

Results of the Study to Evaluate Optimal Office™ Final Report

At an Aerospace Corporation, USA | August 2005 – January 2006

Logisens Corporation conducted a case study at offices of an aerospace corporation. The workplaces were in a cubical environment. The objective was to test Optimal Office™ in PC workplaces in order to evaluate its usefulness and effects. For a description of the device and the program see the appendix.

LOGI SENS

MEASURES, STUDY DESIGN

A test group of users of Optimal Office™ was chosen from volunteers. The test group, which was given Optimal Office™, had 92 members. They worked at computer workplaces in cubical office environments, at least 5 of 8 hours at the computer, in tasks requiring at least occasional use of the mouse. In August 2005 a one-hour introduction and training for the Optimal Office™ device and program and the first questionnaire assessment were conducted. Further questionnaires were given to the test group in December 2005 and January/February 2006.

Data from the study questionnaires

Four topics were tested: Burnout, work stress, life and job satisfaction, productivity. The following questions were used. Every question had a scale on which users had to circle one of the answers:

Burnout

21 questions on a scale from 1 – 7 (from Pines A, Aronson E, Kafry D. Burnout: From tedium to personal growth. New York: Free Press, 1981)



How often do you have any of the following experiences in terms of your work? (in the last 4 to 6 weeks) Please use the scale.

1. Being tired
2. Feeling depressed
3. Having a good day
4. Being physically exhausted
5. Being emotionally exhausted
6. Being happy
7. Being “wiped out”
8. Feeling “burned out”
9. Being unhappy
10. Feeling rundown
11. Feeling trapped
12. Feeling worthless
13. Being weary
14. Being troubled
15. Feeling disillusioned and resentful about people
16. Feeling weak and helpless
17. Feeling hopeless
18. Feeling rejected
19. Feeling optimistic
20. Feeling energetic
21. Feeling anxious

Work stress

Seven questions on a scale from 1 – 7 (Job Characteristic Questionnaire from: Etzion D. Moderating effect of social support on the stress-burnout relationship. *Journal of Applied Psychology* 1984; 69:615-622)

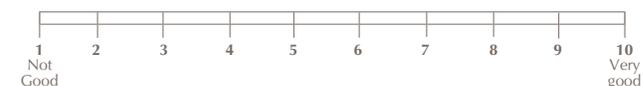
In my work (in the last 4 to 6 weeks):

1. I feel overloaded

2. I experience competitiveness
3. I feel not worthy
4. I have difficulties in decision making
5. I have impossible duties and responsibilities
6. I feel overextended in terms of deadlines and obligations
7. I have conflicting demands

Life and job satisfaction

Three questions on a scale from 1 – 10, (from Strauss-Blasche, G., University of Vienna, 2003)



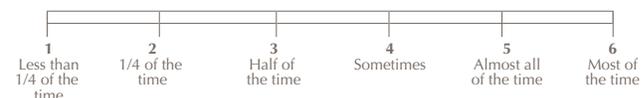
Rate on the scale your current:

1. Life satisfaction
2. Job satisfaction
3. Well being

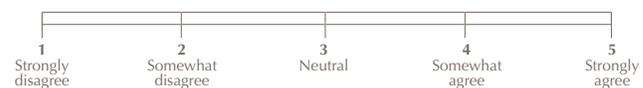
Productivity

Five questions on a scale from 1 to 4 to 6.

1. Productive time spent working on the tasks assigned to me:



2. I meet the target quotas and goals:

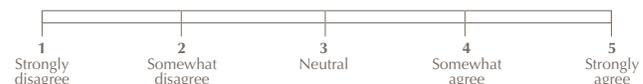


3. Going beyond what is expected of me to make customers

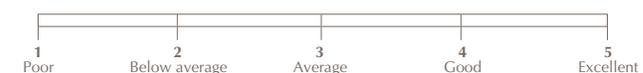
happy:



4. I respond quickly and courteously to fulfill customers needs:



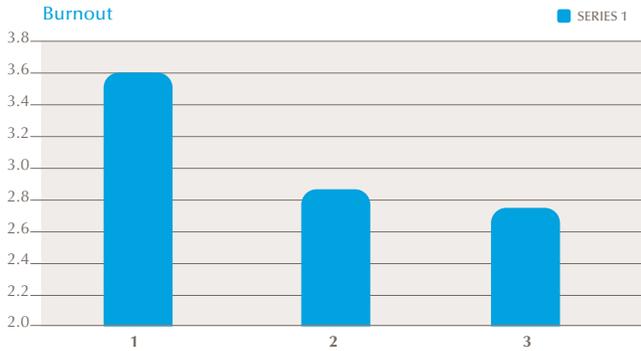
5. The overall quality of service that I provide is:



PSYCHOLOGICAL MEASURES, RESULTS

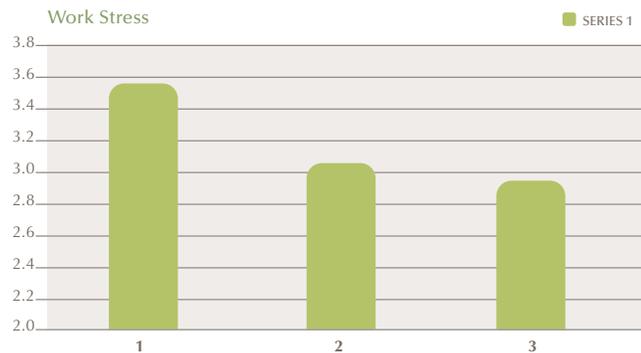
Burnout

The test group shows a decrease of the burn out rate of 23.5% when compared to itself, starting with the first data point. The data seems to indicate a leveling out of the reduction of burn out, the delta of the reduction is about 25 - 30%.



Work stress

The test group shows a decrease of the subjective work stress feeling of up to 16.7% when compared to itself, starting with the first data point. The data seems to indicate a leveling out of the reduction of work stress, the delta of the reduction is about 20 - 25%.



Life and Job satisfaction

The test group shows an increase in overall life and job satisfaction of 12.5% compared to itself, starting with the first data points. The data seems to indicate a leveling out of the increase of life and job satisfaction, the delta of the increase is about 15 - 20%.



PRODUCTIVITY MEASURES, RESULTS

Productivity and Quality of Service

The test group shows an increase of 3.6% when compared to itself, starting with the first data point. *Only 30% of the questionnaires were returned for the second data point.



Fifty Questionnaires Were Completed For This Report.

QUOTES BY USERS OF OPTIMAL OFFICE™

August 2005 to February 2006

Impressions and quotes from users after 6 months of the case study:

- “I would like to see everyone take an Optimal Office break during a webcast.”
- “I’ve overcome the ‘do-it-later syndrome’—this is a major shift for me in how I relate to these trainings and their effectiveness.”
- “Just doing the pop-up trainings every day has made a difference.”
- “I enjoy the new pictures! Whenever stress comes on, I now know deep breathing DOES help!”
- “The novelty of the [first set of] trainings have worn off, so I am happy that a new module is available as a way of keeping me engaged.”
- “I love the stretching exercises—I wouldn’t know what to do without them.”
- “I realized one day when I was on an airplane, stressed out, that I could do the trainings from Optimal Office... and that they can work away from the computer.”
- “I walk through some of the exercises while I am on the treadmill. Once I develop awareness from the Optimal Office program, I can apply it to many different situations.”
- “I know the mouse is a prototype but I still find it difficult to use.”
- “This has been an eye opening experience! My level of awareness has increased dramatically and has encouraged me to make changes in my life.”
- “I wish everyone in my department could do this program!”
- “Can you bring it to the other locations here? My friends want to do this program!”

PARTICIPANTS USE OF THE PROGRAM

The company requested that we track participant’s use of the program in order to see how much and how often participants did the exercises. In the following samples, individual graphs of actual usage are reproduced.

This data needed to be uploaded by participants onto a URL site specially created by Logisens to maintain confidentiality. Twenty three graphs were captured. There were two conditions which impacted the collection of data for this round:

1. The switch over to XP operating systems at their site continued to cause chaos and in a number of cases loss of data for the user.
2. In January we introduced the second training module; Stress Management. For a variety of technical reasons such as easy access to program downloads and XP changeover some participants made the switch easier and faster than others.

This means that some people continued using *Module I, Stress Care*, up until now while others made the switch to *Module II, Stress Management*. Nevertheless patterns continue to reflect strong results in success rate and use of program:

Module I: Stress Care

- The average “Success rate” for Module I (number of trainings offered/performed) was 65.4%
- The average use of the program (number of days they used the Program/number of days they were on the computer) was 65.8%.

Module II: Stress Management

- The average “Success rate” for Module II (number of trainings offered/performed) was 66.0%.
- The average use of the program (number of days they used the Program/number of days they were on the computer) was 72.9%.

Reading the Graphs: % during a day used is the left axis, time is across the bottom. Each time the user is on the computer and not using the program there is a grey area between “no data” and “0%”. If a person uses the stress management program while on the computer this is shown from 0% - 100%. The white areas between grey areas are either days the user was not on the computer or they did not have the program on.

The following five samples reflect different levels of usage:

1. Example of a consistent user of the program and trainings when offered (Figure 5).
2. Example of an occasional user (Figure 6).
3. Example of someone who started the program and has effectively dropped out (Figure 7).
4. Example of a very solid (>100%) Stress Care User (Figure 8).
5. Example of a User of Module II, Stress Management (Figure 9).

FIGURE 5 Example of a consistent user of the program and trainings when offered.

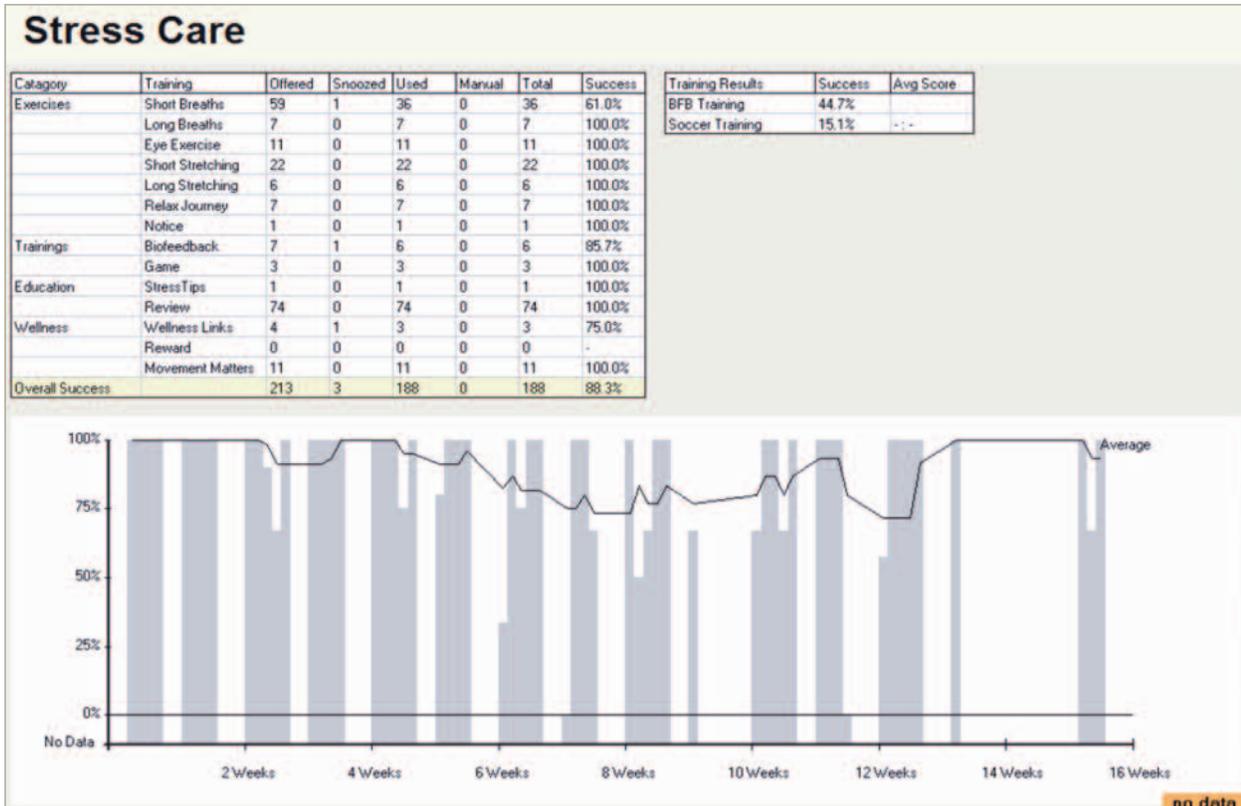


FIGURE 6 Example of an occasional user

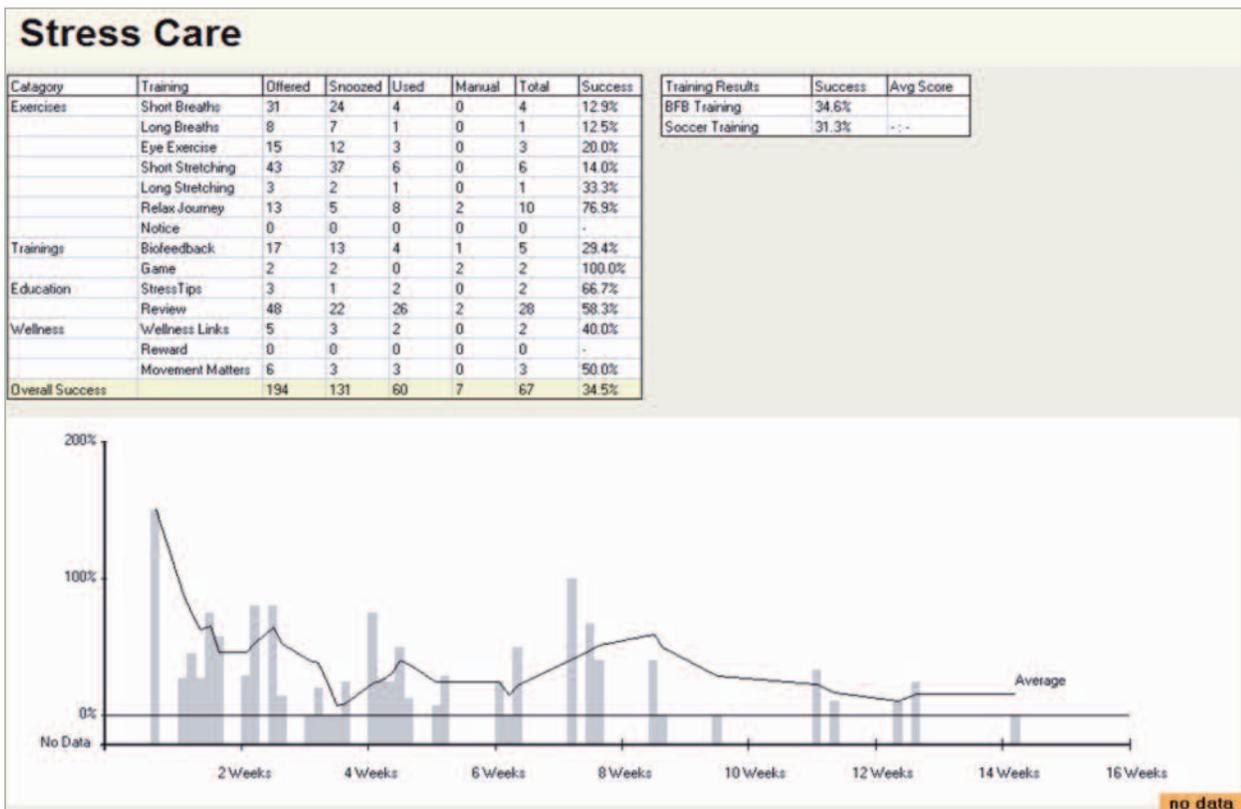


FIGURE 7 Example of someone who started the program and has effectively dropped out.

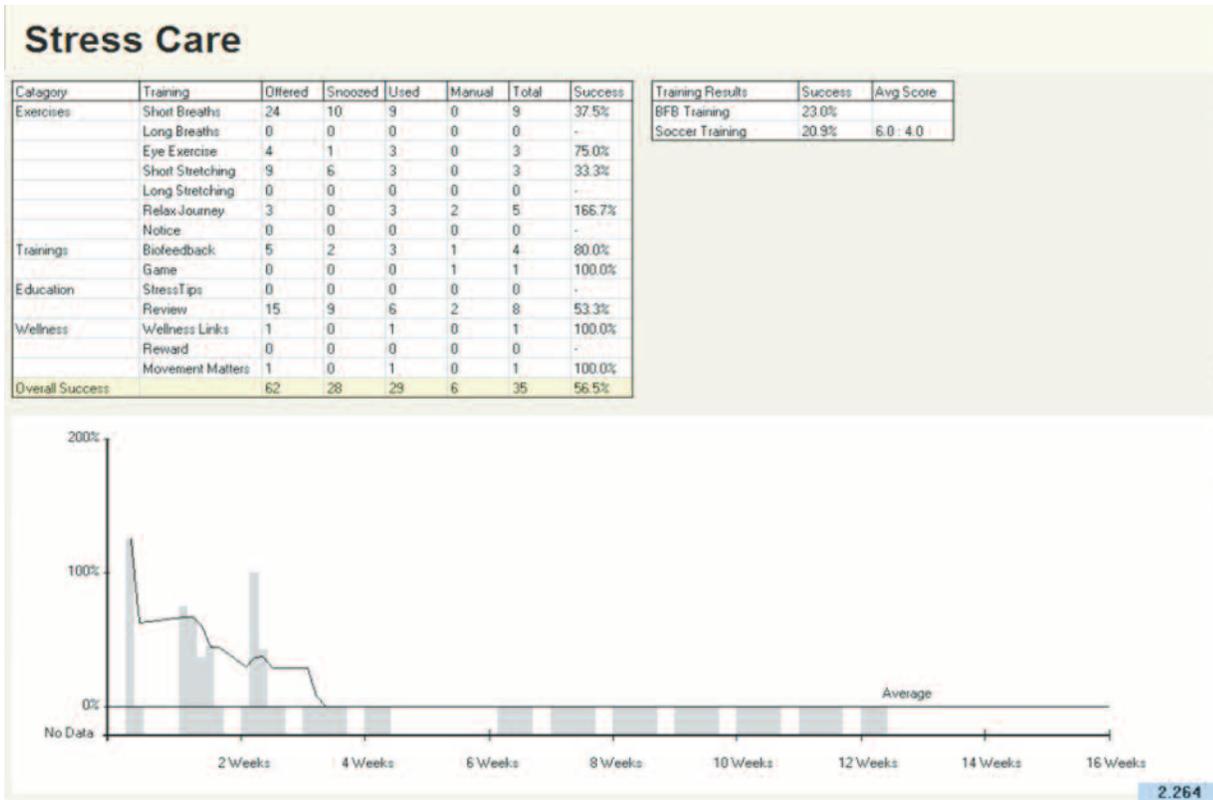


FIGURE 8 Example of a very solid (>100%) Stress Care User.

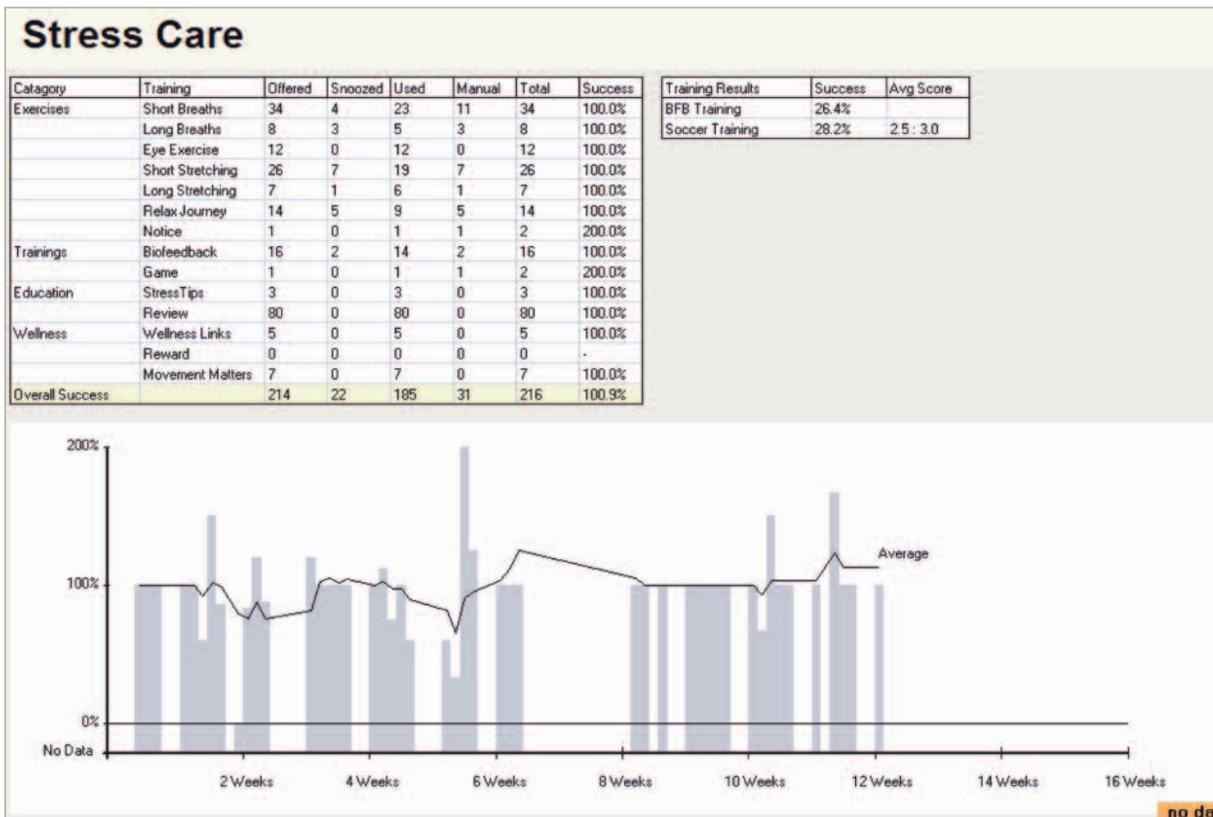
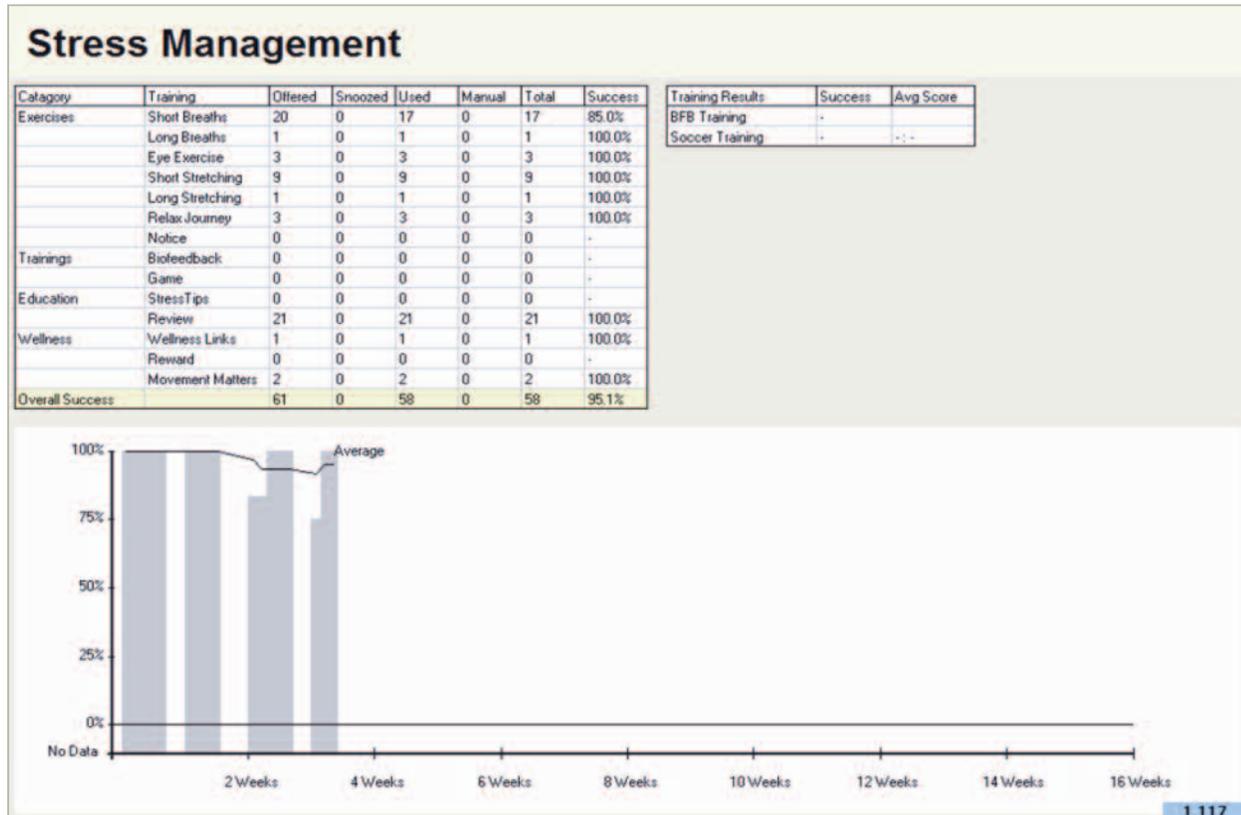


FIGURE 9 Example of a User of Module II, Stress Management.



APPENDIX

Description of Optimal Office™

Optimal Office™ consists of a special computer mouse device and software for the PC. The mouse works like a standard PC-mouse and in addition has sensors, which register physical data.¹ These readings are displayed as they occur on the PC, whenever the hand grips the mouse and uses it normally.

Display Options

The software program generates a direct feedback with the measured data and teaches popular, basic skills of stress management over time. It incorporates inconspicuous stress level indicators and scheduled stress reduction trainings. A slender bar on the side of the screen, a tiny icon or a number can be selected to display the user's stress level and its trend whenever the mouse is in use. These guides make the user aware of stress objectively.

Trainings

When a threshold of stress is reached, a cue alerts the user. A short training such as three deep breaths or a brief stretching session is offered. The user is prompted to release stress as it arises, thus preventing its accumulation and associated ill-effects. The training program includes a scheduler that brings up guided relaxation sessions two or three times each day. The total training time is 6 to 10 minutes a day.

¹ It measures the skin conductance level, a physiological measure reflecting the level of stress.

The trainings enable the user to cope with stress at the workplace, while remaining seated at the workstation. They are designed as short breaks within the workflow, to release stress in the body for a fresh start. Training options include guided breathing exercises, stretching, viewing relaxing picture series, biofeedback, and a biofeedback soccer game.

Review and Progress

A review shows the stored data, notes and time markers from a workday to evaluate the progress in stress management. Privacy is ensured by a password. Progress can be viewed by looking at the chart of actually done trainings in the course of the test time. Privacy is ensured by a password as well.

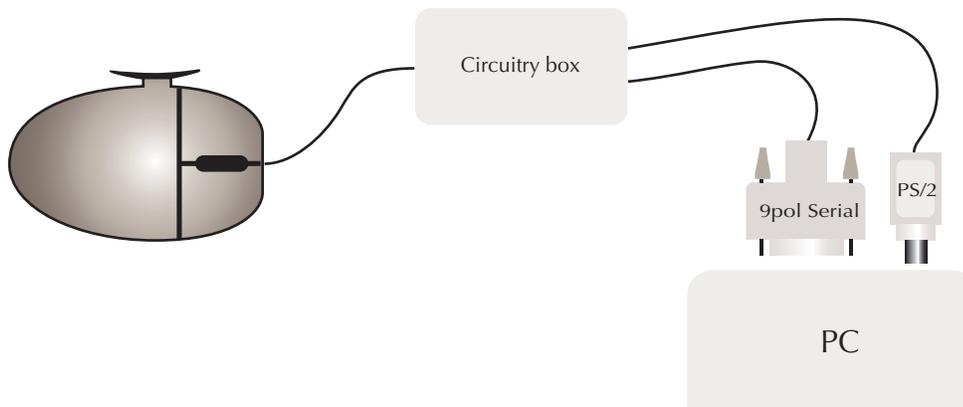
Description of the target PC-Systems

- Windows 98SE onwards
- 800x600 screen minimum
- 1 free, available 9pin serial port for the biofeedback data to be received*
- PS/2 port for the 2 button 1 wheel mouse with a standard driver*
- Multimedia is used for the stress management. Ideally the PCs will have a sound card and speakers or headphones to play wave-files. Logisens provides a Powerpoint viewer and will need working codecs for .avi and .wav.
- A local C:\ hard disk with 90 MB free storage room. The program starts from the autostart folder and has a desktop icon, it is strictly local, not needing a network to run**

- Connected and installed printer (optional).
- Ideally users would have a local email program through which they can access the support.

Description of the Sensor Mouse Device*

The equipment consists of an optical mouse with 2 buttons and one wheel with stress monitoring sensors, a box in the mouse cable for the circuitry and 2 cables to be plugged into the PC.



* an improved model with only one USB connection is available in the meantime
** an improved, web based program is available in the meantime.