

# How Ergonomic Seating Works to Increase Productivity

This is a rough description of what happens as the workday progresses. The bottom line represents the worker's productivity using normal circumstances, while the top line represents the worker's productivity using ergonomic furniture and equipment. Whatever the worker's measured output is, it is at its peak at the beginning of the day (allowing for a certain amount of "getting started" momentum), when the employee has the most energy, etc. As the day wears on, his or her productivity declines, until they leave, worn out, at the end of the day. Ergonomic equipment enhances productivity by slowing that decline in productivity, which gives you an average increase in output throughout the day. Increased output usually translates to increased dollars, and the payback on the ergonomic equipment can be figured accordingly.



## Increased Productivity Documentation (IRS Study)

The information listed below was documented by Orlin D. Hecox, Industrial Engineer for the Austin Service Center of the Internal Revenue Service. The BodyBilt chair was tested in two separate instances, and was found to substantially increase productivity in both instances. Mr. Hecox may be reached at P.O. Box 934, Austin, TX 78767; (512) 462-7870.

As a means of proving [to the IRS] that a properly designed and adjusted ergonomic chair could make a substantial difference in worker productivity, a test was initiated by the Industrial Engineering Staff at the Internal Revenue Service's Austin Service Center. The operator in each case was a data entry operator on permanent staff, well-experienced in his/her job function. Production histories for each employee were available, measured in terms of documents per hour.

In two separate studies, only the chair was replaced in two distinct units, with all other production criteria remaining consistent. The test was to determine only the chair's contribution to production for a particular test week (40-hour week). Performance during the test week was compared to the average production from prior weeks. The test results (Figure A) showed an average increase in productivity of eight percent (8%).

While a portion of this improvement in production was possibly due to some increase in the production rate, each operator expressed the opinion that a good portion of the increase was due to the operator being more comfortable [in their seated posture], thereby being able to produce for longer periods without the need to move around, take a break, etc. Comfort and ease of adjustment to fit different anatomies were important contributions to increased production.

Although an eight percent (8%) improvement in overall productivity is significant considering the number of employees that accomplish data entry, the actual increase may be higher yet. In this career field, 5.21% of total direct hours are used as sick leave. Of that total, approximately forty percent (40%) of sick leave is attributable to neck, shoulder, and back discomfort. We expect sick leave for this type of ailment to be reduced during this next year [due to our purchase of the BodyBilt chair].

**Figure A. Partial Listing Of Test Results**

Program	Historical Production Rate (Documents/Hour)	Production Rate Using BodyBilt (Documents/Hour)	Change (%)
A	86.9	104.8	+20.6%
B	2466.0	2614.0	+06.0%
C	1485.0	1658.8	+11.7%
<i>Actual Average Of Total Sampling = 8%</i>			

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INTERNAL REVENUE SERVICE  
EVALUATION FOR PRODUCTIVITY SAVINGS  
WORKSTATION MODULE COST JUSTIFICATION ANALYSIS  
USING THE BODYBILT CHAIR

1. Job Title / Position: GS-3, Step 5

1.1	Average Annual Salary	\$ 14,203.00
1.2	Average Annual Fringe Benefits	
1.3	Estimated Annual Floor Space Costs	
1.4	Annual Energy Costs	
1.5	Average Annual Equipment Cost	
1.6	Total Annual Direct Costs	\$ 14,203.00
1.7	Total Furniture Purchased	\$ 550.00
	Furniture Life Expectancy (warranty years)	7 (84 months)
	Furniture Purchased	
	BodyBilt Model #	Cost / Unit
	J757-A	\$550.00

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2.	.08 Productivity Increase Factor	X \$14,203.00	= \$1,136.24
		Total Annual Direct Employee Costs (line 1.6)	Annual Productivity savings per employee

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3.	100% utilization of the workplace (decimal value)	X \$1,136.24	= \$1,136.24
		Annual Productivity Savings per Employee	Adjusted Savings per Employee

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4.	\$1,136.24 Adjusted Savings per Year per Employee (line 3)	/ 12 months / year	= \$94.68
			Avg. Monthly Savings per Employee

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5.	\$550.00 Investment Cost of Furniture (line 1.7)	/ \$94.68	= 5.81
		Average Monthly Savings / Employee	Number of Months to Payback on Furniture

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6.	84 Life of Furniture (in months)	- 5.81 Months to Reach Payback	X \$94.68	= \$7,403.03
			Average Monthly Savings / Employee	Total Savings per Employee

7. Analysis For Various Numbers of Employees

\$7,403.03 (savings / employee)	X 100 employees	= \$ 740,303.00 *
	X 200 employees	= \$ 1,480,606.00 *
	X 300 employees	= \$ 2,220,909.00 *

\* Total Savings - Life of Furniture