The Bend and Snap: Ergonna Get Hurt

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Introduction

Healthcare workers are at great risk for musculoskeletal disorders compared to other occupations. According to bureau of labor statistics, in 2014, the rate of overexertion injuries was 68 per 10,000 workers, twice the number as compared to other industries.
The staff involved in endoscopy procedures and in handling the equipment are exposed to many work-related hazards including body fluid exposure, chemical, radiation and musculoskeletal injuries.

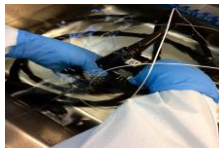
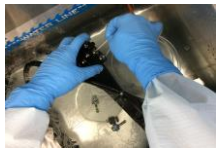
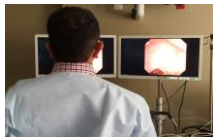
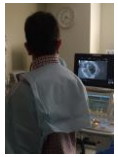
Musculoskeletal injuries result when the physical requirements of the job are greater than the physical capabilities of the worker (Rogers et al., 2013). One of the main cause of musculoskeletal disorders are the forces exerted during task performance, which in turn are influenced by the design of workstations and tools, [and] characteristics of objects handled (Oakman, Macdonald, & Wells, 2014).

The Issues

- Neck, hand and back injuries from repetitive movements such as pinching or gripping of endoscopic equipment and washing of scopes
- Pushing and pulling of machines, prolonged awkward postures and being on their feet for long hours
- Bumping into monitors, tripping over wires, cords, tubes and bending during repositioning patients and when giving abdominal pressures
- Falls from slippery floors
- Wearing of lead apron
- Staff injuries are costly due to medical expenses, disability compensations, chronic pain and functional disabilities, absenteeism and turnover

Ergonomics defined

Ergonomics is the study of physical and cognitive demands of a task in relation to individual's capacity (Shergill, McQuaid, Rempel et al, 2008). To minimize work related injury in endoscopy setting, it is important for health care staff to be educated on ergonomic principles.

Non-Ergonomic Practices		Recommended Ergonomics Practices	
	Low-level sinks causing awkward body postures to the staff or bending over that may potentially hurt their back	Sinks that offer height-adjustment capability are recommended, making them ergonomic for technicians of varying heights Anti-fatigue mats can be used to ease leg, foot and lower back fatigue and pain.	
	Over reaching for high scope storage cabinets that can hurt the arm and shoulders	Use of a step-stool so that the object you are reaching for is closer to you with less shoulder stretch needed	
	Repetitive hand activities, high pinch force while brushing scopes	Maintain neutral wrist, hand and shoulder position, and minimize hand forces. Maintain elbows at a 45-degree angle while hands are resting on the countertop.	
	Ceiling-mounted moveable arms/ or lights can cause bumping of the staff's head in the during procedures.	Position the monitor directly in front of the working team. The top of the monitor should be at or slightly below eye level and the height should be adjustable between 93-162 cm.	
 	Improper placement of monitors can strain the neck and back.	Type with light strokes, and try to keep your muscles relaxed. Monitor screen at eye level, then use an external keyboard so that your elbows can rest at 90° by your side.	
	Tangled wires can cause tripping and fall.	Bundle related wires together in a cable to reduce the number of independent wires, covering exposed wires on the floor with a nonslip heavy mat, and running wires from ceiling outlets to equipment high above ground.	
	A 1-piece lead apron weighs as much as 9.1 kg causing burden in the neck, shoulder and back	During fluoroscopy procedures, a 2 piece lead apron should be used to reduce loads on the upper back and spine	

Other Recommendations

- Break from the repetitive activities
- Rotating work assignments to allow the muscles to
- Stretching frequently throughout the day and exercises to strengthen the muscles
- Use of new technologies in handling and mobilizing patient safely (safety lift belts and mechanical lifts)

Conclusion

Several factors have contributed to musculoskeletal injuries in the gastroenterology setting, including the modifiable design flaws in endoscopy suite. Basic ergonomics principles should be incorporated into the practice of endoscopy to minimize the risk of musculoskeletal injuries (ASGE, 2010), promote a safer work environment for all the staff and cost-effective workforce for the department.

Referneces
ASGE (American Society of Gastrointestinal Endoscopy)
SGNA, (Society of Gastroenterology Nurses and Associates)
OSHA (Occupationall Safety and Health Administration)
Bureau of Labor Statistics
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Ergonomics and GI endoscopy. Shergill, A., McQuaid, K., Rempell, D.. Gastrointestinal Endoscopy Journal (2009).