

## Cost Justifying Ergonomics: Getting Started

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Keep Washington safe and working.



## Stretch wrapping pallets in the shipping department



2 Employees  
Move and wrap pallets for shipping  
40 to 45 pallets per day  
3.5 minutes to wrap each pallet

Injury history:  
2014 – 1 back strain  
2013 – No injuries  
2012- 1 shoulder strain

Inspired by true events.

Thanks to Jeff Tiedeman, CSP, CIE, ARM, State Compensation Insurance Fund of California.



From the Shipping Department Manager:

"Find me a solution that makes the job safer.  
But you need to show me that it will be  
cost-effective before I'll sign off on it."

**Panic?**



### Semi-automatic pallet-wrapping machine



Can wrap as fast as 1 min. per pallet

Additional benefit: Machine pre-stretches film, so it uses 50% less.  
This should save about \$2,600 a year in stretch wrap costs.

#### Costs-

Purchase and ship:	\$9,500
Installation:	\$1,200
Training:	\$90
Energy use and maintenance:	\$710
	<hr/>
	\$11,500

# Washington State Ergonomics Cost Benefit Calculator

Free download from [www.pshfes.org](http://www.pshfes.org)



## **Cost Calculator**

Organizations frequently cite the perceived cost of ergonomics programs and solutions as a barrier to implementation.

We have developed a cost-benefit calculator that PSHFES is proud to offer for free download.

[More...>](#)

Number of employees in this job/dept./org.:

Average hourly salary for these employees:  per hour

**Number of WMSD claims for this job/ dept./ org. per year:**

This past year:	Type	Back strain	▼	Number	<input type="text"/>	Typical costs: \$	-
	Type	Back strain	▼	Number	<input type="text"/>	\$	-
	Type	Back strain	▼	Number	<input type="text"/>	\$	-
	Type	Back strain	▼	Number	<input type="text"/>	\$	-
	Type	Back strain	▼	Number	<input type="text"/>	\$	-

Total costs for year: \$ -

The year before:	Type	Back strain	▼	Number	<input type="text"/>	Typical costs: \$	-
	Type	Back strain	▼	Number	<input type="text"/>	\$	-
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Total costs for year: \$ -

2 years before:	Type	Back strain	▼	Number	<input type="text"/>	Typical costs: \$	-
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	Type	Back strain	▼	Number	<input type="text"/>	\$	-
	Type	Back strain	▼	Number	<input type="text"/>	\$	-

Total costs for year: \$ -

Average annual WMSD claim costs: \$ -

Estimated annual indirect costs: \$ -



\$ -

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Back strain				
Back injury w/ surgery	1	8723	0	0
Neck strain	1	8723	0	0
Shoulder strain	1	8723	0	0
Rotator cuff injury	1	8723	0	0
Elbow/forearm strain	1	8723	0	0
Epicondylitis				
Hand/wrist strain				
Hand/wrist tendinitis	1	8723	0	0
Carpal tunnel syndrome	1	8723	0	0
All other MSDs	1	8723	0	0
	1	8723	0	0
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**Option 1:**

Purchase cost: \$

Engineering cost: \$

Training cost: \$

Recurring costs:

Other costs of change:

Total cost of intervention: \$

**Option 2:**

Other costs of change:

Total cost of intervention: \$

**Option 3:**

Other costs of change:

Total cost of intervention: \$

**Effectiveness of solution:**

- Eliminates exposure to hazard
- Reduces level of exposure
- Reduces time of exposure
- Relies on employee behavior
- No reduction in injuries expected

**Productivity Improvements:**

- High - speeds up entire process
- Medium - reduces wasted motion
- Low - improves comfort/reduces fatigue
- No productivity gains expected

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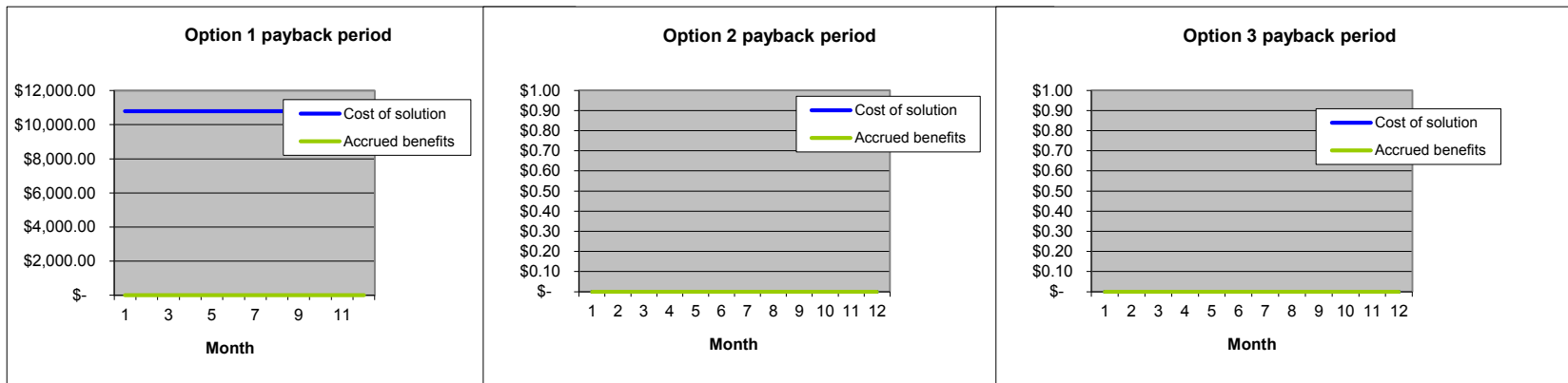


**Estimated benefits for solution options**

Option 1 Optimistic	Option 2 Moderate	Option 3 Conservative
Reduction in claims: 0%	Reduction in claims: 0%	Reduction in claims: 0%
Reduction in workers' comp costs: \$ -	Reduction in workers' comp costs: \$ -	Reduction in workers' comp costs: \$ -
Reduction in indirect costs: \$ -	Reduction in indirect costs: \$ -	Reduction in indirect costs: \$ -
Increase in productivity: 0.0%	Increase in productivity: 0.0%	Increase in productivity: 0.0%
Productivity value: \$ -	Productivity value: \$ -	Productivity value: \$ -
Other estimated savings: <input type="text"/>	Other estimated savings: <input type="text"/>	Other estimated savings: <input type="text"/>
Total estimated annual savings: \$ -	Total estimated annual savings: \$ -	Total estimated annual savings: \$ -
Total estimated savings over 3 years: \$ -	Total estimated savings over 3 years: \$ -	Total estimated savings over 3 years: \$ -
Total estimated savings over 5 years: \$ -	Total estimated savings over 5 years: \$ -	Total estimated savings over 5 years: \$ -

### Payback Period

	<b>Option 1</b> Optimistic	<b>Option 2</b> Moderate	<b>Option 3</b> Conservative
Total first-year cost of control:	\$ 10,790	\$ -	\$ -
Annually recurring costs:	\$ -	\$ -	\$ -
Estimated annual benefits:	\$ -	\$ -	\$ -
Estimated payback period:	- years	- years	- years
Estimated net benefits after one year:	\$ (10,790)	\$ -	\$ -
Estimated net benefits after 3 years:	\$ (10,790)	\$ -	\$ -
Estimated net benefits after 5 years:	\$ (10,790)	\$ -	\$ -



Cost of solut	Accrued benefi	Cost of solution	Accrued benefit:	Cost of solution	Accrued benefits
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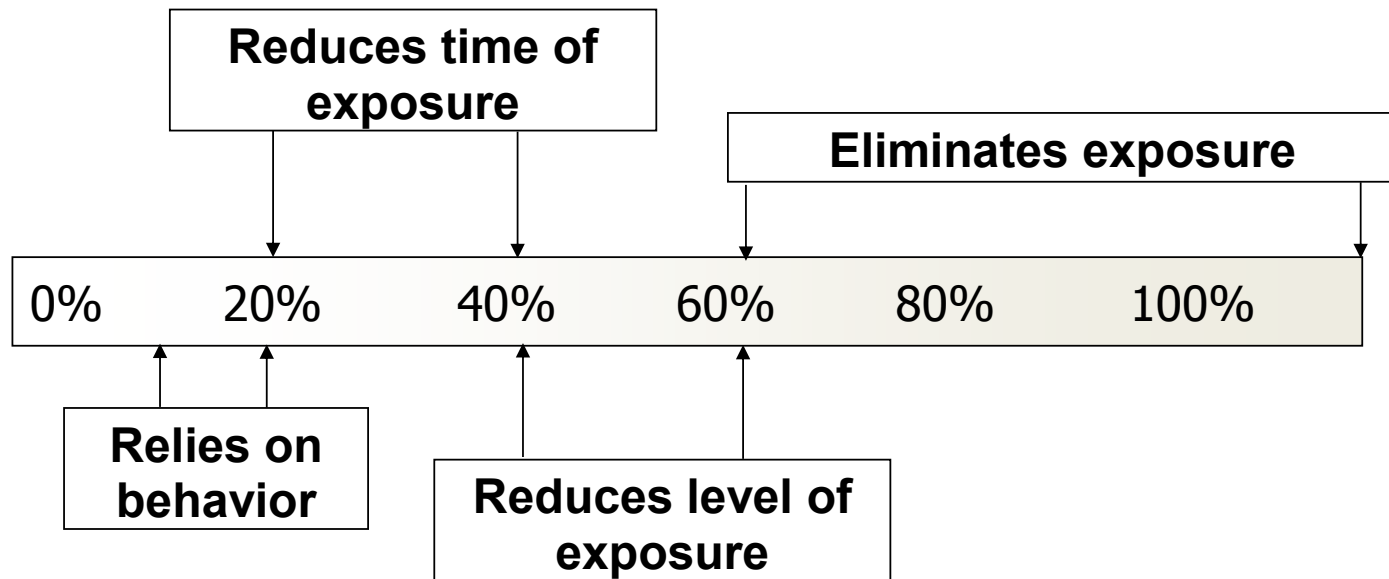
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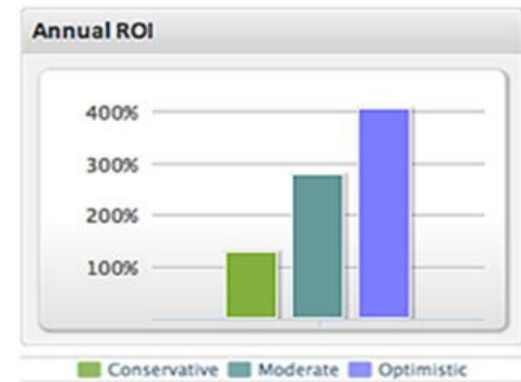
## Where do the estimates come from?

Goggins, R., Spielholz, P. & Nothstein, G. (2008). Estimating the effectiveness of ergonomics interventions through case studies: implications for predictive cost-benefit analysis. *Journal of Safety Research* 39 . 339–344.



## Other ROI Calculators

ErgonomicsROI.com



[www.iwh.on.ca/smart-planner](http://www.iwh.on.ca/smart-planner)

The image shows the header and navigation menu of the Institute for Work & Health website. The header is a dark blue bar containing the IWH logo (a stylized 'IWH+' in orange and white) and the text "Institute for Work & Health" and "Research Excellence Advancing Employee Health". Below the header is an orange navigation bar with links for "Home", "About IWH", "Research", "Knowledge Transfer", "Products", and "Media Room". Below the navigation bar is a light blue bar with the word "PRODUCTS" and a horizontal line. To the right of this bar is a light beige bar with the text "Health & Safety Smart Planner" in blue.