Webinar: OVERCOMING ERGONOMIC CHALLENGES IN OBESITY AND MATERIAL HANDLING

Presenters:
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Jim Galante, chairman, EASE council

Reviewed by: Nathan Birtch, Options Incorporated.

This webinar featured two separate presentations both dealing with the topic of obesity and the challenges it poses to manual material handling. The first presentation was mainly a statistical analysis of the scope of the problem of obesity as it translates to workers compensation claims and injuries, with a lighter focus on the ageing workforce. Solutions provided were more from a psycho-social standpoint. Statistics reported in this article are based on American data. The second presentation outlined practical applications of various pieces of equipment that are available to assist in reducing injury related to manual material handling and tied them back to obesity and the ageing workforce.

Summary:
Obesity is a growing problem in North America and studies are showing that obesity and injury rates are closely tied. Obese workers have twice the number of worker compensation claims, thirteen times more days off, and their medical costs are seven times higher than that of non-obese workers (Ostbye, 2007). A study done in 2007 (Pollock et al) at the Johns Hopkins Bloomberg School of Public Health studied a sample of 7690 workers who were injured over a three-year period. Of that sample, 85% of those workers were obese indicating an increased risk of injury for the obese population.

The challenges associated with the ageing workforce occur in tandem with obesity as the incidence of obesity increases with age. The baby boomer population continues to increase the average age of the working population. The average age of the working population in 1972 was 28 and the current average age is 46. Other challenges associated with the ageing workforce include a decrease in strength, bone density, fitness, aerobic capacity, cognition, and a loss of visual and auditory senses. Also associated with the ageing population is an increase in the incidence of diabetes, arthritis, high blood pressure, depression, heart disease, etc.

The combination of an increase in obesity, and the ageing workforce highlight the increasing need for health and safety initiatives to reduce injuries, and improve worker lifestyles. Magnifying these problems is the fact that 70% of the working population is not motivated to change poor lifestyle choices such as inactivity, tobacco use, alcohol abuse, etc.

In order to provide solutions to combat these complicated issues, a wide view of the problem is needed. Employers should not simply see obesity as a “health benefits” issue but rather a leadership role should be taken by Health and Safety. Providing workers with education or programs, are not adequate solutions for the unmotivated. A pragmatic approach is to build a foundation of trust with workers, and the

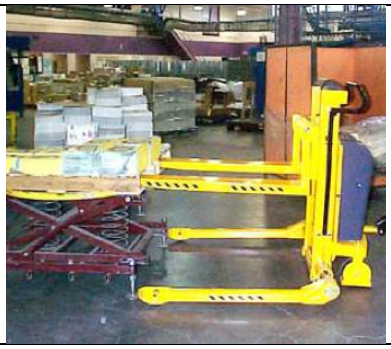
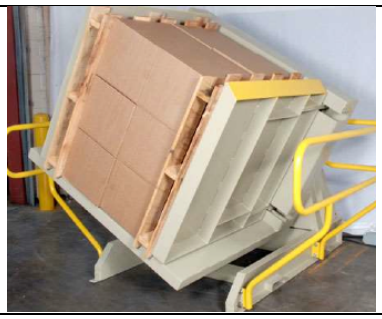
relationship will earn employers “the right to influence”. Ultimately, every worker has unique circumstances that don’t warrant a cookie cutter approach to complicated problems.

Practical Equipment Solutions (based on material presented by Jim Galante)

Manual material handling (MMH) continues to be one of the most common injury prone tasks in the workplace. This is specifically a concern for obese workers since, as the previous summary outlined, obese workers are more at risk of injury and require increased healthcare costs.
MMH tasks can also become the production bottleneck due to wasted time bending, overreaching, and associated fatigue. In order to aid in addressing this, a variety of equipment solutions are available to assist employers and their employees with reducing these injuries associated with MMH. The following is an outline of these various pieces of equipment that were outlined in the presentation and how they assist.

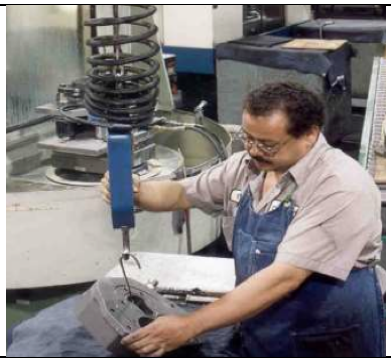
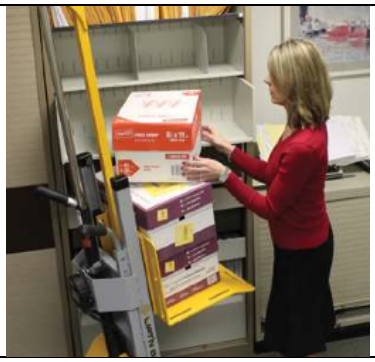
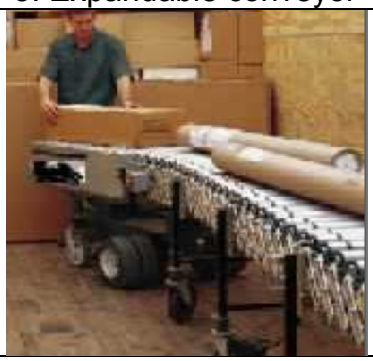
Solutions for loading/unloading pallets

1. Positioner	
	Positioner reduces bending associated with lifting from pallets on the floor and allowing material to be lifted from an ideal height Positioner can be equipped with a turntable to reduce reaching across the pallet. Improves productivity by reducing wasted motion. As much as 40% loading/unloading pallet can be spent walking around the pallet
2. Balancers/ Jib Cranes	
	Can be used to unload/load pallets Vacuum lifters can be efficient and useful end effectors especially for unusual shapes and sizes in pick/place tasks Articulating booms require substantially less force to move than non-articulating booms

3. Stackers	
	Stackers can be lightweight aluminum or powered Are very maneuverable and can easily access loads in tight quarters. Improve productivity as product can be loaded/unloaded directly from stacker
4. Pallet rotators	
	Remove risk of injury for MMH during exchanging pallets Improve productivity
5. Lift Tables	
	Reduce bending by bringing load up to appropriate height Improve efficiency by eliminating reaching and bending time.

Solutions for other applications

1. Tilter	
	Tilters reduce over-reaching and bending associated with working in containers Tilters can be portable or fixed Can be equipped with lifting capability as well

2. I.A.D.	Intelligent Assist Devices
	Provide sense of control over load without actually lifting Normal hand/wrist/ arm movements can be used
3. Lift cart	
	Decrease bending associated with use of regular two wheel cart Can be two- wheel truck with powered lift or scissor lift.
4. High Density Vertical Storage	
	All product can be accessed at an ideal height No bending or reaching Reduced footprint as parts are stored vertically maximizing vertical space
5. Expandable conveyor	
	Reduces MMH associated with unloading trailers and other applications. No carrying in and out of trailer Product conveyed directly to and from worker

OI Review and Reflections:
Information presented by Ted Borgstadt included relevant statistical information that can assist in warranting the need for ergonomic intervention with MMH tasks as the obese population is growing and more claims/costs are associated with these workers. This information could be used when justifying costs of implementing equipment or changes and could be helpful for consultants in training sessions. Highlighting the fact that obesity and poor lifestyle choices are complicated issues that require a wide view approach is helpful to remember, however, practical solutions that can be applied were lacking from this presentation and did not seem to be concretely relevant to us as Ergonomists.

Both presentations lacked information on the problem of obesity as it relates to manual material handling and how risk is increased based on scientific data (i.e. no indication how NIOSH scores or other tools are affected by obesity).

The information presented by Jim Galante was more practical as it provided direct solutions that are very relevant and applicable to us as consultants. We can always benefit from increasing our knowledge of what equipment is available to help reduce risk and improve efficiency and this presentation provided that.

Overall these presentations provided a valuable learning opportunity. Though they were lacking in depth with respect to practical application related directly to obesity, combined they relayed helpful information that we can use.

A copy of the Ergonomic Guidelines for Manual Material Handling can be downloaded at www.MHI.org/EASE