

Cost Benefit Analysis Summary

Results from All 250 Case Studies

| Metric | Number of examples | Average | Median | 95% CI | Range |
|----------------------|--------------------|-----------|-----------|--------|----------------|
| WMSDs | 90 | 59% ↓ | 56% ↓ | 5% | 8%-100% |
| Incidence rate* | 53 | 65% ↓ | 67% ↓ | 8% | 9%-100% |
| Lost workdays* | 78 | 75% ↓ | 80% ↓ | 5% | 3%-100% |
| Restricted days* | 30 | 53% ↓ | 58% ↓ | 11% | 5%-100% |
| Workers' comp costs* | 52 | 68% ↓ | 70% ↓ | 6% | 15%-100% |
| Cost per claim* | 7 | 39% ↓ | 50% ↓ | 28% | -20%-81% |
| Productivity | 61 | 25% ↑ | 20% ↑ | 5% | -0.2%-80% |
| Labor costs | 6 | 43% ↓ | 32% ↓ | 26% | 10%-85% |
| Scrap/errors | 8 | 67% ↓ | 75% ↓ | 18% | 8%-100% |
| Turnover | 34 | 48% ↓ | 48% ↓ | 8% | 3%-100% |
| Absenteeism | 11 | 58% ↓ | 60% ↓ | 15% | 14%-98% |
| Payback period | 36 | 0.7 years | 0.4 years | 0.3 | 0.03-4.4 years |
| Cost:Benefit ratio | 6 | 1:45.5 | 1:10 | 1:45 | 1:2.5-1:140 |

*Due to WMSDs

Office Ergonomics Interventions

Based on 40 different reports

| Metric | Number of examples | Average | Median | 95% CI | Range |
|----------------------|--------------------|-----------|-----------|--------|-------------|
| Injuries* | 5 | 61% ↓ | 50% ↓ | 20% | 43%-100% |
| Incidence rate* | 1 | 64% ↓ | 64% ↓ | - | - |
| Lost workdays* | 4 | 88% ↓ | 91% ↓ | 14% | 70%-100% |
| Restricted days* | 1 | 100% ↓ | 100% ↓ | - | - |
| Workers' comp costs* | 3 | 81% ↓ | 80% ↓ | 9% | 74%-89% |
| Cost per claim* | 1 | 81% ↓ | 81% ↓ | - | - |
| Productivity | 25 | 17% ↑ | 12% ↑ | 6% | -0.2%-64% |
| Errors | 2 | 32% ↓ | 32% ↓ | 47% | 8%-56% |
| Turnover | 2 | 87% ↓ | 87% ↓ | 2% | 86%-88% |
| Absenteeism | 3 | 46% ↓ | 50% ↓ | 35% | 14%-75% |
| ROI | 3 | 78% | 50% | 81% | 25%-160% |
| Payback period | 9 | 0.4 years | 0.4 years | 0.22 | 0.06-1 year |

*WMSDs only

The best results were seen when organizations:

- Implemented a comprehensive program with management support.
- Incorporated ergonomics principles in the design stage.
- Had employees participate in planning changes.
- Evaluated workstations and provided individualized recommendations.
- Provided adjustable workstations and chairs with training to users.
- Evaluated and improved lighting, glare, temperature, noise and other environmental factors.
- Provided medical management of injury claims when they did occur.
- Evaluated the program and made continuous improvements.

Healthcare Interventions

Based on 36 different reports

| Metric | Number of examples | Average | Median | 95% CI | Range |
|----------------------|--------------------|------------|------------|--------|-----------------|
| Injuries* | 21 | 61% ↓ | 60% ↓ | 10% | 18%-100% |
| Incidence rate* | 10 | 56% ↓ | 46% ↓ | 19% | 16%-100% |
| Lost workdays* | 15 | 74% ↓ | 80% ↓ | 10% | 38%-100% |
| Restricted days* | 8 | 49% ↓ | 43% ↓ | 26% | 5%-100% |
| Workers' comp costs* | 13 | 70% ↓ | 73% ↓ | 12% | 35%-99% |
| Cost per claim* | 1 | 20% ↑ | 20% ↑ | - | - |
| Turnover | 8 | 37% ↓ | 33% ↓ | 22% | 3%-100% |
| Absenteeism | 1 | 98% ↓ | 98% ↓ | - | - |
| Payback period | 4 | 0.28 years | 0.17 years | 0.46 | 0.06-0.71 years |

*WMSDs only

The best results were seen when organizations:

- Implemented a comprehensive program with management support.
- Incorporated ergonomics principles in the design stage.
- Had employees participate in planning changes.
- Evaluated workstations and provided individualized recommendations.
- Implemented zero lift programs, including lift assist equipment, training, and appropriate policies.
- Provided medical management of injury claims when they did occur.
- Evaluated the program and made continuous improvements.

Ergonomics Programs (excluding office ergonomics)

Based on 114 different reports

| Metric | Number of examples | Average | Median | 95% CI | Range |
|----------------------|--------------------|------------|------------|--------|-----------|
| WMSDs | 66 | 57% ↓ | 55% ↓ | 6% | 8%-100% |
| Incidence rate* | 24 | 57% ↓ | 50% ↓ | 12% | 9%-100% |
| Lost workdays* | 44 | 72% ↓ | 79% ↓ | 7% | 15%-100% |
| Restricted days* | 9 | 46% ↓ | 37% ↓ | 15% | 16%-77% |
| Workers' comp costs* | 42 | 67% ↓ | 68% ↓ | 7% | 15%-100% |
| Cost per claim* | 6 | 32% ↓ | 32% ↓ | 29% | -20%-76% |
| Productivity | 6 | 46% ↑ | 40% ↑ | 24% | 10%-80% |
| Labor costs | 2 | 28% ↓ | 28% ↓ | 16% | 20%-36% |
| Turnover | 9 | 36% ↓ | 40% ↓ | 13% | 3%-68% |
| Absenteeism | 2 | 79% ↓ | 79% ↓ | 37% | 60%-98% |
| Payback period | 1 | 0.19 years | 0.19 years | - | - |
| Cost:Benefit ratio | 2 | 1:2.75 | 1:2.75 | 1:0.48 | 1:2.5-1:3 |

*Due to WMSDs

The best results were seen when organizations:

- Implemented a comprehensive program with management support.
- Incorporated ergonomics principles in the design stage.
- Had employees participate in planning changes.
- Involved groups such as engineering, purchasing and facilities.
- Evaluated workstations and provided individualized recommendations.
- Provided engineering controls along with training to users.
- Evaluated and improved lighting, glare, temperature, noise and other environmental factors.
- Provided medical management of injury claims when they did occur.
- Evaluated the program and made continuous improvements.

Ergonomics Individual Solutions (excluding office ergonomics)

Based on 96 different reports

| Metric | Number of examples | Average | Median | 95% CI | Range |
|----------------------|--------------------|------------|------------|--------|-----------------|
| WMSDs | 18 | 64% ↓ | 62% ↓ | 13% | 25%-100% |
| Incidence rate* | 28 | 71% ↓ | 73% ↓ | 10% | 14%-100% |
| Lost workdays* | 30 | 77% ↓ | 84% ↓ | 10% | 3%-100% |
| Restricted days* | 20 | 54% ↓ | 61% ↓ | 15% | 5%-100% |
| Workers' comp costs* | 6 | 69% ↓ | 79% ↓ | 20% | 33%-91% |
| Productivity | 30 | 28% ↑ | 25% ↑ | 7% | 7%-67% |
| Labor costs | 4 | 51% ↓ | 54% ↓ | 37% | 10%-85% |
| Scrap/errors | 6 | 79% ↓ | 90% ↓ | 21% | 35%-100% |
| Turnover | 23 | 50% ↓ | 58% ↓ | 10% | 3%-100% |
| Absenteeism | 6 | 57% ↓ | 64% ↓ | 17% | 23%-75% |
| Payback period | 25 | 0.82 years | 0.40 years | 0.41 | 0.03-4.40 years |
| Cost:Benefit ratio | 3 | 1:74 | 1:72 | 1:75 | 1:10-1:140 |

*Due to WMSDs

Engineering controls (lift equipment, workstation changes, tool redesign) proved more effective than administrative changes (job rotation, work practices, team lifting), or training with no other interventions.

