

# Bent out of shape:

## Physical and cognitive workloads and their consequences through a gender lens



# How do we think about work in order to improve it?

- Occupational health practitioners are concerned with improving work for all workers and adapting work to a wide range of workers' characteristics and capacities. But in practice, "all" may just mean those whose needs are most salient for management, the union or the practitioner.
- Who is being forgotten or ignored?
  - Lower in the occupational hierarchy?  
(women, cleaners....)
  - Racialized minorities?
- What are the consequences?
- What can we do?



# Context

- The Université du Québec à Montréal has an agreement with 3 major trade unions to provide research and training free to them
  - The professors involved are paid their salaries by the university
  - The projects are approved by a joint union-university committee
  - The University employs coordinators who help make the partnerships profitable to all



- There is a similar agreement with a consortium of women's groups, and there are ad hoc projects with many other community groups
- In 1993, the union consortium asked our research group to work with them on women's occupational health



# Three questions (concentrating on gender)

1. Why do those concerned with occupational health need to think about gender (and other sociodemographic issues) during an intervention?
2. What are the obstacles?
3. What could help?



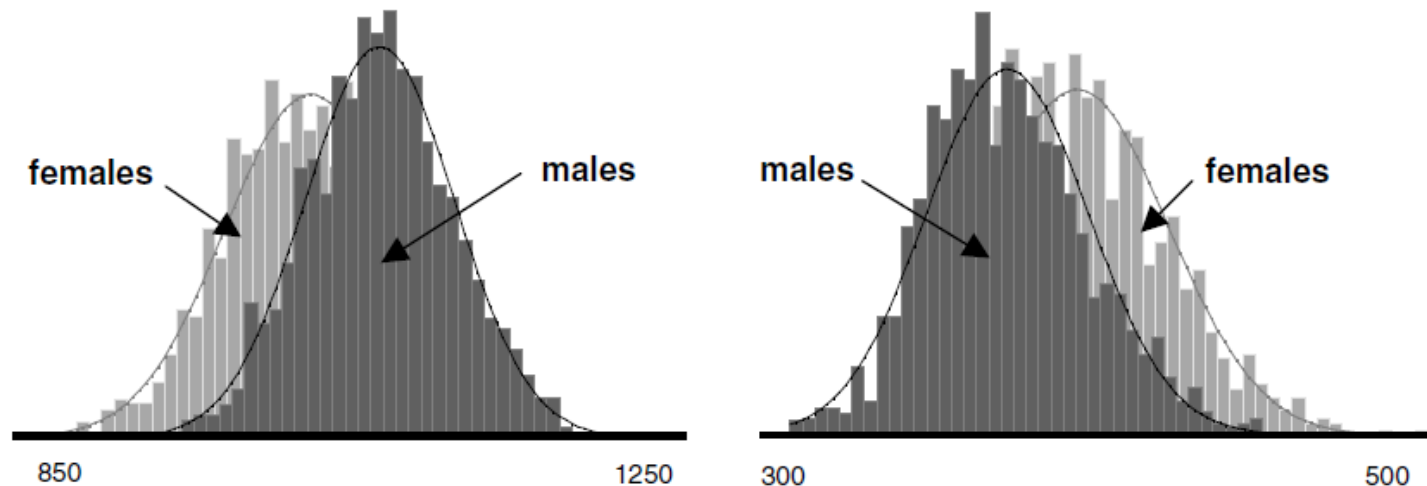
# 1 Why should think about sex during an intervention?

Biologically, women are not shrunken men.

M/F differences can affect occupational health

- Different proportions (on average)
- Different muscle mass and fibre type % (on average)
- Reproduction- associated differences (menstrual cycle, pregnancy, nursing, menopause - example: cold exposure can greatly aggregate perimenstrual pain)
- Different fatigue responses?
- Different proprioception?
- Different fat type and distribution
- Different pain processing? ...
- (Probably not too different cognitive processes)

**The differences are not usually absolute, not always large, but they have consequences**



**Elbow height  
(standing)**

**Hip breadth**



Ouch! My hips hurt!

Source : HFES committee, *Guidelines for Using Anthropometric Data in Product Design*



# Forgetting about biological differences.... what happens?

**“Is this rocket science?”**



**NASA, March 2019**

**NASA had to reschedule the flight of women astronauts for lack of space suits**

**Dangers in design for hotel cleaners, drivers...**

**During COVID, frontline workers are mostly female, many racialized, BUT**

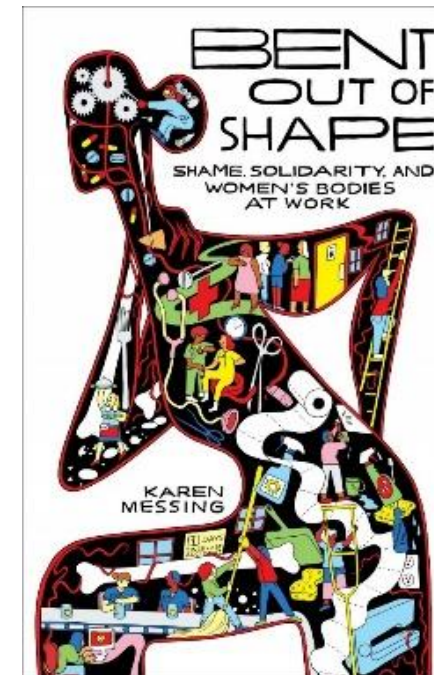
- masks less likely to fit women
- pulse oximeters less accurate for darker skin

See also Caroline Criado Perez : *Invisible Women*, 2019

# 1 Why should we think about *gender* during an intervention?

Socially, women are assigned certain roles and situations

- « Horizontal » and « vertical » segregation
  - Horizontal: Service sector, care work, sales, cleaning
  - Vertical: low pay, lack of respect, gender harassment, sexual harassment
- Family situation
  - Pregnancy, childbirth, nursing,
  - Division of labour at home
  - Risk of conjugal violence or control



See Chapters 4,5 of *Bent Out of Shape* for a summary of what I know.



# Another gender interface : different jobs, different tasks

Women and men have different jobs

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



# Top Women's Jobs 2016

# Approx. % W in the Job

Retail sales clerk

57

Nurse

Cashier

Elementary school teacher

Administrative assistant

## Top Men's Jobs

Truck driver

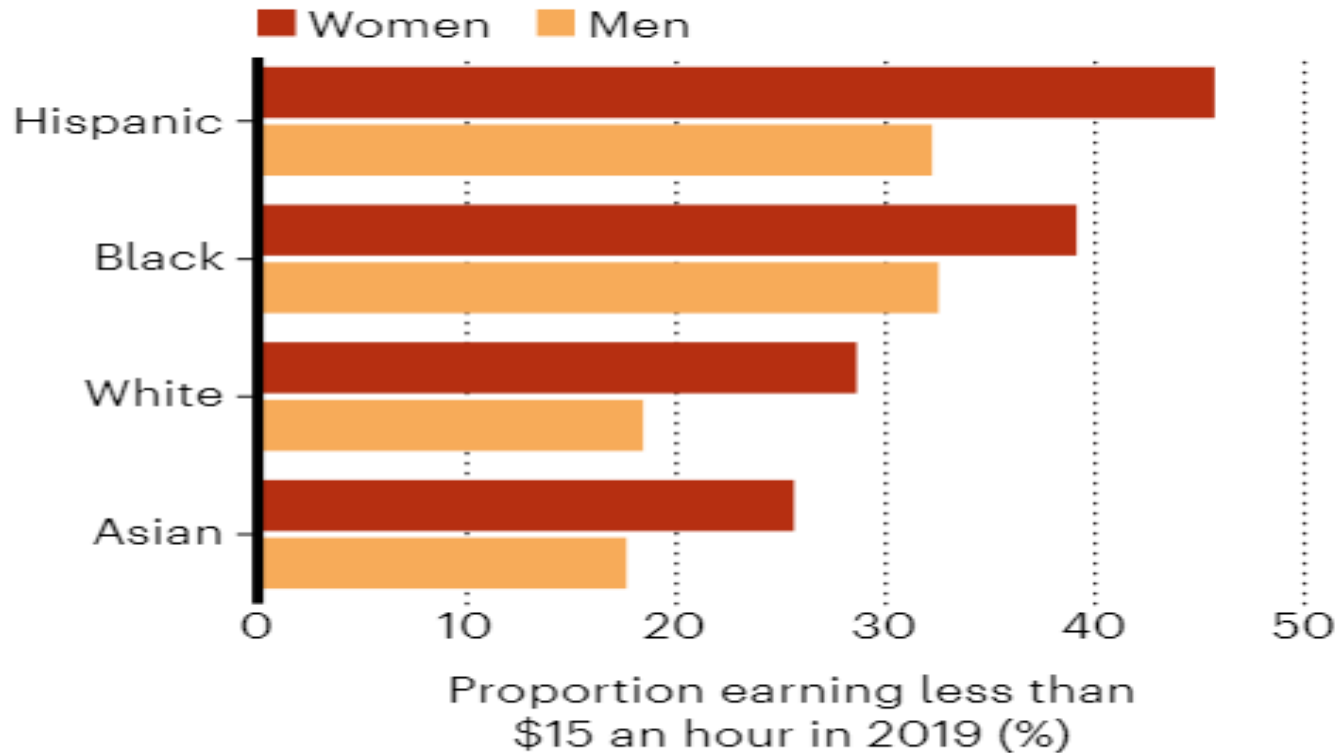
Retail sales clerk

Retail manager

Janitor, caretaker

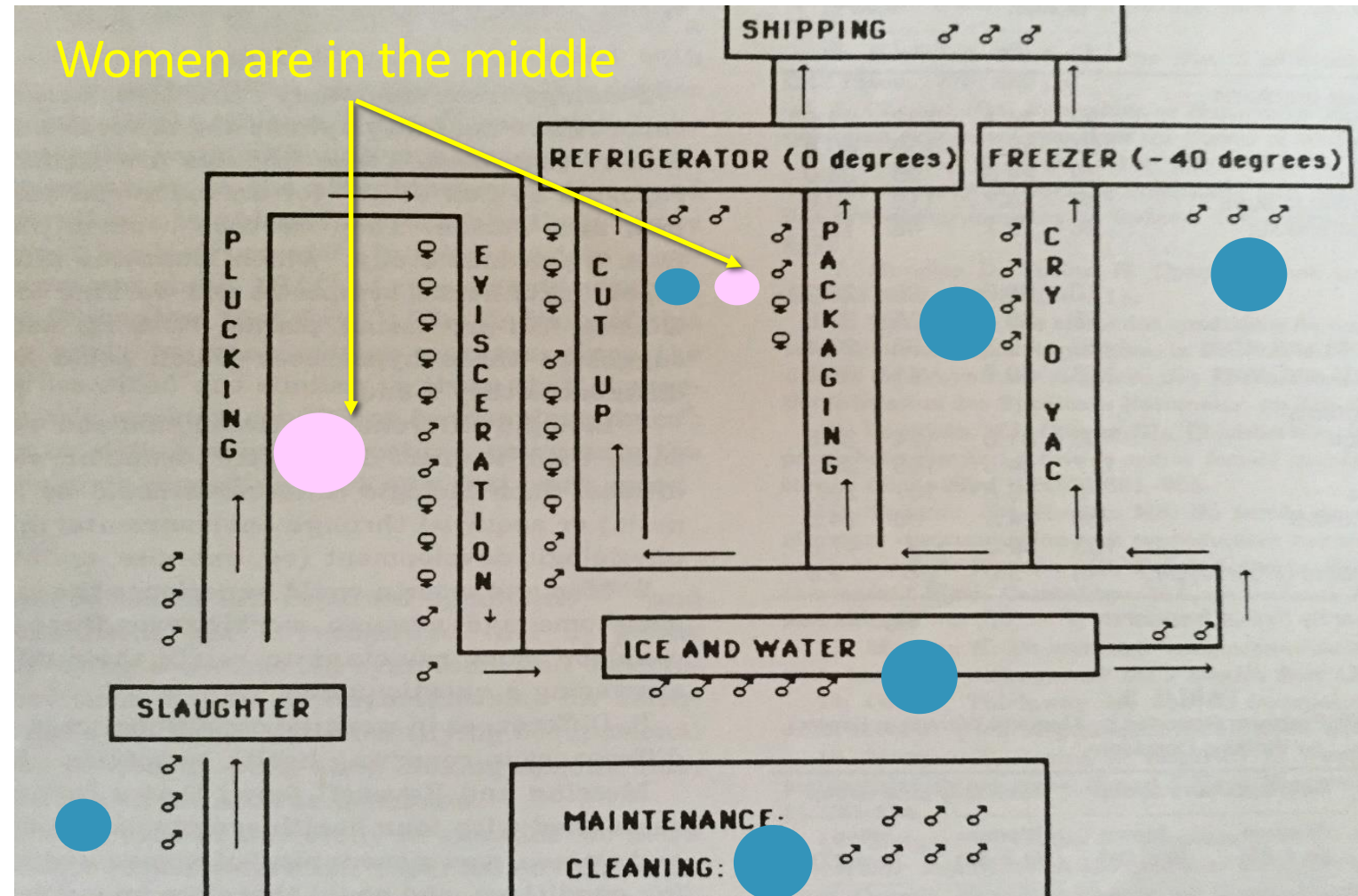
Construction trades

97



Top Men's Job

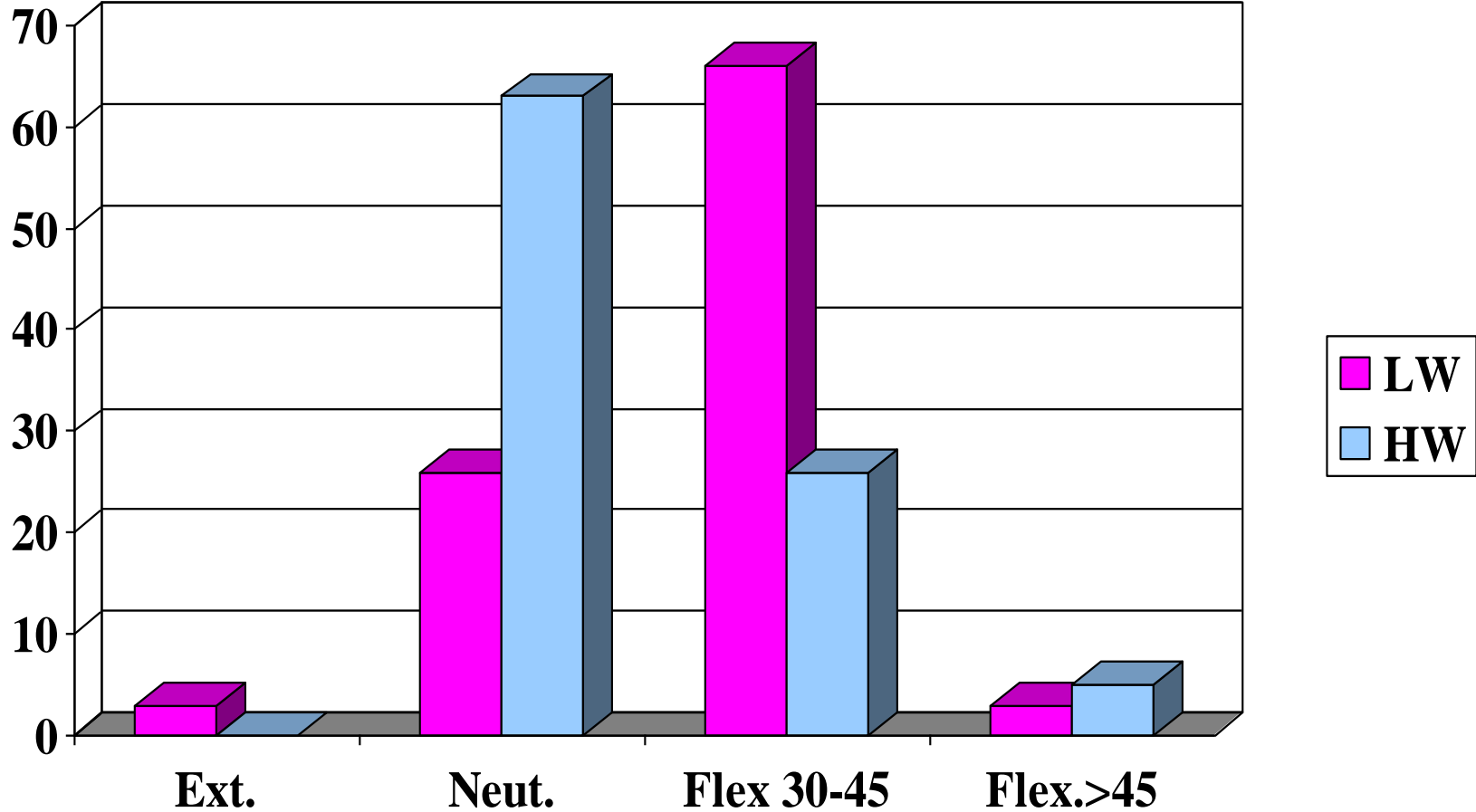
# In food production, different positions with respect to work flow, pushed from behind, pulled from in front



Sources: Nicole Vézina and Marie-Eve Major

# Within jobs, women and men can have different exposures

Postures during female and male cleaners' workday  
(% of total time)



# Work activity at the same job: men's and women's biology and social roles

Job observed	Women	Men
Food servers (same restaurant)	<ul style="list-style-type: none"> <li>• 38 steps/min</li> <li>• walk 27% of time</li> </ul>	<ul style="list-style-type: none"> <li>• 21 steps/min</li> <li>• walk 15% of time</li> </ul>
Hospital cleaners (same hospital)	<p><b>Not just stride length difference (about 10%). 3.3 times more steps per day. Why?</b>  <b>Sex/gender- based strategies?</b>  <b>Women earn less in tips, for example</b></p>	
Hospital cleaners (same hospitals)	cleaning toilets	cleaning toilets



# Why do food servers move differently?

Different tasks and different ways of doing them

*"Housekeeping"*



*How many plates can I carry at a time?*



*How much faster do I need to move in order to get the same tip?*





# Consequences Health problems: prevalence sometimes higher among women, sometimes men

## Higher for men:

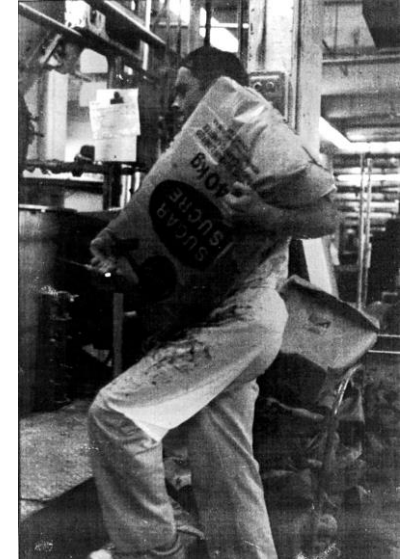
- accidents in general
- many toxic exposures
- noise

## Higher for women:

- accidents in non-traditional jobs (2-3x)
- non-traumatic MSDs (1.5x)
- many psychological risks – job strain, lack of recognition

## Higher risk of COVID for health care and service workers, mostly women

- Higher risk of COVID for racialized women health care workers



**Women's risks are increasing more**

# Health care work and Covid-19 infection

## INSPQ, 2022

	Infected	Not infected	Adjusted odds*
Physicians	4%	5%	0,9
<b>Nurses</b>	<b>17%</b>	<b>20%</b>	1,3
Personal support workers	23%	10%	1,8
<b>Nurses' aides</b>	<b>6%</b>	<b>3%</b>	2,3
Housekeeping	4%	1%	<b>3,4</b>
<b>Immigrant</b>	<b>25%</b>	<b>10%</b>	<b>1,3</b>
Black	11%	3%	<b>2,5</b>

\*Compared to other health care workers

# 2 What are the obstacles to improving occupational health for underserved populations?

## Lack of scientific information

Women (and racialized populations)

- Excluded from studies
- Excluded from analysis

Women's biology

- Neglected (ex: differences in metabolizing toxins)
- Looked down on (complaints about ladder sizes, office temperatures)
- Considered yucky or embarrassing (work-related perimenstrual disorders, menopausal difficulties, breast size and lifting strategies) and not studied

# 2

## Uncertainty about what to do with this information

Ergonomics students were trained in the importance of gender, and they were happy with the training. But they didn't apply it.\*

My students and I go into workplaces with a mandate to look at gender, but "forget" it.

You can't do quantitative analysis by gender in a small workplace – not enough data.

Discussions with workers degenerate when gender is brought up. "I do the dishes at home!"

Workplaces are resistant...

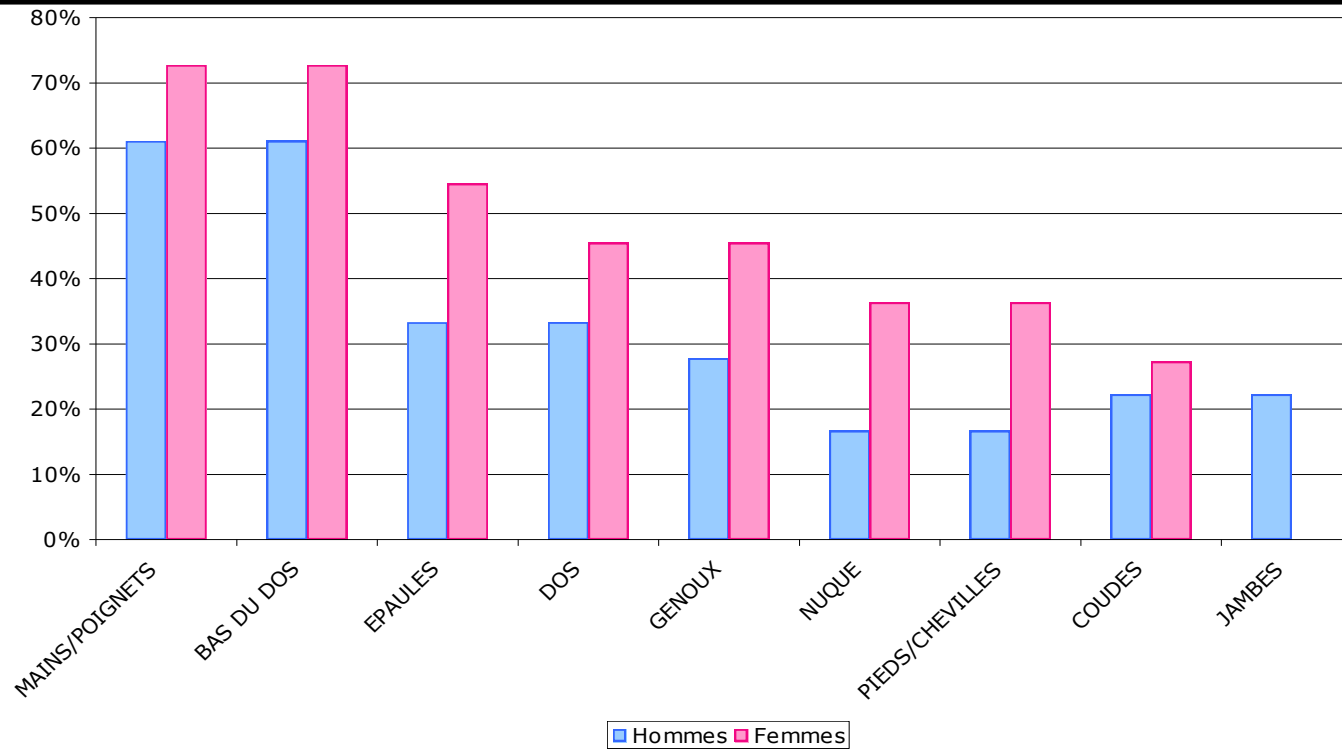
# Obstacles

- It is hard to get employers interested in an intervention about gender
- But in France, a printing house was thinking of not hiring any more women – women were having too many accidents and illnesses, compared to men
- They called on a national agency, ANACT, where Florence Chappert was in charge of gender issues.
- Ergonomist Éric Peltier observed the work and looked at company records.



## Workload and pain by gender

Women had more pain at almost all body sites.



The number of books per hour had increased by 5.3x while the number of women workers only increased by 1.5x. No one had noticed.

The women had more disabilities because their seniority was greater. The few men in women's jobs had been promoted.



# Impacts of the ergonomic analysis at the printing house

The workload was made somewhat easier.

The women were glad that their workload and seniority were recognized as the cause of their pain.

But management still didn't think women were capable of doing the physically easier jobs. The men still had better pay and other advantages.

*“ Companies find it hard to treat these questions of gender and equality directly.” (Florence Chappert)*

**Such resistance is common.**

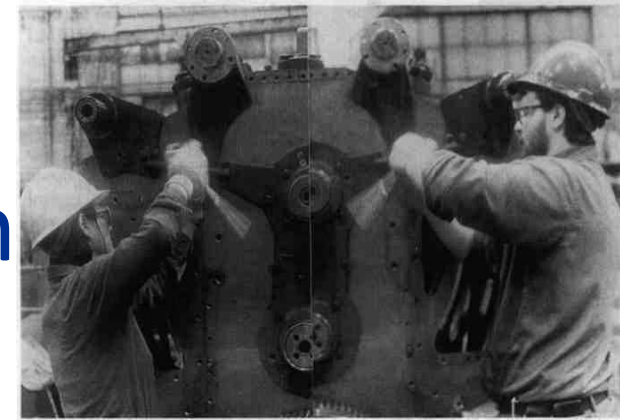


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What could help?  
*Can the obstacles be overcome?*



# 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
<b>Tested grip strength</b>	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%.

*Source : Courville, Vézina et al. 1991*

# 3 *Solutions in health care...*

Personal support workers (feed, bathe, move patients)

Originally separate jobs by sex, but merged by law

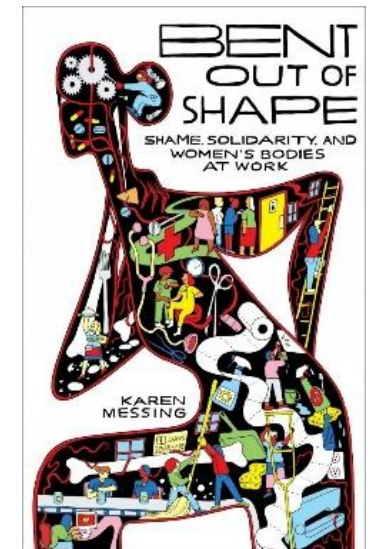
In health and safety sessions, women and men said the merger was bad, that men were overworked

The union asked for a study.

Hospital management said we couldn't study sex/gender, but could study « ergonomics » (>100h of observations)

# Surprise! Women were doing more physically demanding operations per hour

	Women	Men
<b>Operations done alone</b>	<b>381 (61.2%)</b>	<b>265 (48.5%)</b>
<b>All operations</b>	<b>623</b>	<b>546</b>
<b>Physically demanding/hr</b>	<b>22.3</b>	<b>16.5</b>



## But...

During the 100+ hours of observation, men (only) were called on to do some extreme operations: controlling an angry or psychotic patient, catching an obese patient who was falling from his chair.

So the concern with men was also valid.

Was male gender being used as a justification for exposing men to extra risk from overstrain?

Was female gender being used as a justification for exposing women to extra risk from overwork?

Local solution: assign patients by groups, to groups of PSWs

**We think it is important for workers and management to stop thinking about performance and staffing in individual terms**

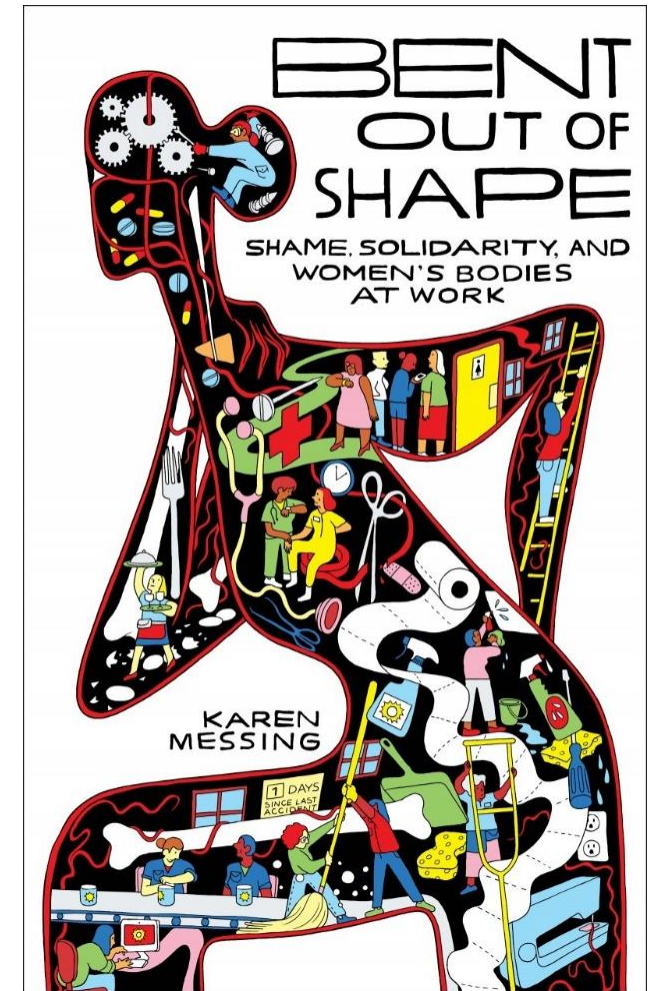
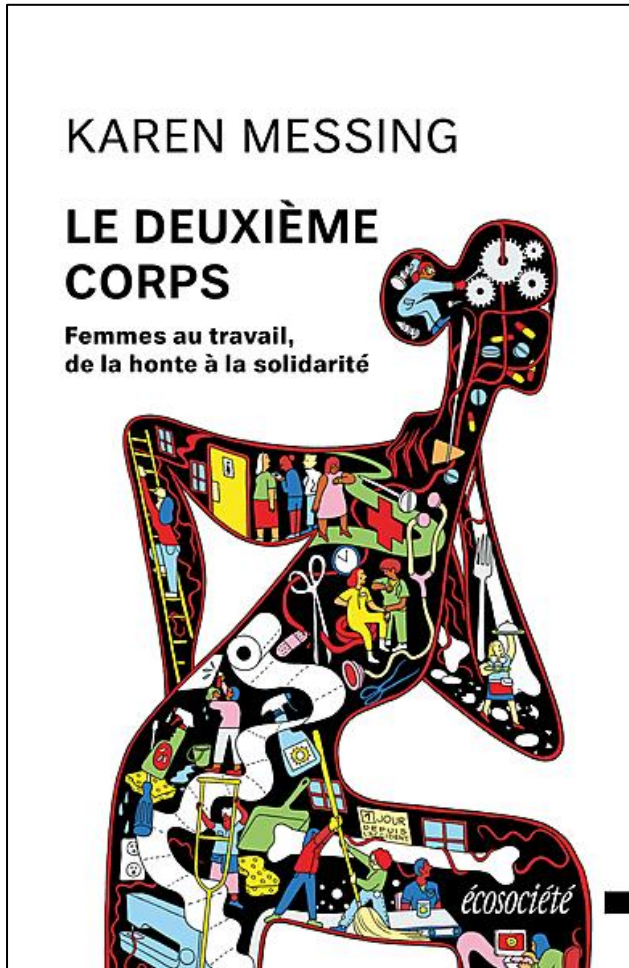


# Conclusion:

## What can we do?

- Become aware of inequities at work
- Think about work as a collective production
- Examine and critique management indicators of workload and productivity (SOFI, SYMO...)
- Government agencies can directly combat discrimination
  - work with policy specialists to change laws

# Questions?



<https://btlbooks.com/book/bent-out-of-shape>