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Safety in Action

A Safety Service of the
Screenprinting and Graphic
Imaging Association International's
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#5 A Practical Guide for Ergonomics

Safety in Action, presented by the Screenprinting and Graphic Imaging Association International, is a series of case studies designed to put members of the screen printing and graphic imaging industry in touch with colleagues who are leaders in occupational health and safety. Information highlighted in these case studies is meant to not be oriented to regulatory/compliance issues, therefore providing valuable information to SGIA members, wherever in the world they may be located. These case studies can be used as an educational aid for company owners and operators, or as fuel for their safety efforts.

If you have suggestions or stories about your experiences with specific safety topics or concerns, or would like to suggest future topics for Safety in Action, please contact:

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A TYPICAL SCENARIO

It's late in the day. You're distracted. You're way into overtime. You are finally taking some time to review some financial figures you have been unsure about. One of your production employees wanders into your office, rubbing his forearm, grimacing slightly with pain. "I don't feel so good," he says, indicating that he expects you to do something to remedy the situation, "my wrists are really sore." As an employer, you need to understand your duty. Do you:

- a) tell him to get back to work, you're busy;
- b) do what you can to provide a remedy, then monitor the situation;
- c) call an ambulance.

The decision is quite clear. You want to do what is appropriate, while neither over- nor under-reacting. Option "b" requires you to do some work and follow up on your responsibilities but it is the logical thing to do. And, while "b" is not the easy way out, it is certainly the best way out: for the health of your employee and for the future of your business. But what is required of you?

What should you do? This issue of Safety in Action presents a practical guide to ergonomics.

ERGONOMICS OVERVIEW

Ergonomics is the science and practice of designing jobs and workplaces to match the capabilities and limitations of the human body. The interest and emphasis in ergonomics has dramatically increased over the years due to increased costs associated with ergonomic injury – frequently referred to as musculo-skeletal disorders (MSDs) – and the impact of the injury on a personal level as well as the business.

General signs and symptoms of MSDs are localized fatigue, numbness or tingling, swelling or inflammation, stiffness, burning sensation, or pain in the back, shoulders, neck, hands, or wrists that does not diminish with time. Generally, performing certain frequent and constant tasks may aggravate or increase the employee's discomfort level.

An example of how much these disorders can cost your company can easily be realized by looking at back

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ERGONOMICS

MSDs are frequently the result of a combination of factors. Such factors may include:

Awkward postures and motions – raising hands above the head, raising the elbows above the shoulders, squatting, kneeling, bending the neck, back or wrists



Contact stress – using the hand or knee as a hammer



Force – pinching an unsupported object, gripping an unsupported object, pushing, pulling, and lifting



Repetitive Motion – repeating the same motion with little or no variation and inadequate rest periods



Vibration – rapid oscillation of the body or part of the body usually associated with the use of powered hand tools or other equipment.



injuries. Most lost workdays are due to back pain resulting from frequent and awkward body postures and motion. Failure to correctly adjust the employee's work environment to meet his or her own physical limitations could lead to a more debilitating or permanent back injury. Generally, a back injury without surgery may cost up to \$28,000, and \$50,000 if surgery is needed. In addition, a person is 3 to 5 times more likely to reinjure his or her back at some time in the future. Not only is this costly to the employee but to the company as a whole.

What if we could prevent or reduce the number of these types of injuries? One benefit is the reduction of costs directly associated with the injury -- workers' compensation premiums, any out-of-pocket expenses not covered by insurance, and temporary workers. Another benefit may be more difficult to put a dollar amount to, but is equally important -- increased employee morale, productivity, and job satisfaction.

A BASIC APPROACH

What should you look for when conducting a basic ergonomic evaluation of a job? Here are a few tips:

First, examine the job for potential ergonomic concerns. The SGIA [Ergonomics Training Program](#) has ready-to-use workplace [checklists](#) designed specifically for the screen printing and graphic imaging industry.

Take the checklist with you as you go through your facility and it will help you identify areas of potential concern. During your evaluation, look for the following:

Force: Excessive physical force is required to perform the job.

Repetition: A physical movement is repeated every few seconds or less.

Awkward Postures: This includes many bends, twists, and reaches.

Static Postures: Standing, or sitting still for extended periods.

Contact Stress: Skin contact with sharp, rough or other problematic surfaces.

Vibration: Holding vibrating tools or standing on a vibrating surface.

As an example, let's say an employee's job consists of bending to reach for a ten-pound piece of sheet metal that is then printed on using an automatic flatbed press. After printing, the employee must then lift the piece off the press and twist to place it on a conveyor for drying. In short, the job includes the use of force, which is required to lift the sheet metal; the job includes awkward postures, such as bending to lift the sheet metal, or twisting to place it on the dryer; also, the job includes contact stress, because the employee's skin contacts the sharp edges of the sheet metal.

Once you have determined the concerns associated with a job, you

"ERGONOMICS HAS BROUGHT ABOUT A 10 TO 15 PERCENT INCREASE IN PRODUCTIVITY"



must then seek methods of controlling those concerns. These controls are outlined in the SGIA [Ergonomics Employer Guidebook](#). In short, use of the following controls is common:

Engineering Controls: Change your process or adjust machinery to eliminate the concern.

Administrative Controls: Implement job rotation or rest periods to reduce exposure frequency.

Work Practice Controls: Change the way employees do the work, in order to eliminate potential hazards.

Personal Protective Equipment: Though not recommended as a primary control, this can be used to protect from potential ergonomic concerns.

Continuing with the example used earlier, the controls discussed above could be used to control or prevent ergonomic concerns in the following ways: Problems related to force could be controlled by using a conveyor or roller system – even a raised bin – to eliminate unnecessary lifting. These are examples of engineering controls. Lifting hazards could also be controlled by having the employee do the job for only two or three hours of the workday, then rotate to a different work-

station. The raised bin mentioned earlier can be used to prevent awkward postures, because it eliminates the need for bending to retrieve sheet metal. In addition, the awkward posture associated with twisting could be eliminated by training the employee to not twist, but to instead rotate using one or two easy movements of the feet. This is an example of a work practice control. Last, to control contact stress, the employee could wear gloves designed to protect the skin from the cuts or cumulative soreness that can be associated with handling sharp objects. This is a rare example of the use of personal protective equipment in ergonomics.

SIMPLE EVALUATION

Though the scientific details of ergonomics may be better left to trained experts, the basic concepts can be quite easy to understand and implement in your facility. In certain cases, a simple evaluation may give you all the knowledge you need to eliminate an ergonomic concern. The SGIA [Ergonomics Training Program](#) is designed to give you, the employer, the basic ergonomic overview you need, and provides an [Ergonomics Employee Video](#) that addresses the subject in a simple straight forward manner for your employees.

Following any administrative or work practice controls, it is important for you or a departmental manager to monitor the job and make sure the changes you make become a permanent part of doing business at your facility. In addition, always be

THREE THINGS YOU CAN DO TODAY

- Take a walk through your facility, looking for obvious areas for ergonomic improvement using the SGIA [Ergonomic Facility Checklist](#) as a guide. You may find that some changes can be made right on the spot, in little or no time. You may also find that a surprising number of your facility's ergonomic challenges can be conquered through simple remedies.
- Set up a meeting to discuss your ergonomic goals with your departmental managers. Explain to them why ergonomic improvement is important. Stress the need for them to participate in the process. [SGIA's Ergonomic Employer Guidebook](#) provides helpful advice for holding training meetings with your employees.
- Communicate with employees about your need to know about simple aches and pains before they become serious strain injuries or musculoskeletal disorders. Use the SGIA [Ergonomic Employee Video](#) to introduce some of these basic concepts to your employees. Early reporting of symptoms can help you implement treatment of those symptoms that is inexpensive, effective and permanent.

HOT TOPICS FOR DISCUSSION

If you have an active joint safety and health committee in place, why not take what you've learned from this issue of Safety in Action and get your committee involved in injury reduction. Your committee is the perfect vehicle for the creation of a safe workplace, and the enthusiasm and suggestions of your employees may provide the needed impetus for a successful safety effort.

When your committee convenes, you may want to try discussing:

- locating ergonomic concerns
- lifting concerns
- employee communication
- formalizing your ergonomics program
- making changes permanent and more.



on the lookout for better ways to do things – you do it in your production processes, why not also in your safety and ergonomic efforts.

GET RESULTS

One company that has successfully managed a practical approach to ergonomics is Meto-Graphics, Cary, IL. According to company president Michael Emrich, Meto-Graphics made a commitment years ago to eliminate ergonomic concerns from the facility through common sense and a genuine commitment to do what is right for the employees. This effort is in keeping with the company's long commitment to safety.

In identifying ergonomic concerns, the company first asks departmental supervisors to examine their areas. Company management then talks with the lead employee in each department, and asks that employee to speak candidly about his or her ergonomic concerns. This dialog is conducted in a non-adversarial way, which allows employees to speak without fear of repercussion. The lead person selected is the person with the most experience with the operations of the department. Having identified ergonomic concerns, company management determines the relative severity between the concerns, then uses this determination to decide which hazards to address first.

Meto-Graphic's practical ergonomic program also includes a training element. The training element, described by Emrich as "folksy," is formalized, and

involves direct communication between company supervisors, lead employees, and the company's work force in general.

Since establishing its ergonomics program, the company has not experienced a single reportable musculoskeletal disorder. Michael Emrich believes the company's ergonomic program has resulted not only in a safer workplace, but also a happier work force, which Emrich feels leads to reduced absenteeism. Further, he believes ergonomics training has brought about a ten to fifteen percent increase in productivity.

NEED HELP?

SGIA recognizes companies may need assistance with addressing ergonomics in the screen printing and graphic imaging sector. The SGIA [Ergonomics Training Program](#) can help you implement a successful ergonomics program in your company. The Program was developed and created by utilizing resources across the country, including printing companies, ergonomic experts, and health and safety professionals. The SGIA [Ergonomics Training Program](#) offers several tools – including an [Employer Guidebook](#), an [Employee Video](#), and training guides – designed to provide a complete package to support your company's efforts to create an ergonomics safety program. The goal of the program is to provide guidance on how companies can reduce ergonomic injuries and improve their assessment and management of ergonomic issues, thereby improving operations.