



# Ergonomic\$ Pay\$

## Return on Investment With a Proactive Ergonomic Program

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Are you seeing an increase in ergonomic related injuries to your research or office employees? Does the cost and effort needed to implement an ergonomic program appear to be excessive? Do the following statements describe your ergonomics program?

1. Ergonomic related injury trends are increasing
2. Employees require surgery and are restricted from normal duty
3. Excessive absenteeism and turnover are on the rise
4. Your insurance provider is threatening action to reduce their liability

While OSHA does not have a specific standard requiring an ergonomic program, employers are responsible for preventing injuries and illnesses caused at the workplace under OSHA's General Duty Clause. Many employers may not realize the extent of employee ergonomic injuries due to a lack of employee reporting (see sidebar). According to Worker's Compensation data, Work Related Musculoskeletal Disorders (WMSDs) caused by poor ergonomic work factors account for \$1 of every \$3 spent on Worker's Compensation in the US and affect 1.8 million workers each year.<sup>i</sup> Many experts believe there is significant under reporting of the true incidence of ergonomic injury nationally. The direct cost of a single injury like carpal tunnel syndrome can cost an average of \$21,208 according to Workers Compensation data.<sup>ii</sup>

In difficult ergonomic times, only projects that show rapid ROI (return on investment) get management approval. Existing data prove that preventing WMSDs through ergonomic solutions can achieve payback in less than one year and can result in reductions of the following:

- Lost workdays
- Worker's compensation costs
- Scrap/errors
- Incidence rate
- Number of WMSDs
- Absenteeism
- Restricted days
- Turnover
- Labor costs
- Cost per claim

We have identified a useful estimating tool, developed by Rick Goggins, M.S., CPE, a senior-level ergonomist with the Washington State Department of Labor and Industries' Consultation Services Group. The tool uses data extrapolated from Worker's Compensation, the OSHA "Safety Pays" Program, and 250 case studies of ergonomic solution interventions. The tool allows the user to calculate the ROI for various ergonomic intervention projects.

### **What goes on in the mind of an assembly employee who has ergonomic related injuries?**

Shawn is a typical researcher working in Tissue Culture making \$60,000 a year. He spends about 3 hours a day pipetting in the lab, and another 3 hours on a computer with additional work in the lab. After a few months, Shawn notices the discomfort in his shoulder and thumb and realizes it is directly related to his pipetting. He doesn't want to "complain", so he deals with it.

Over time, the discomfort progresses and Shawn has to switch between his left and right hand when the pain gets real bad. When the thumb on his right hand hurts too much, he depresses the button with his opposite hand. The 3-hour job now takes 3½ - 4 hours to complete. Since his work load has increased, Shawn is now working unpaid overtime.

During his second year Shawn takes 6 sick days due to the pain and stress and anxiety of working too many hours. After 2.5 years, Shawn decides on his own to go to the doctor to review the pain in his right shoulder and his right thumb. The doctor diagnoses Shawn with rotator cuff injury and tendonitis in the thumb and puts Shawn on restricted duty, prescription medication and rehabilitation therapy and instructs Shawn to report the injury to his employer. The employer puts Shawn on restricted duty in the lab with no pipetting.

Though he tries very hard to follow doctor's orders, Shawn feels pressure from colleagues to get work done, so he does some pipetting anyway. After another 6 months, the pain has increased to a level where Shawn can no longer complete the work without serious pain and the injury now requires surgery to repair. After 3 years due to stress and pain caused by his job, Shawn quits.

Provided there is no lawsuit against the company, what is the overall cost of this loss? If this injury had been prevented, could these costs have been avoided? The Ergonomic Cost Benefit Calculator referenced in this article helps your company answer these questions.

Using this tool, called the Ergonomic Cost Benefit Calculator, different ergonomic interventions can be compared to determine the most cost-effective solution. Go to <http://www.capaccio.com/Ergonomics> to access the tool and related information.

A sample calculation is provided here for a typical research laboratory with approximately 80 employees where, in one year, four lab employees reported similar MSD injuries. Evaluations of the work areas were conducted and data for three different interventions were input into the calculator, including associated costs of implementation and average employee salary. The calculated payback period was between two weeks and two months (Figure 1). The tool can also provide overall costs for each intervention option chosen, the payback period and annual payback from one to five years. Other outputs predict reductions in workers compensation claims and costs, increase in productivity and other useful investment data. Not shown below is the reduction in Workers Compensation claims which range from 70%, 40% and 10% respectively for Options 1, 2 and 3.

**Figure 1 Payback Period**

<b>Task:</b> Repetitive pipetting operation	<b>Option 1</b> Automate process	<b>Option 2</b> Adjustable articulating workstation	<b>Option 3</b> Articulating platform
Total first-year cost of control:	\$29,300	\$5,000	\$ 1,050
Annual recurring costs:	\$1,000	\$500	\$500
Estimated annual benefits:	\$220,085	\$113,620	\$49,655
Estimated payback period:	0.13 years	0.04 years	0.02 years
Estimated net benefits after one year:	\$190,785	\$108,620	\$48,605
Estimated net benefits after three years:	\$628,954	\$334,859	\$146,915
Estimated net benefits after five years:	\$1,067,123	\$561,099	\$245,225

This type of data enables a facility to develop a cost-effective and focused ergonomic program with tangible results. Once you understand the effect that poor ergonomics has on employees, it becomes very clear that the benefit from implementing a proactive ergonomic program with helpful tools and proven controls can pay off in a few months. Capaccio's Environmental, Health and Safety (EH&S) Group has many years of experience assisting companies with all stages of ergonomic program development, employee assessment and intervention. For assistance with implementing a proactive ergonomic program, contact Geoff Gilbert at 508-970-0033 extension 142 or [ggilbert@capaccio.com](mailto:ggilbert@capaccio.com).

<sup>i</sup> Bureau of Labor Statistics [1997]. Workplace Injuries and Illnesses in 1996. U.S. Department of Labor. Washington, DC.

<sup>ii</sup> Washington State Department of Labor and Industries [2006], Work-related Musculoskeletal Disorders of the Neck, Back, and Upper Extremity in Washington State, 1996-2004-SHARP Technical Report Number 40-10A-2006