



**WOMEN
IN SAFETY
SPOTLIGHT**

IMPROVING PPE **FIT** FOR IMPACTS THE PSYCHOSOCIAL SAFETY OF ALL WORKERS

By Abby Ferri, CSP

Like NASA's women's spacesuit fit controversy of 2019, the coronavirus pandemic made PPE headline news again in 2020. Recent studies have shown that 77 percent of workers who are in the most high-risk and high-exposure jobs in terms of exposure to coronavirus are women ...

These women workers are more likely to be exposed to because of lack of properly fitting PPE. Photos of healthcare professionals with bruises and abrasions on their faces from poorly fitting PPE were shared widely on social media, and nurses retooled 20-year old stockpiles of expired masks by stapling the crumbling straps to the facepiece and then putting a homemade cloth mask over that for extra “protection.” Grass roots community initiatives formed to help these workers: individuals used their personal 3D printers to make spacers

manufacturing, and transportation have grown, increasing 23.5 percent from 2016 to 2017 per the BLS, now making up 9.1 percent of the construction workforce and 29 percent of the manufacturing workforce per a 2016 Deloitte study. This trend will continue as studies show that companies with high gender diversity are 21 percent more likely to experience higher than average profitability (McKinsey & Co, 2018). This growing population of dynamic and productive workers deserve better options than being left to DIY or otherwise expected

impact of ill-fitting PPE should not be ignored as it can lead to injuries, poor performance, and difficulty in retaining good workers because they feel indifferent about the organization’s safety culture.

A 2008 U.S. Army focus group report found that the Army’s traditional unisex combat uniforms, essentially designed for men, fit women poorly in their shoulders, bust, hips, and seat. The Army redesigned their unisex combat uniform as a step to further integrate women into the U.S. Armed Services. The new uniform was designed to help



for respirator straps, and home crafters knitted similar solutions and cloth masks.

This do-it-yourself (DIY) mindset has been on jobsites, manufacturing floors, oilfields and other workplace settings for years as women have cuffed, pinned, sliced and sewn solutions for ill-fitting PPE. Most of this homemade PPE provided women an unsafe or unapproved garment as in the case with altering flame resistant (FR) clothing. The DIY approach has no place in our workplaces where professionals have access to assessment tools to identify what workers need to protect them and the ability to purchase the necessary gear.

The number of women in traditionally male-populated fields like construction,

to take matters into their own hands for properly fitted PPE. Considering women’s fit and function positively impacts workers of all genders, height, weight, and other dimensions by ensuring availability of more size and fit options in the workplace.

This shift has been slow in industries that usually consider the male body as the default, universal, or neutral starting point. Consider the significant height discrepancy between the average American man at 5 feet 9 inches tall and average American woman at 5 feet 4 inches tall (CDC). Designing or purchasing PPE for the average person of any gender leaves many workers lacking PPE that fits and can leave them feeling under protected, undervalued and anxious. The psychosocial

women feel more professional, and featured narrower shoulders, a slightly tapered waist, and a more spacious seat. The new uniform was also intended for better comfort and aesthetics for both women and men, and 94% of respondents remarked that the cut of the new combat uniform allowed them to present a better military appearance.

The Army successfully used anthropometric data to design their new uniforms. Anthropometry is the science of defining human body dimensions and physical characteristics. Coincidentally, most anthropometric data used for PPE and apparel for the non-military workforce is based on men in the military in the 1950s and 1970s. Just like the U.S. Army found, our modern workforces

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are more diverse than those early samples, and new data should be gathered and acted upon. The National Institute for Occupational Safety and Health (NIOSH) has led this effort with their Anthropometry Labs in Morgantown and Pittsburgh developed in 1995 and 2001 respectively. The stationary and mobile lab technology uses 3-dimensional digital scanning to develop computer-generated human models. The process uses hand-held scanning devices that quickly produce high-resolution scans. While this is great information, it is not yet widely used in PPE and apparel manufacturing to solve real and

scientific challenges related to fit and function.

Back in 1999, between the establishment of the two NIOSH Anthropometry Labs, the Department of Labor's Health and Safety of Women in Construction (HASWIC) workgroup published a report "Women in the Construction Workplace: Providing Equitable Safety and Health Protection" which unfortunately still rings true. At that time, PPE was one of seven improvement areas identified, with fit and availability being top concerns. With little movement on these topics in the past 20+ years, a committee of American Society of Safety Professionals (ASSP) and International Safety Equipment Association (ISEA) members convened in the fall of 2019 to develop guidance for safety professionals and others who select and purchase PPE for women in various industries.

The ASSP/ISEA committee was established as an action item following the ASSP's Women's Workplace Safety Summit in the fall of 2018. At that event, keynote speaker Cori Wong, Ph.D., assistant vice president for gender equity at Colorado State University, introduced the concept of "going to the margins of the margins" to address challenges. By doing this, she explained, safety professionals can identify solutions that have a positive impact on the greater workplace, not just those who need extra support. As the ASSP/ISEA committee applies this thinking to the context of PPE fit, the margins of the margins are women in our workplaces who are short and curvy, tall with a larger than average shoe size, as well as men who may be shorter, taller, narrower or wider than average.

The committee is currently drafting the ASSP/ISEA Z590.6 Technical Report



Photo Courtesy of PEO Soldier (www.stripes.com/news/army-uniform-designed-for-women-now-for-all-1.191106#gallery)

titled "Guidance for the Fit and Selection of Personal Protection Equipment and Apparel Available for Women." The committee consists of 13 professionals in various industries and roles in EH&S, and the manufacturing and distribution of PPE. The final product will be a document of value to safety professionals, PPE and apparel manufacturers, distributors, and those making PPE purchasing decisions.

As inclusivity, diversity, and equity concerns are more intentionally and thoughtfully approached by safety professionals and their organizations, PPE can be a catalyst and driving force. PPE will always be the "last resort" when considering how to protect workers from an identified hazard, but it can be a first glance way of evaluating a workplace's culture. When workers are provided properly fitted PPE and apparel, they navigate the workplace more confidently with the mindset

Before and after ill-fitting PPE.




Photo Credit: Jane Henry, Founder of SeeHerWork

that their employer has genuinely considered their needs. This improved outlook provides obvious benefit for the individual, and has positive implications for crew, team, and organizational performance.

The ASSP/ISEA Z590.6 Technical Report is not due for

publication until late 2020 or early 2021. Safety professionals already have access to the best resources to solve the PPE fit issue and immediately begin to impact the psychosocial safety of their workplace, that resource is the workers of your organization. Ask

them questions, provide sample PPE and apparel for rigorous testing and feedback in real work situations, and continue to educate yourself on anthropometric data to make better purchasing decisions rooted in science. 

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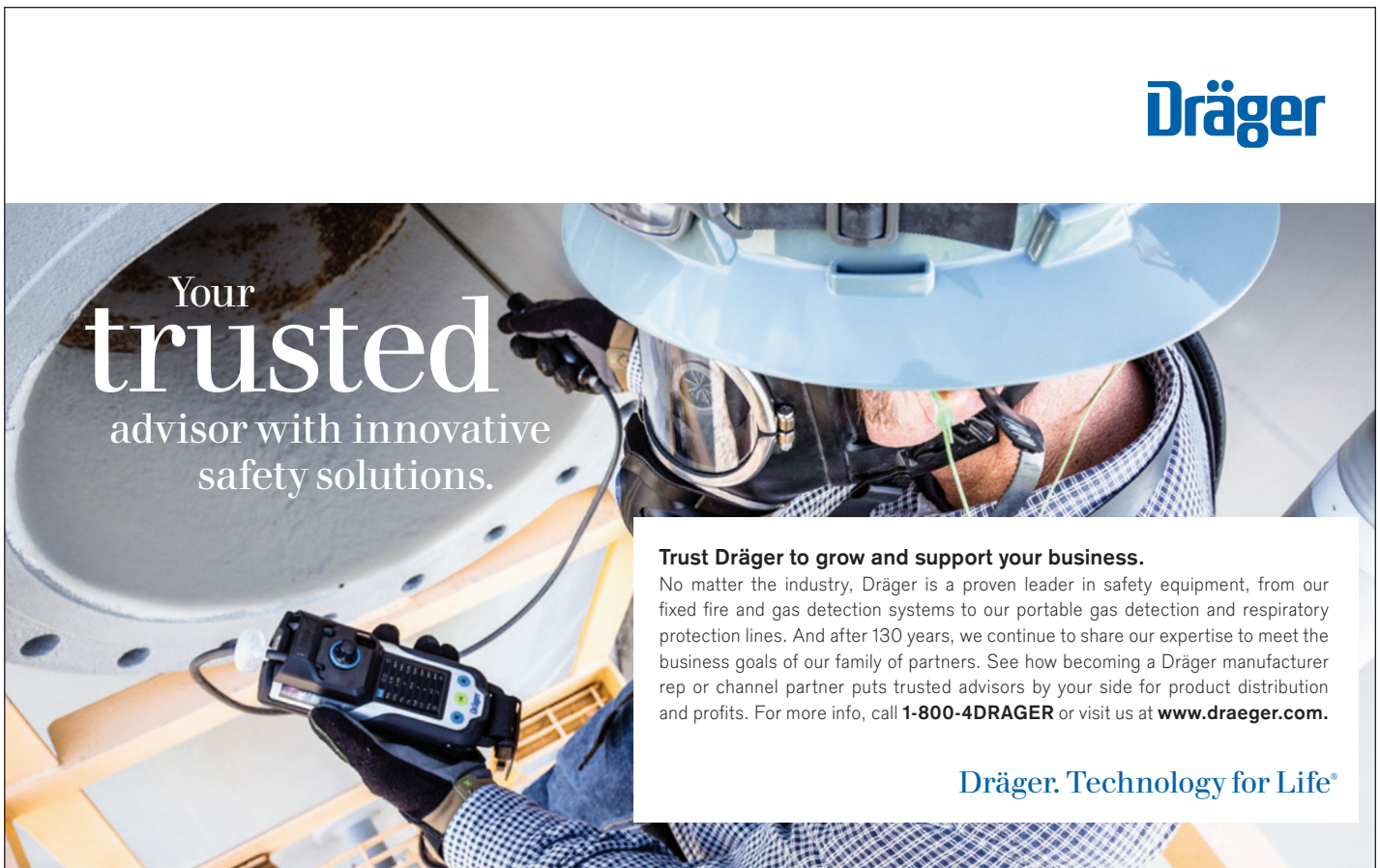
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Pictured above: Article author and safety professional, Abby Ferri.



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