

# *WOMEN ON THE WATER:*

*IMPROVING ORGANIZATIONAL SUCCESS  
BY SUPPORTING WOMEN'S SAFETY AT SEA*

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*On behalf of / au Nom de* Helen Stewart, THSOA

# THE IHO EMPOWERING WOMEN IN HYDROGRAPHY PROJECT

## *How It Started*



2020 Canadian Hydrographic Conference:  
IHO EWIH Project Rollout

## *How It's Going*



2022 Canadian Hydrographic Conference  
Women in Hydrography Session

# WHY MAKE WOMEN A PRIORITY?

## USA Workforce since April 2020:

- Between 9 – 13 million people ages 18-65 left the potential workforce
- Reasons include dying (all causes), disability from Covid, leaving workforce to do care work, retirement, and border closures
- 40% YOY increase in excess deaths → > 1 in 200-year actuarial crisis
- USA has lost between 1 Quebec & 1 Ontario of potential workforce in < 3 years

## Canada Workforce since April 2020:

- Estimated 1.4 million people partially or extensively disabled by Long Covid
- ~ 500,000 Canadian women lost jobs in 2020-2022, have not re-entered workforce (RBC)
- > 600,000 newly retired people in 2020-2022
- Estimated reduction in potential workforce = Manitoba & Saskatchewan combined

***IF YOUR ORGANIZATION NEEDS PEOPLE TO FULFILL ITS MISSION AND IT IS NOT MAKING AN EFFORT TO RECRUIT AND RETAIN WOMEN, YOUR ORGANIZATION IS HINDERING ITS OWN SUCCESS.***



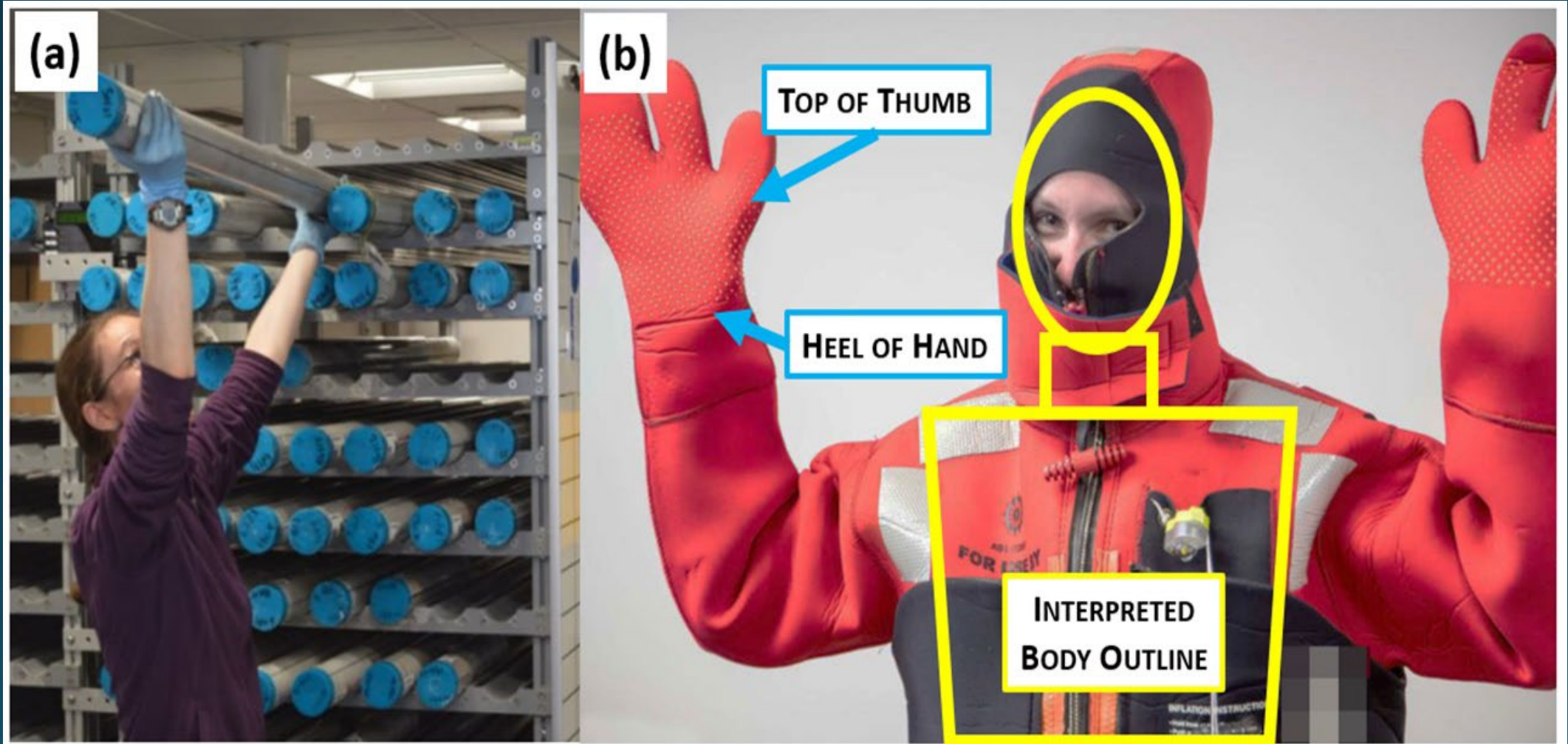
# STRUCTURAL INEQUALITY & WOMEN'S PARTICIPATION

- In 2020, U.S. Air Force began program to increase pool of potential pilot candidates
- 43.5% of U.S. female pilot candidates did not meet minimum height standards, needed waivers
- <10% of female pilot candidates meet body size standards to fly F-15, F-15EX, or T-38 Trainer
- Air Force Promotion system → fighter aircraft pilots are most likely to reach high command
- Aircraft cockpit design from 1970s eliminates most female pilot candidates for senior leadership potential *before their careers even begin*



F-15 Aircraft Pilots.  
Image credit: Wikipedia Commons

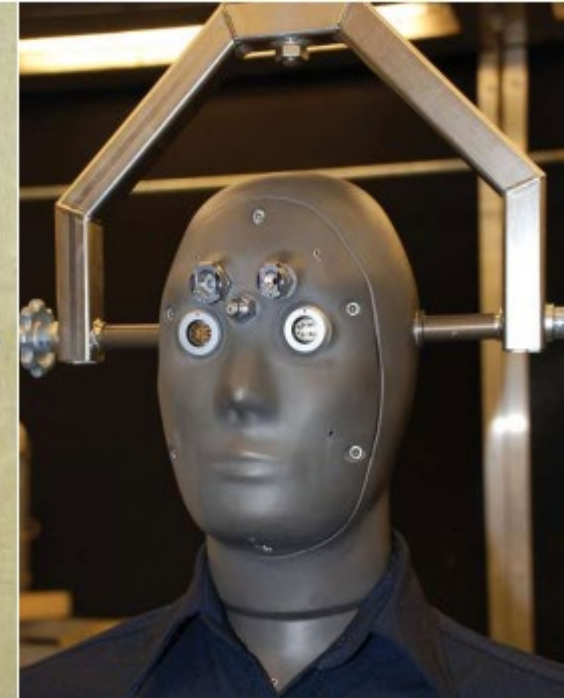
# THE FIRST AND GREATEST INEQUALITY





# MEET THE REFERENCE MAN

- For many industrial safety applications, the Reference Man is the 50<sup>th</sup> Percentile North American male
- Based on measurements of male military service members from North America, Europe from 1940s-1960s
- It is completely impossible for female-bodied people to change their bodies to be equivalent to the Reference Man



"NEMO" the Thermal  
Test Manikin -- Thermetrics

## INADEQUATE PPE



## QUARTERING



## EQUIPMENT



Image credit: International Hydrographic Review

# "THE BIG THREE" SAFETY CHALLENGES FOR WOMEN

# ANATOMY OF A "BIG THREE" HAZARD: LEARNING TO SEE THE PPE PROBLEM

- White lines: body landmarks
  - Collarbone notch
  - Waist (from front)
  - Hip sockets
  - Knees (bottom of patella)
  - Ankles
- Green lines: torso landmarks
  - Collarbone notch
  - Curve of waist (anterior tilt)
  - Hip sockets

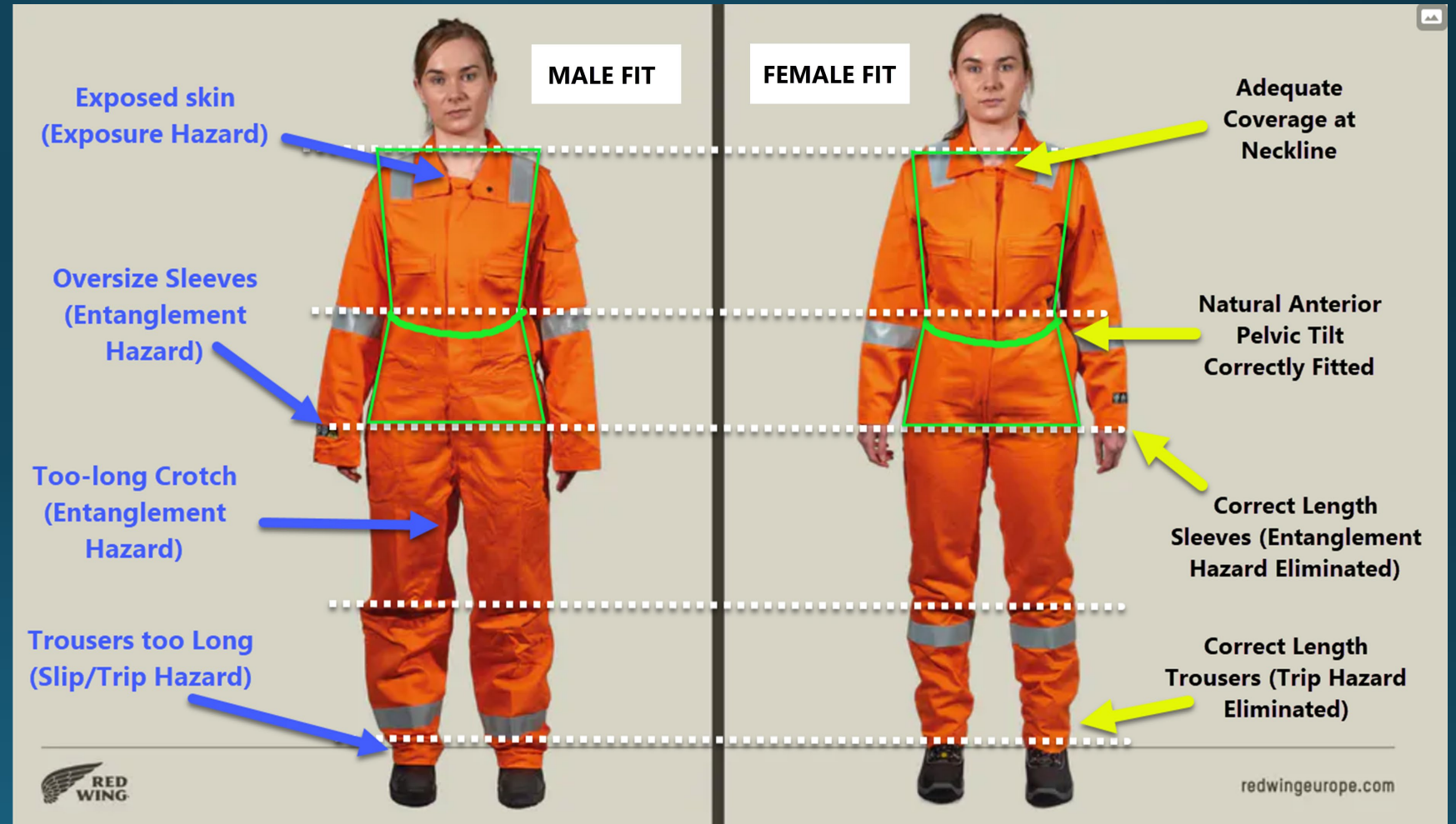


Image credit: Red Wing Europe,  
International Hydrographic Review

redwingeurope.com



# ANATOMY OF A “BIG THREE” HAZARD: LEARNING TO SEE THE QUARTERING PROBLEM

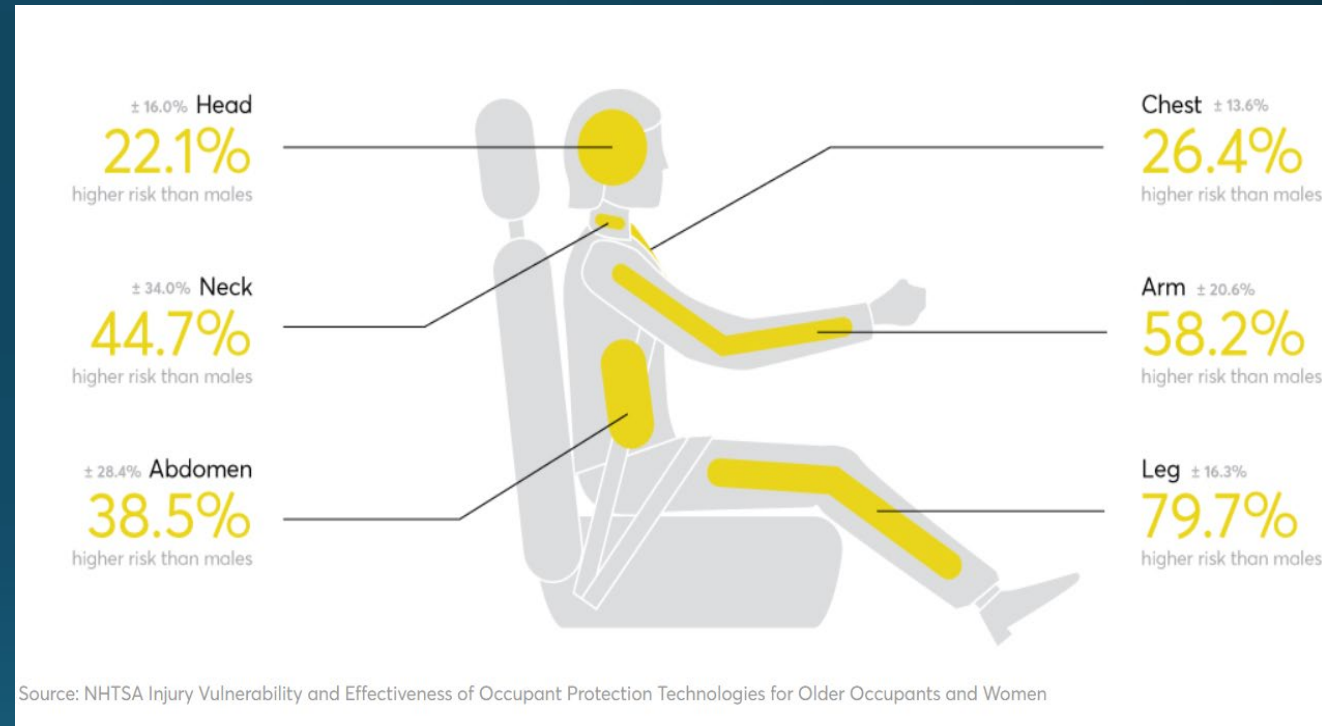
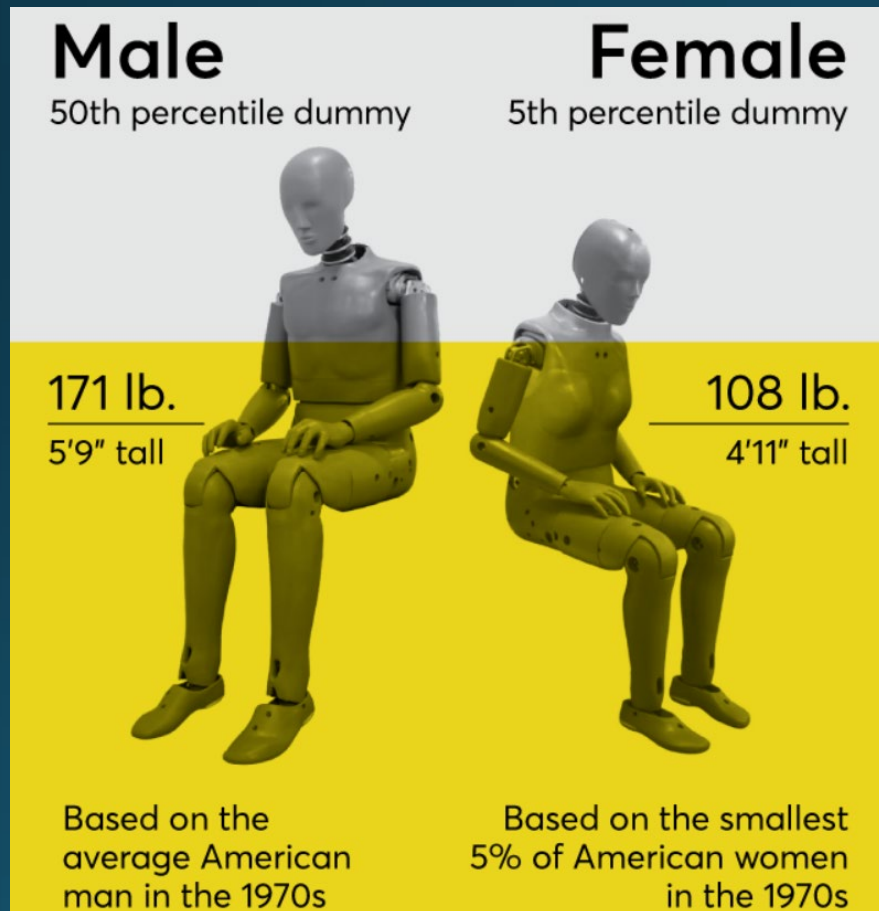
- Compared to men, women have:
  - Smaller labs, less lab space
  - Fewer on-site storage units
  - Disparity cannot be explained by tenure status, time at institution, funding levels, study field, or research group size
- HSSE implications
  - Less space per lab member → higher likelihood of communicable respiratory disease transmission
  - Fewer on-site storage units → increased likelihood of lifting or driving-related injuries



*Image credit: Scripps Institute of Oceanography, Science*

# ANATOMY OF A "BIG THREE" HAZARD: LEARNING TO SEE THE EQUIPMENT PROBLEM

Currently, when the National Highway Traffic Safety Administration tests how women respond to crashes, it uses just a **scaled-down version of a male dummy**. At 4-foot-11 and 108 pounds, it's **roughly the size of a 12-year-old girl** and represents the smallest five percent of women.



In frontal crash tests performed for both NHTSA and the Insurance Institute for Highway Safety, **this 5th percentile female dummy either rides as a passenger or doesn't participate in the test at all.** (The female dummy sits in the driver's seat for some side-impact tests.) This, despite the fact that women now represent almost 50 percent of drivers in the U.S., according to the



# SO, WHAT DO WE DO ABOUT THIS?

Make Quick-Fix changes to improve women's safety immediately...

...while making long-term policy changes to remove structural barriers

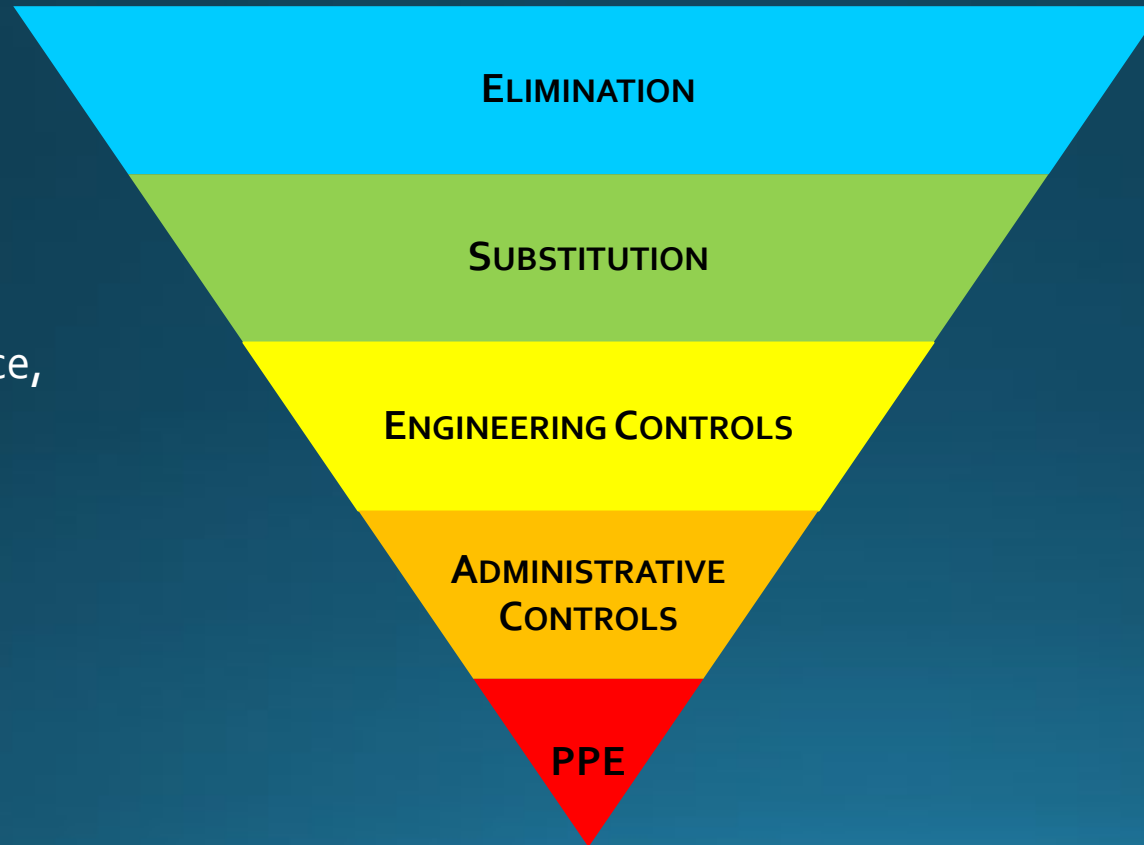
# MODIFIED HIERARCHY OF CONTROLS

*Preferred Solutions* are:

Either Elimination or Substitution of hazards

Fix the problem at the source, not with a well-designed workaround

May require help from specialists to successfully implement



*Minimum Adequate Solutions* are:

Temporary or short-term Elimination or Substitutions, or “best available” solution

Can be implemented in short time frames with relatively low effort

Do not address the problem at its source



# DO IT TODAY: FEMALE-FIT COVERALLS

*Preferred Solution*

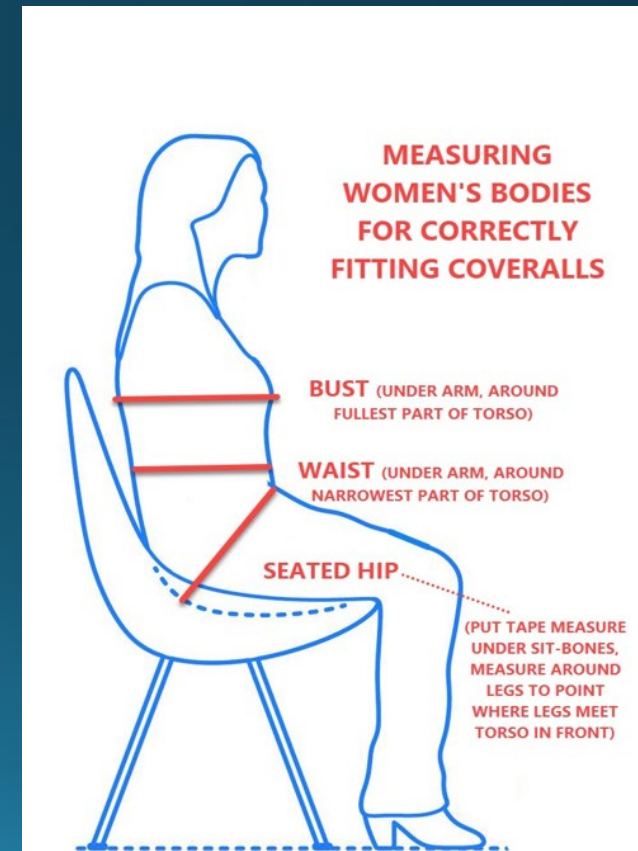
Standard Male Fit



2-Piece Female Fit



Correctly Measure  
Women's Bodies



# DO IT TODAY: ONBOARD HYGIENE & SANITATION

## *Preferred Solutions*

- Vessel grocery orders should provide sanitary products
- Disposal of menstrual hygiene products is a sanitation issue AND a privacy issue
- Install hands-free trash bins





# DO IT TODAY: USE CONTRACTED TRANSPORTATION



*Administrative Controls*

# DO IT TODAY: PRE-CRUISE PLANNING

## *Preferred Solution*

- Cruise planning will include making sure that all scientific party members will have a correctly-sized survival suit on board
- Scientific party members are sent measurement sheet, asked their survival suit size before flying to vessel port, assigned suit in correct size



# BOTTOM LINE

1. If your organization needs people, your organization needs women
2. Structural biases took time to form – and they will take time to fix
3. ASK your women what they need...and while you're at it, ask your smaller and larger-bodied men. Safety is for everyone, not just the Reference Man.
4. Respect and dignity are part of mental health. If you take care of peoples' minds as well as bodies, your organization is more likely to be successful





*Merci*

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