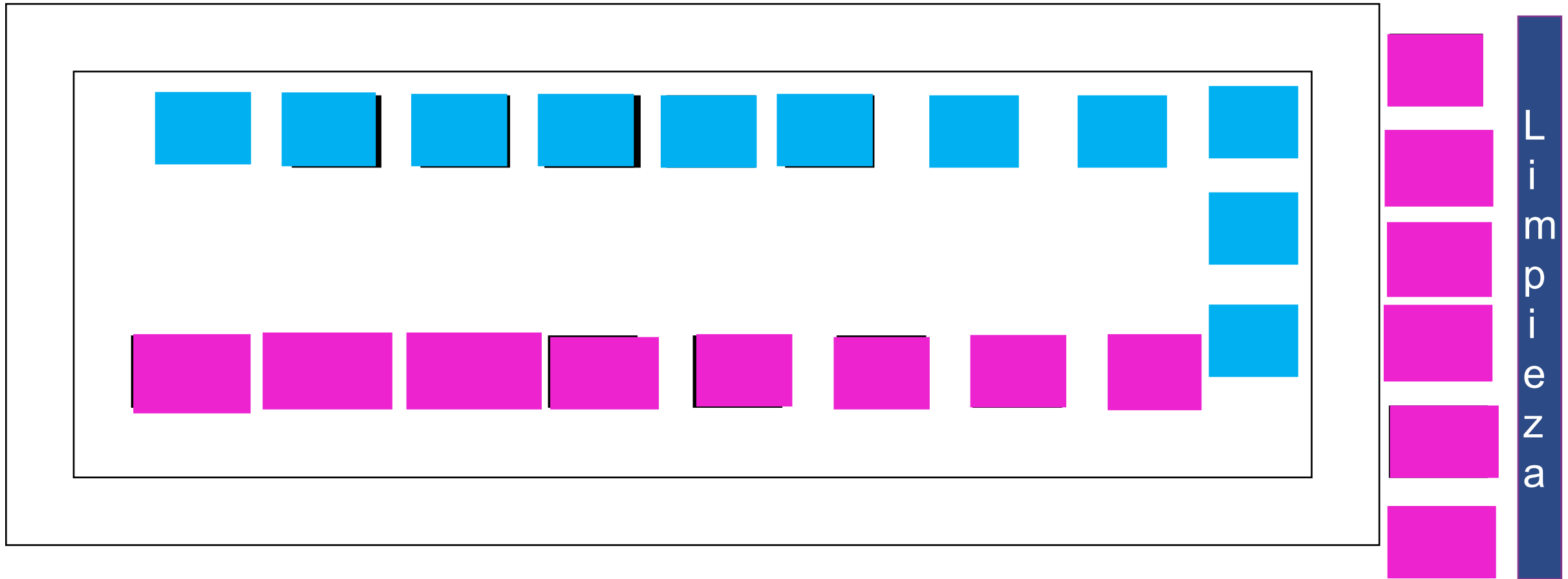
11. Separaciòn carcadas

12. Cuchillo rotativo

13. Limpieza alas

14. Limpieza muslos

15. Limpieza pechugas



1. Enganche

2. Corte alas

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WHEN WE OBSERVE WORK

- We see a gendered division of labour
- We see women and men with different work-related health problems
- Why?
- And how can we prevent these problems?

WHY?

- Is it **sex (sexua, sexo)** (genetically-determined abilities, strengths and weaknesses)?
- Is it **gender (generoa, género)** ideology/gender roles (socially-informed prejudices, rules, ideas, responsibilities)?



DEFINITIONS

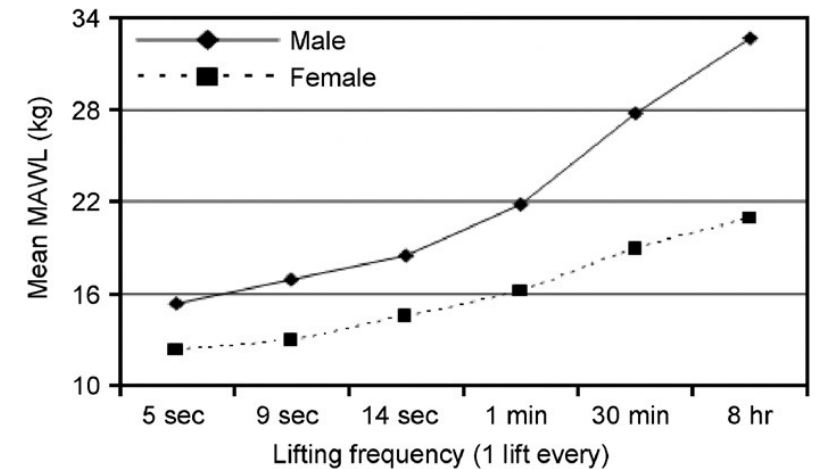
- **Sex** – biological specificities (genetics)
 - Size, proportions, center of mass, strength, hormone-influenced physiology, reproduction (dysmenorrhea, pregnancy, menopause)...
- **Gender** – social roles
 - Stereotypes : Job, task assignments
 - Responsibilities – child care vs. economic

But in practice sex and gender almost always interact, and women's and men's characteristics overlap.

STRENGTH CONSIDERATIONS



- Novice men max = 139 kg (± 25 kg)
- Expert men max = 138 kg (± 28 kg)
- Expert women max = 68 kg (± 16 kg)



- Women can lift **much** less weight than men
- Women's performance more similar to men if weight of boxes reduced
- Women's performance more similar to men if work is faster
- Less risky postures if weight is reduced

SEX: WOMEN ARE NOT SMALL MEN



- Different body proportions (**on average**)
- Different muscle mass and fibre type % (**on average**) explosive force vs. endurance
- Different reactions to noise? (men more sensitive) (Lie, Engdahl 2017; Wang, Wang 2021)
- Different responses to chemicals?
- Different pain processing? (Mogil 2020)...

The differences may not be large.

They may not be absolute.

But they may be important for health.

WORK ACTIVITY AT THE SAME JOB:

Job observed	Women	Men
Hospital cleaners (same hospitals)	83 minutes/day	160 minutes/day
Hospital cleaners (same hospitals)	<div>3.2x difference in number of steps. So it's not just the stride length difference (about 10%).</div>	
Food servers (same restaurant)	<ul style="list-style-type: none">• 38 steps/min• walk 27% of time	<ul style="list-style-type: none">• 21 steps/min• walk 15% of time



Sources : Laperrière et al. 2006; Calvet et al. 2012

In restaurants, different task assignments

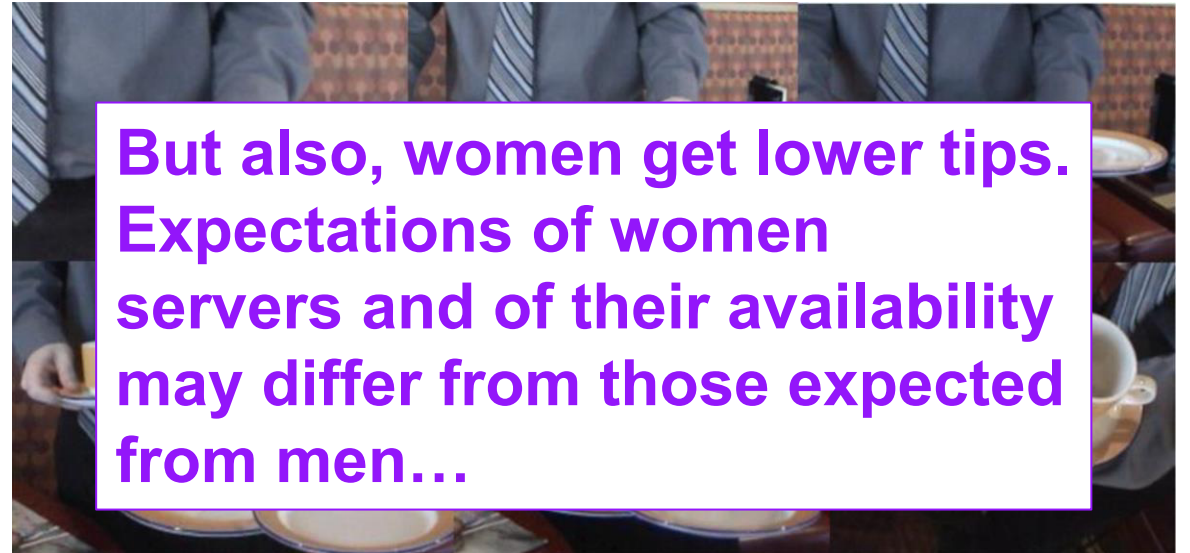
« Housekeeping » for women



Different work activity

How many plates fit on one arm?

But also, women get lower tips. Expectations of women servers and of their availability may differ from those expected from men...



WITHIN JOBS, SOMETIMES WOMEN, SOMETIMES MEN ARE MORE EXPOSED

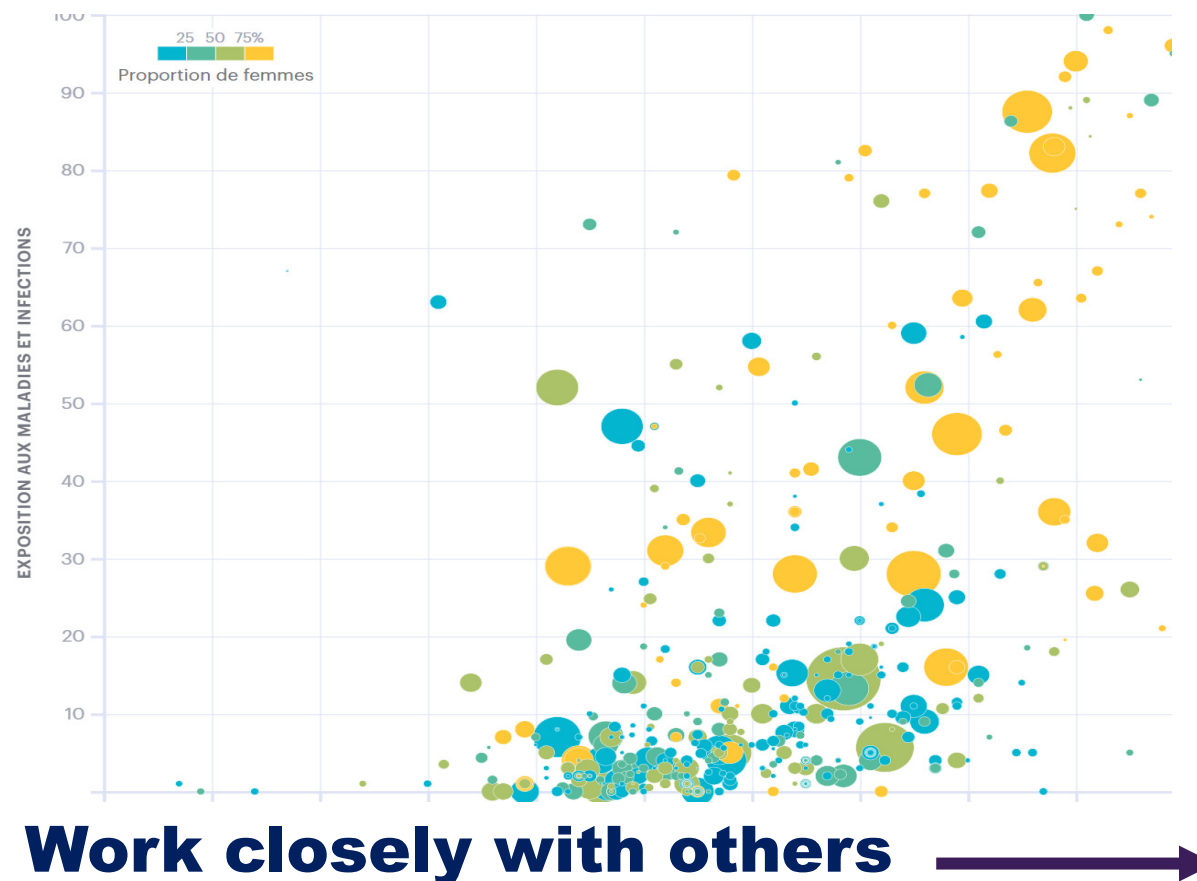
Significantly more exposed at work to...	Women (N=604) % exposed	Men (N=604) % exposed
Night shift	3%	8%
Irregular schedules	11%	18%
Oils and solvents	13%	30%
Very fast speed	53%	43%

Source: Eng et al. 2011

During COVID in Québec, Canada

Higher risk of seroprevalence for women (by 20%)

**Exposed to
infection**



Not only gender...

HEALTHCARE WORK AND INFECTION,

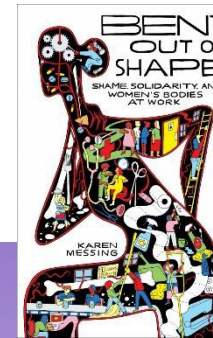
	Infected	Not infected	Odds Ratio
Doctor	4%	5%	0,9
Nurse	17%	20%	1,3
Personal support worker	23%	10%	1,8
Nurses' aides	6%	3%	2,3
Cleaner	4%	1%	3,4
Born outside Canada	25%	10%	1,3
Identifies as Black			2,5

A clear social hierarchy of infections, from doctors to nurses to aides to cleaners AND by racialization/immigration

Statistically, for women and men to be equally distributed across jobs, more than half of all workers would have to change jobs.



See Chapter 4, *Bent Out of Shape*





If you look , you will see gender segregation in every country

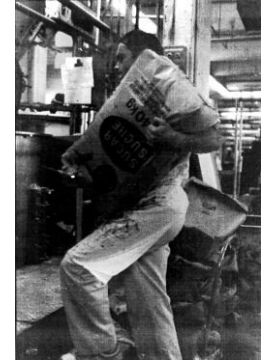
- By industry
- By hierarchy
- By profession
- By work task
- By work activity
- By exposures
- By health consequences



**WHAT ARE SEX AND
GENDER IN THE CONTEXT
OF PREVENTING
OCCUPATIONAL DISEASES
AND ACCIDENTS?**

Health consequences of gender segregation

- **Higher for men :**
 - - work accidents/diseases in general (1.7x for compensated)
 - - many toxic exposures
 - - noise exposure...
- **Higher for women:**
 - - accidents in non-traditional jobs (2-3x)
 - - some toxic exposures (nail salons, hospitals...)
 - - musculoskeletal disorders (1.5x)
 - many psychological risks, lack of respect, lack of autonomy, harassment...

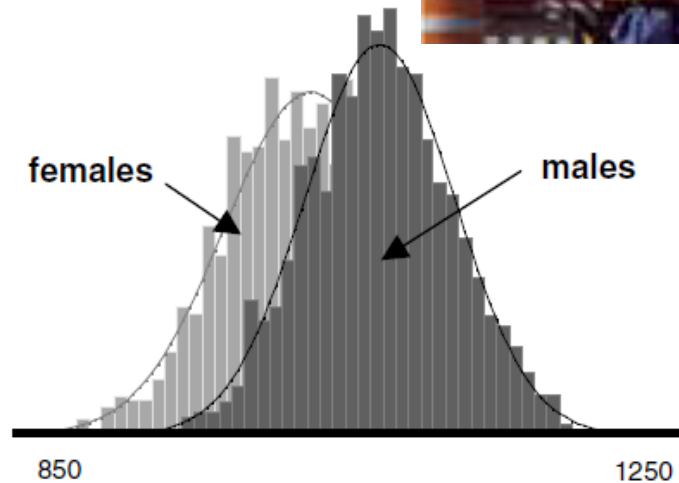


DESIGN CONSIDERATIONS

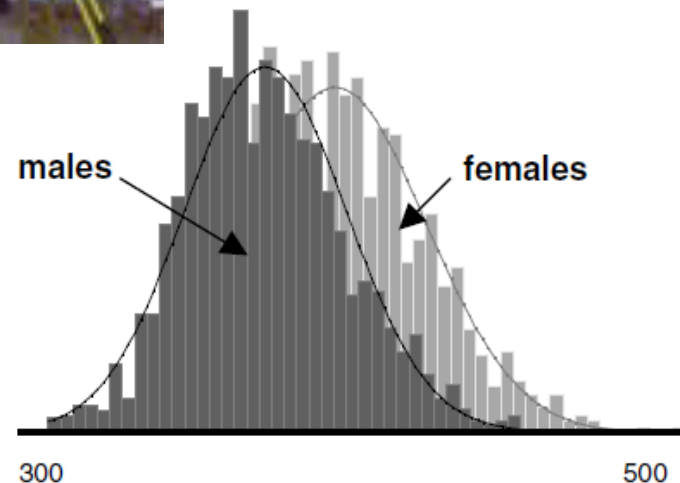
Tools, uniforms, work stations can be badly designed



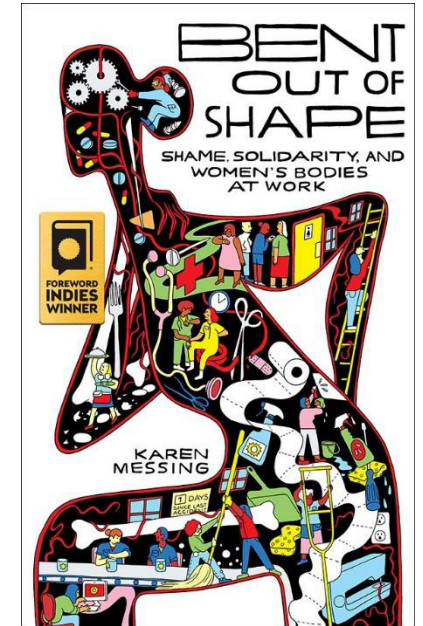
Ouch! My tool belt hurts my hips!



Elbow height
(standing)



Hip breadth



See Chapter 5 of
Bent Out of Shape
for biological
differences and
similarities

Source : US Human Factors and Ergonomics Society, Guidelines for Using Anthropometric Data in Product Design

**Even in
« women's »
jobs -
Height of the
bar = « 70% of
the height of
the acromion of
the average
European
male»**

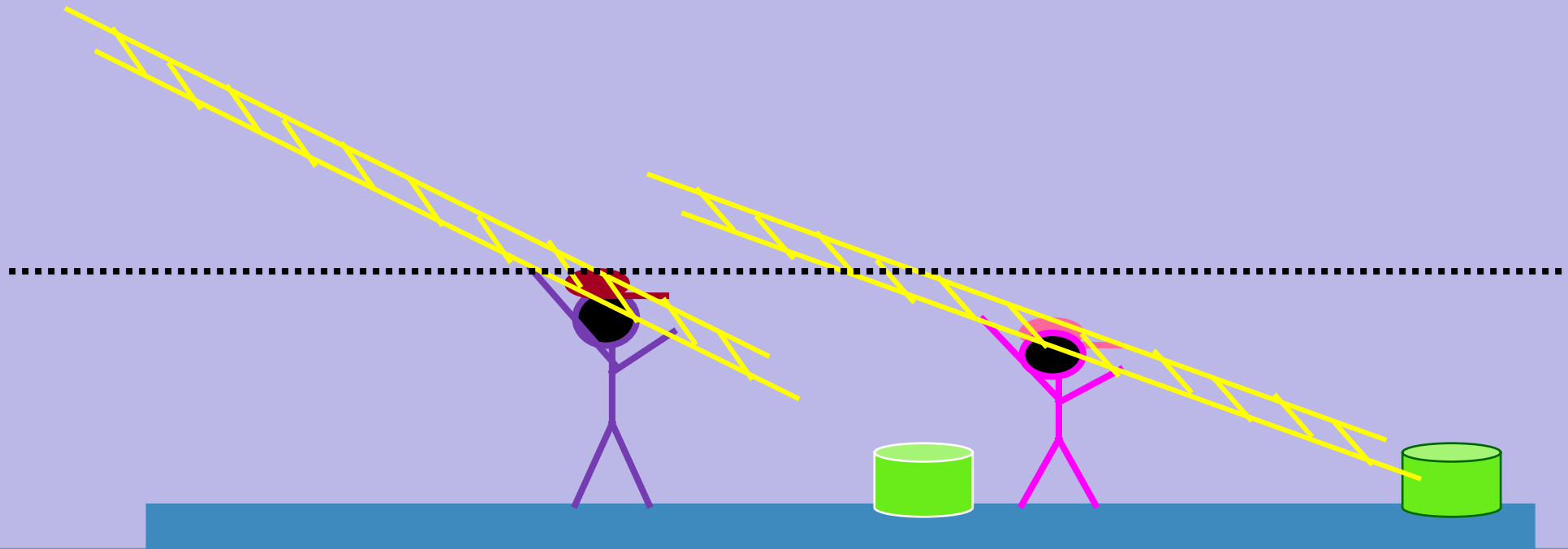


Training considerations

Communications technicians were taught the same methods for carrying ladders. But the ladders were too long and too heavy.

The women in this job had 2-3 times as many work accidents as the men.

Most of the accidents were with ladders.



Gender affects work activity and health through the work-family interface

- The interface between work and private life is an important part of women's health
- This interface (thereby helping all workers, probably)?
 - Can a job be adapted for pregnant women to do it safely
 - Work schedules – when, how much, predictability, variability
 - Communication with school, home, services
 - Teamwork – relationships and communications
 - Employer services (examples: conjugal violence, sexual and psychological harassment)
 - Treatment of pregnancy, child care

DO SCIENCE AND PREVENTION INCLUDE SEX/GENDER CONSIDERATIONS?

- Scientists may exclude women and women's bodies from studies
- Prevention practices may systemically exclude women

OBSTACLES TO TAKING SEX AND GENDER INTO ACCOUNT

Sexism: Exclusion of women from studies because of hormonal differences or prejudices or not knowing how to treat data

Studies of industrial cancers still focus on men

Among 243 studies of occupational lung cancer, men-only studies were 19 times more frequent than women-only studies, and 35% more common than mixed studies*
35% of studies of gender-mixed exposed populations excluded women from their sample*
44% of studies of gender-integrated jobs excluded women

Source: Betansedi et al. AJIM 2018



Creates a vicious cycle maintaining invisibility of women's risks


OBSTACLES TO TAKING SEX AND GENDER INTO ACCOUNT

- **Sexism influences compensation and prevention:**
- In Canada, France, Sweden, (Spain??) tribunals refuse to **compensate** women because they attribute their work-related disease claims to « personal » factors like menopause, pregnancy, or household work
- Work-related problems like sexual harassment or marital violence during work hours may be omitted from occupational health **prevention** practices



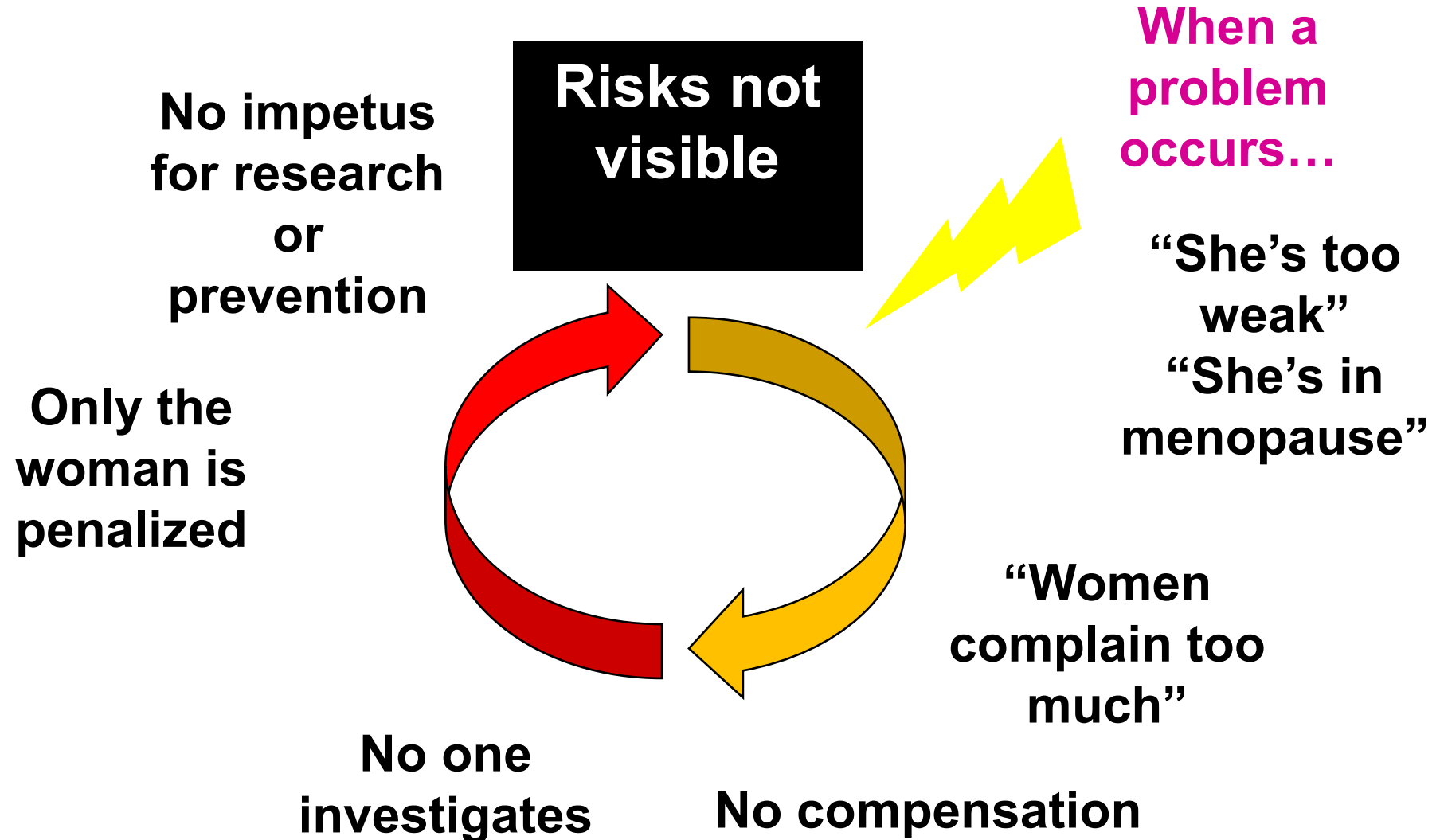
PREVENTION BY INDUSTRIAL SECTOR IN 2022 (IN QUÉBEC, CANADA)

Sector (examples)	% F	Priority for Prevention
Construction	15	1
Metals and mines	15	2
Public Administration	31	3
Commerce	42	4
Communications	48	5
Health, education	64	6



Priority classified according to the amount of compensation and the number of scientific articles on occupational health in the sector pre-1979

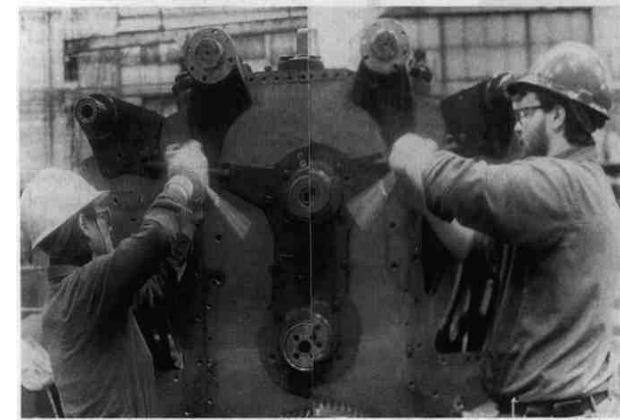
The vicious cycle in prevention



WHAT COULD HELP?
*CAN THE OBSTACLES BE
OVERCOME?*



LOCAL SOLUTIONS: TOOLS FOR A JOB WITH 3 WOMEN, 1200 MEN



	Woman	Male partner
Height	1 m 68	1 m 85
Weight	57 kg	104 kg
Tested grip strength	27 kg	57 kg)

Tightening bolts: When she used the same length wrench as her male partner, she was 40% slower. When she got a wrench twice as long, she was faster than him by 60%.

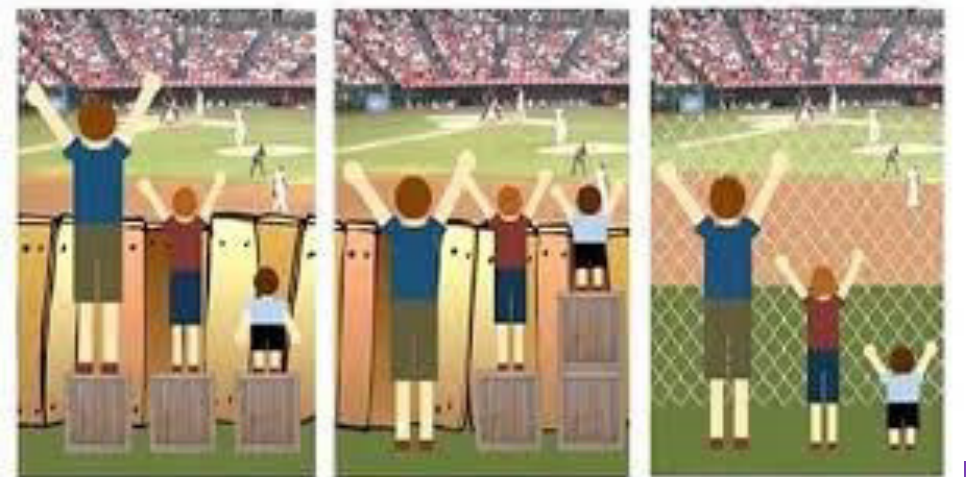
FOR EQUALITY, SHE SHOULD GET THE LONGER WRENCH BUT...

- Women sometimes feel shame about their biological differences – this hinders prevention
- Women sometimes feel shame about letting work/family considerations interact with work
- **Women need places and times to talk to each other about these problems and help find solutions**
- **We need to attack the technical and social obstacles at the same time**



OBSTACLES

- Women are afraid that if they talk about sex differences they will be thought not up to the job
- They are afraid to ask for « special treatment »
- But equal treatment is not the same as identical treatment
 - We need equitable treatment



Inequality

Equality

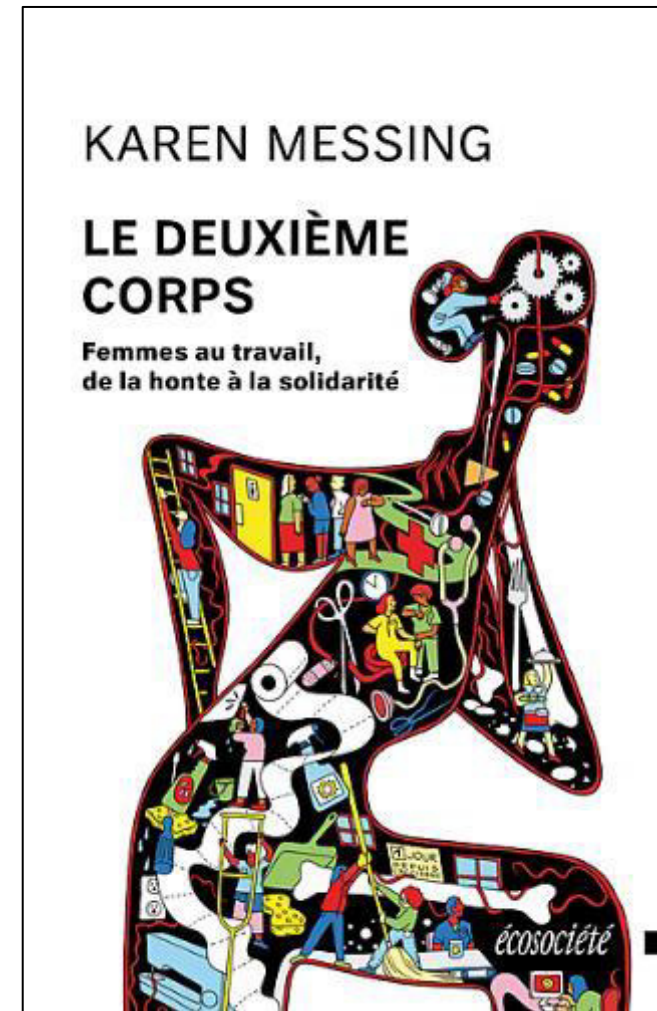
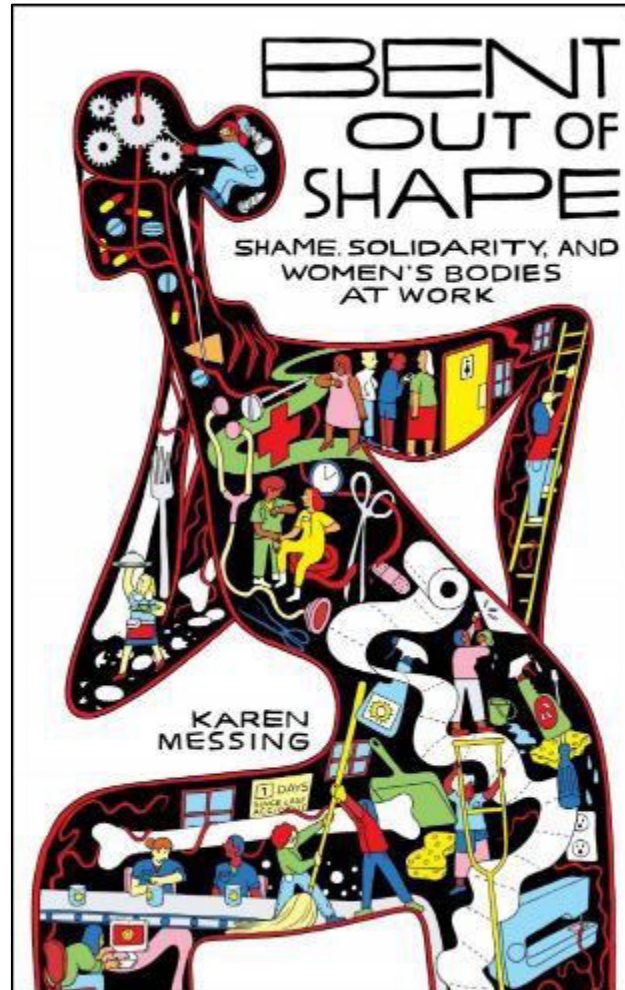
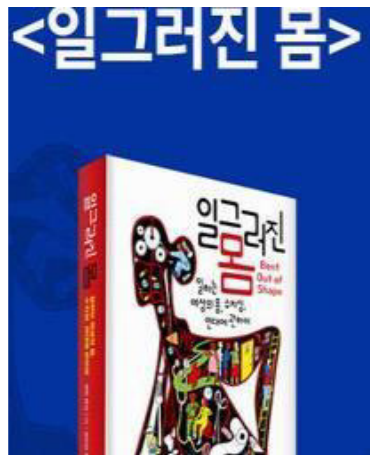
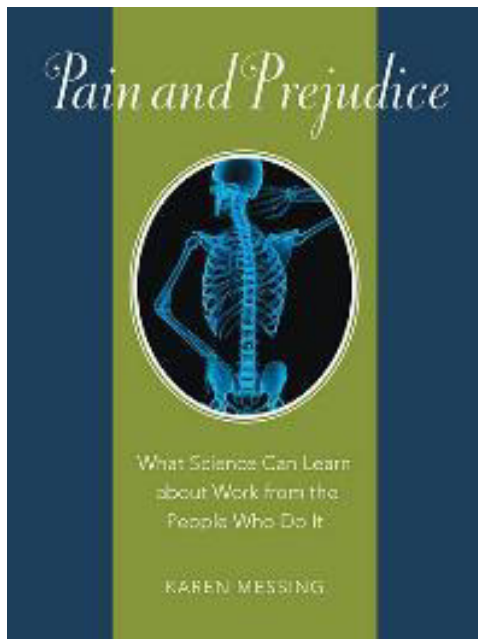
Equity

THREE QUESTIONS



1. Why do preventionists need to think about sex and gender (and other sociodemographic issues)? **To provide good worksite design, promote health**
2. What are the obstacles to including gender in practice? **Lack of information, sexism, old habits, lack of attention, reluctance to cause trouble....**
3. What could help? **Thinking about teamwork, observing work, recognizing dangers in women's and men's work, fighting sexism, making occasions for women to talk to each other.... your ideas?**

¿Galderak? ¿Preguntas? Questions?



<https://btlbooks.com/>