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# **RSIGuard Software: User Perception and the Return on Investment**

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## Introduction

Proving a connection between the reduction in reportable injuries and the use of a particular ergonomic intervention has been a historically difficult process. Part of the reason for this is that a large number of potential factors – occurring over long and complex exposure histories – are believed to be the cause of reportable injuries.

It is definitely possible, however, to measure a workstation user's perception as to whether or not a particular intervention has been helpful. In this report we look at: (1) user perception of the benefit of the ergonomic software package RSIGuard; (2) how user perception of benefit relates to user perception of injury; and (3) expected return on investment (ROI) based on results from several studies as well as data presented in this report.

## A Brief Overview of RSIGuard

RSIGuard is ergonomic intervention software designed to prevent and manage repetitive strain injuries.

RSIGuard has three categories of ergonomic tools: 1) tools to affect user behavior (e.g., BreakTimer, ForgetMeNots, ErgoCoach, and the Work Restriction Manager); 2) tools to reduce exposure to strain (e.g., AutoClick and KeyControl); and 3) tools to understand the user's work patterns (e.g., UserInsight, Desktop Risk Action Report, GroupInsight). Most users experience only 1) and 2) while ergonomics program administrators will use 3). More detailed information about RSIGuard is available at [www.rsiguard.com](http://www.rsiguard.com).

## User Perception of the Ergonomic Benefit

Thousands of users download a free 45-day trial of RSIGuard from the RSIGuard website each year. Each person who downloads RSIGuard is prompted for an e-mail address. All users who provide a valid e-mail address are sent a follow-up survey within four months after they download RSIGuard, regardless of whether or not they purchase or continue to use the software.

One of the questions in the survey is: "If you have used other ergonomic products to improve your computer health (e.g., chairs, adjustable keyboards or keyboard trays, alternative pointing devices), how would you rank RSIGuard's relative importance compared to those products?" This question is designed to measure a user's perception of the benefit of using RSIGuard in comparison with other ergonomic products.

An important premise in this report is that user perception of the ergonomic benefit of RSIGuard is inversely related to the probability that a user will report discomfort or an

injury from computer use. In other words, if the user feels their ergonomic situation is working, the user is less likely to feel significant discomfort. User perception of the ergonomic value of RSIGuard is a function of: 1) the user's perceived level of discomfort before and after using RSIGuard; 2) the user's perceived belief at the outset that RSIGuard is logical and will be helpful; and 3) the user's experiential interaction with RSIGuard.

Although a perceptual measurement is not a direct indicator of injury reduction, a user's perception of discomfort or injury is the key trigger of reportable injuries. Therefore it is reasonable to hypothesize that there is an inverse relationship between a user's perception that an intervention is helping and a user's perception that they have an injury.

1,641 surveys were analyzed, and the responses were organized into six categories:

1. The user's response categorically identified RSIGuard as the single most important ergonomic product he or she uses.
2. The user's response identified that RSIGuard was at least as important as any other ergonomic product he or she uses.
3. The user's response identified that other than one other ergonomic product, RSIGuard was at least as important as any other ergonomic product he or she uses.
4. The user's response identified that RSIGuard was considered valuable, but not as valuable as two or more other products.
5. RSIGuard was not considered to be as valuable an ergonomic product as several other ergonomic products.
6. The user did not answer this question or did not offer an obvious indication as to his or her ranking of RSIGuard as compared to other products.

Raw results for the six response categories were as follows:

<b>Response</b>	<b>Number of Respondents</b>	<b>% of Total Respondents</b>
Most important product	365	22.2%
At least as important	707	43.1%
At least as important except for one other	197	12.0%
Valuable, but not as much as two or more other products	97	5.9%
Not as valuable as several others	23	1.4%
No information	252	15.4%
<i>Total</i>	<i>1641</i>	<i>100%</i>

**Table 1. Summary of the relative value of RSIGuard software.**

Due to the lack of ranking information from the “No Information” respondents, this discussion will exclude their responses. Among this last category of respondents, some users responded to the survey in essay form and did not address the issue of ranking RSIGuard. In other cases, responses discussed aspects of RSIGuard or other products, but never clearly gave any indication of perceived relative value. Therefore, in order to interpret RSIGuard’s ranking, it is useful to look at the normalized data with results from the “No Information” category removed:

<b>Response</b>	<b>Number of Respondents</b>	<b>% of Total Respondents</b>
Most important product	365	26.3%
At least as important	707	50.9%
At least as important except for one other	197	14.2%
Valuable, but not as much as two or more other products	97	7.0%
Not as valuable as several others	23	1.6%
<i>Total</i>	<i>1389</i>	<i>100%</i>

Table 2. Summary excluding the “No information” respondents.

A histogram of the data follows:

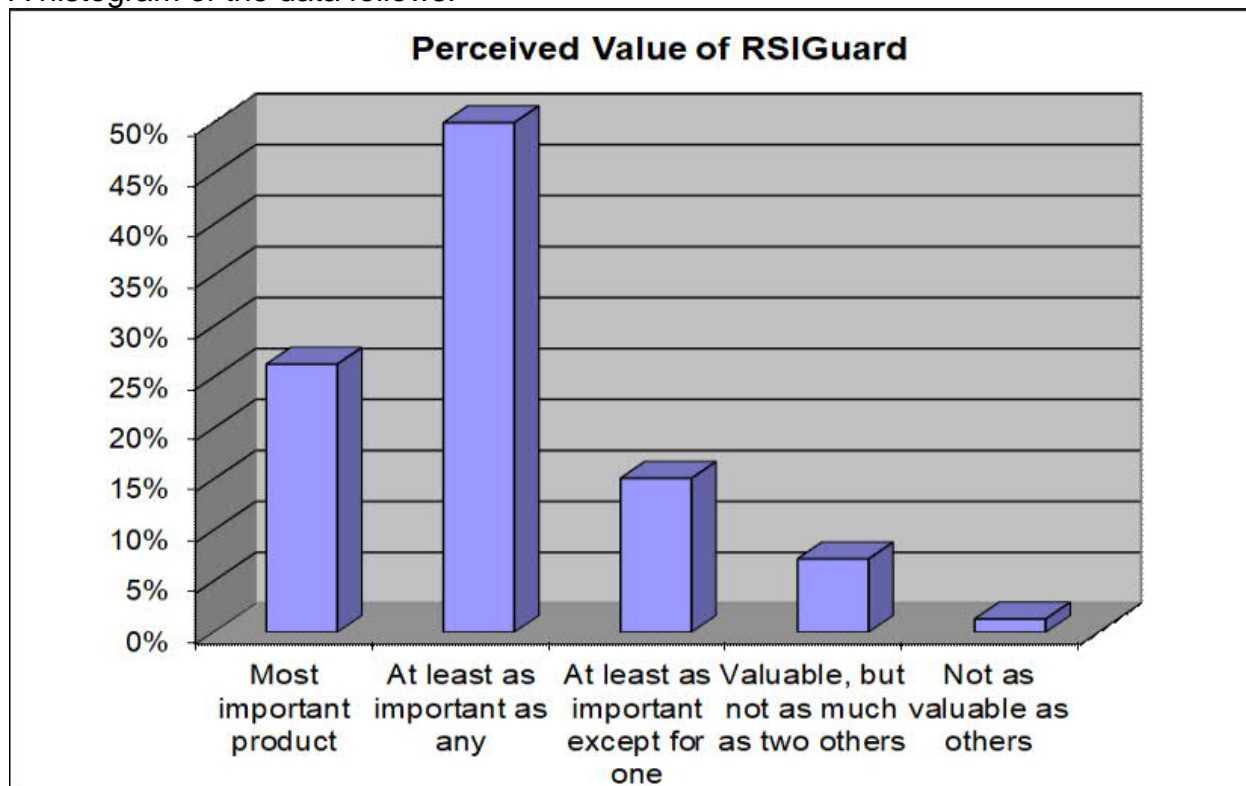


Figure 1. Survey respondents’ perception of the relative value of RSIGuard.

91.4% of the respondents ranked RSIGuard in the top two of ergonomic products used. Among this group, 77.2% said RSIGuard was at least as important or more important than any other ergonomic product they were using. Many users pointed out that, even though other devices were important, they were still in pain if they did not practice the behavior improvements that RSIGuard motivated.

Comments in survey responses most frequently attributed benefits to three of RSIGuard's features: BreakTimer, AutoClick, and ForgetMeNots, in that order. Some of the benefits attributed to the AutoClick feature were actually associated with the KeyControl feature (e.g. drag/lock hotkey, double click hotkey). Benefits were also associated with other features such as the Work Restriction manager or UserInsight graphs that helped users understand how much they were working.

## RSIGuard Compared to Other Ergonomic Products

The suggested retail price for a single licensed copy of RSIGuard Stretch Edition is USD\$65, which is significantly less than most typical ergonomic remedies. A review of single-unit pricing for various ergonomic devices is shown in the following table:

<b>Product Category</b>	<b>Typical Price</b>	<b>Price relative to RSIGuard Stretch Edition</b>
Ergonomic Chairs	\$500	769%
Sit-Stand Desk	\$750	1,154%
Ergonomic Keyboards	\$190	292%
Ergonomic pointing devices (e.g., mouse, touch-pad, trackball, etc.)	\$90	138%

**Table 3. Price comparison for various office ergonomic products, in US dollars.**

Like RSIGuard, all of the hardware products in Table 3 offer volume pricing. But because RSIGuard is software, when volume pricing is considered, it becomes relatively even less expensive per user than other ergonomic products.

Although ergonomic software is not a replacement for physical ergonomics improvements, when budget is limited, RSIGuard may be a significantly more cost-effective solution than other products – especially when ergonomic products are provided to a large percentage of an organization’s employees.

Ergonomic products also carry indirect costs. For example: a sit-stand desk may need to be installed by a facilities person; IT staff time may be required to install a new keyboard or pointing device and its associated software; or ergonomics staff time may be used to help train employees to adjust a new chair. RSIGuard also carries indirect costs. IT support time may be required to install RSIGuard on the user’s computer if users are not able or are not permitted to do so themselves. But unlike hardware, in most cases the RSIGuard installation process can be automated, and thus applied quickly to hundreds or thousands of users.

## **Measuring the Return on Investment**

The primary reason to invest in ergonomic products is the return on investment, or ROI. In this discussion, we assume ROI includes financial benefits, improvements to physical and emotional health, as well as other benefits to employees and their organizations related to morale and productivity.

The average worker injury costs an organization US\$40,000 in direct medical and indemnity expenses, depending on the severity and treatment of the injury<sup>1</sup>. Indirect costs associated with lost productivity, training of temporary or permanent replacement employees, reduced morale, and other factors increase this cost. Furthermore, the indirect costs associated with lost productivity apply also to the significant percentage of employees who experience discomfort, but do not have reportable injuries (estimated to be as high as 50% in many organizations)<sup>2</sup>.

There is an obvious health benefit to employees who use ergonomic products that can reduce discomfort and prevent injuries.

In a study conducted by a Canadian power company, 71% of RSIGuard users reported improvements such as reduced discomfort after using RSIGuard for only three weeks. (The study was discontinued because the company was sufficiently convinced and thus purchased a license.) A study performed by a California energy company found that 83% of their pilot users felt RSIGuard was useful within a six-week study period. A study at a California semiconductor company found that 85% of pilot users would recommend use of RSIGuard to others.

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<sup>1</sup> National Safety Council - <https://injuryfacts.nsc.org/work/costs/work-injury-costs/>

<sup>2</sup> U.S. Bureau of Labor Statistics.

A NIOSH study<sup>3</sup> and a Cornell University study<sup>4</sup> both showed that taking breaks is believed to be an independent factor reducing the risk of computer-related repetitive strain injuries. In the survey described earlier in this report, 91.4% considered RSiGuard to be one of the most important factors in avoiding discomfort and injury. Therefore, it is reasonable to believe that RSiGuard will reduce discomfort and reportable injuries.

Because RSiGuard is an effective, relatively inexpensive solution, it also has a comparably high ROI. If even a single injury claim is avoided, most organizations would find that the cost of an RSiGuard license would likely be recouped within the first year.

Furthermore, RSiGuard may not only reduce injury frequency, but injury severity as well. RSiGuard should also be expected to reduce the direct and indirect costs associated with discomfort in non-reportable injuries. Finally, the NIOSH and Cornell studies suggest that RSiGuard may enhance productivity as well, even for employees with no reported discomfort.

Individual situations exist where a particular physical ergonomics improvement (e.g., keyboard, ergonomic chair) is critically important to an employee's health. However, for the general office population, low-cost effective software like RSiGuard – which changes a worker's unhealthy work patterns and reduces strain exposure – is likely to have a greater ROI than any other category of ergonomic product. Furthermore, features in RSiGuard like ErgoCoach will help ensure that many of the physical ergonomic improvements are optimally used. For example, through training for and reminders to use a sit-stand desk.

## Conclusion

People who use RSiGuard tend to believe it is one of the most important tools they have to protect themselves from discomfort and injuries associated with computer use. This perception corresponds with actual effectiveness at reducing reportable injuries.

Because RSiGuard is quite inexpensive compared to other ergonomic products, the return on investment (ROI) for the general workforce population is likely to be higher than for other categories of ergonomic products. Software is clearly an important component of an organization's ergonomics strategy.

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<sup>3</sup> May 22, 2000, news release from the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services.

<sup>4</sup> Cornell Human Factors Laboratory Technical Report RP9991, Cornell University.