StrainAnalysis©

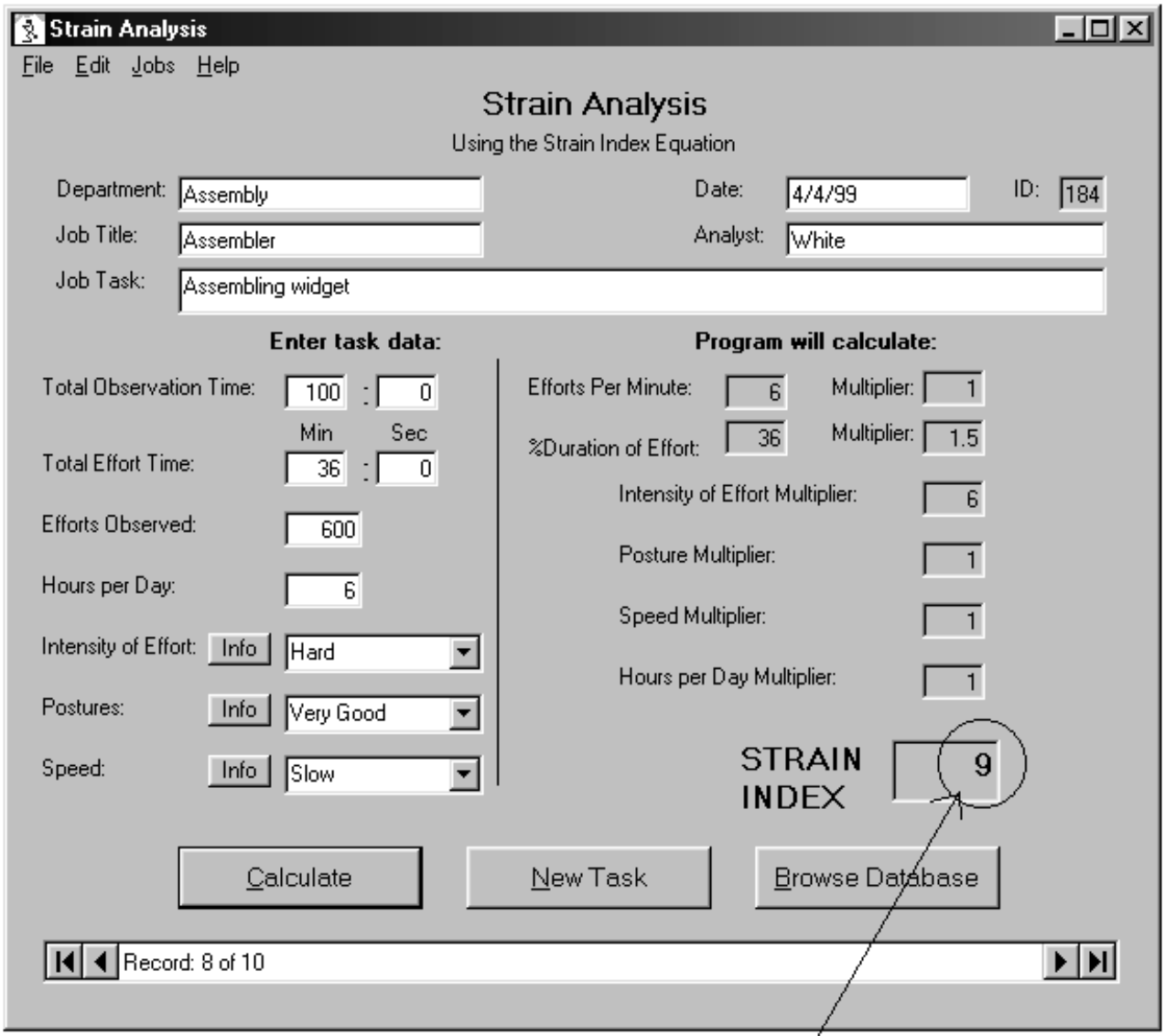
Job Task Analysis for the Prevention of Upper Extremity Work Related Musculoskeletal Disorders

By Occupational Health Logic
www.ohlogic.com

Use of StrainAnalysis© for Task Analysis and Ergonomic Remediation

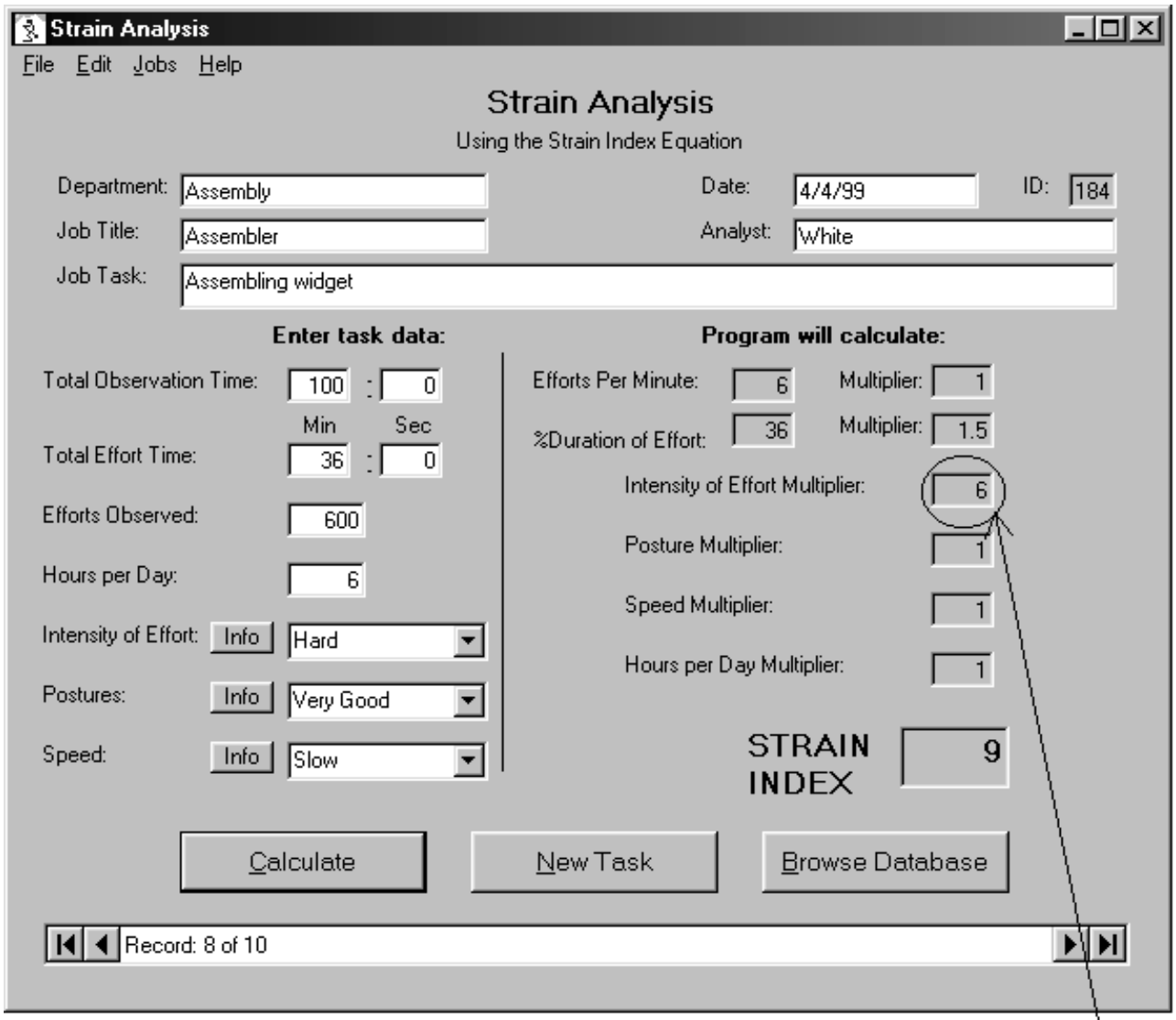
Example Problem

Responding to a problem with work related upper extremity musculoskeletal disorders occurring in employees performing an assembly task, the safety manager, equipped with a notebook computer running StrainAnalysis©, visits the assembly line to perform a task analysis. After observing employees performing the task, and discussing the perceived ergonomic stresses with them, the appropriate data are entered and the Strain Index is calculated:



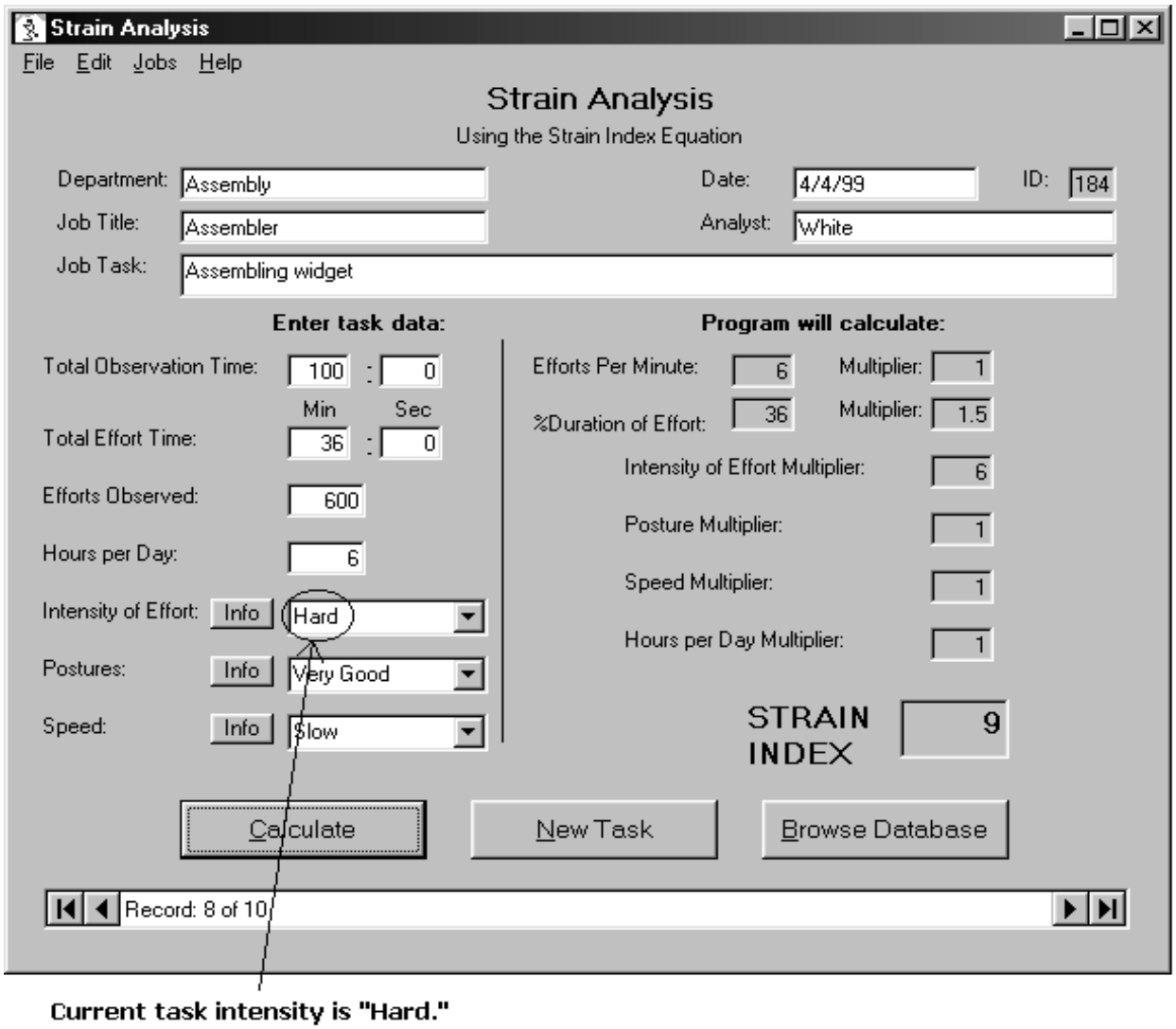
Strain Index is greater than 5, indicating an ergonomically stressful job task

Seeing that remediation is needed to bring this task into a more acceptable range, the next step is to look at the multipliers to see where changes need to be made. The safety manager and assemblers notice this:



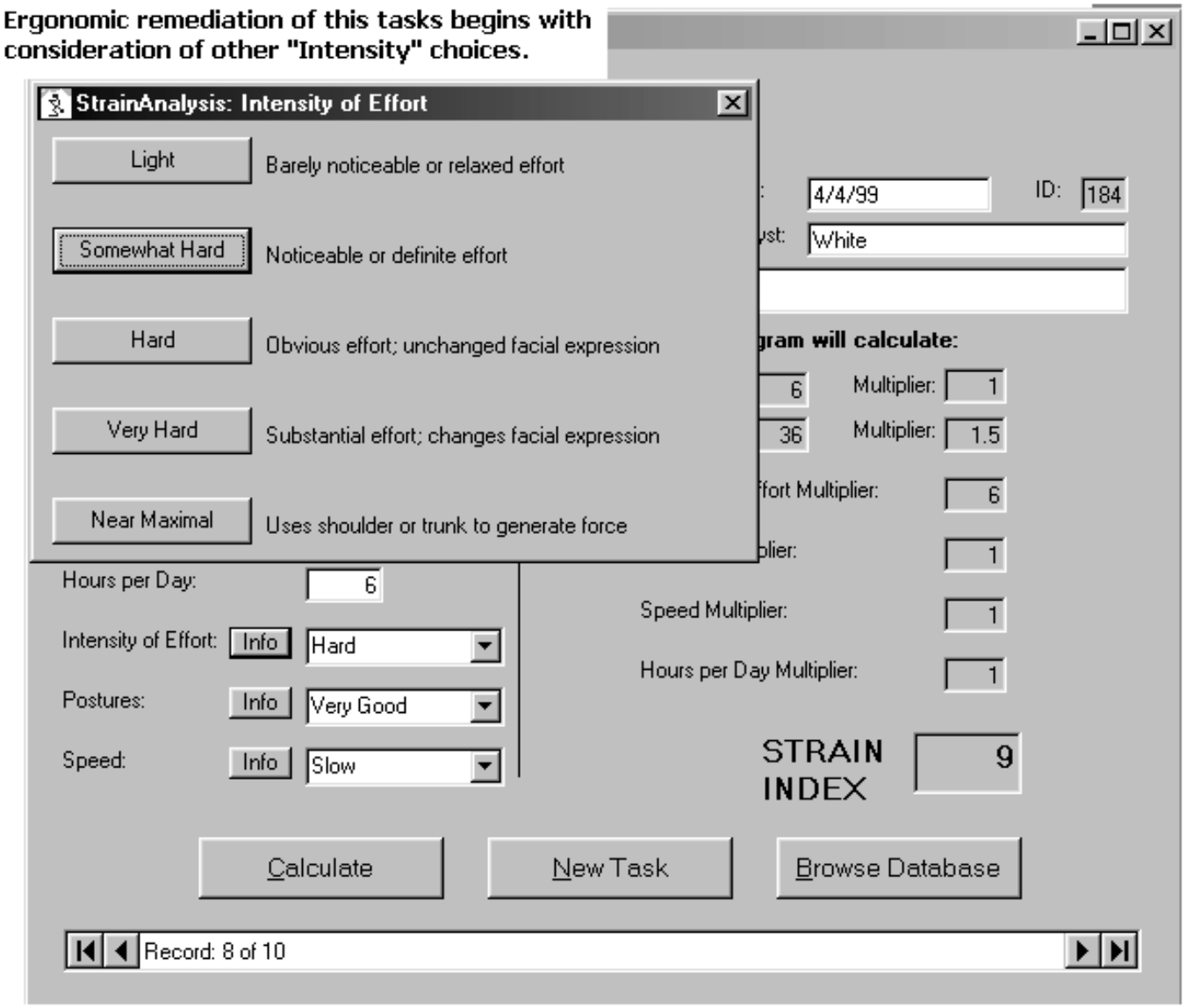
Intensity of Effort muliplier is the largest multiplier, and so attention is paid to reducing this one first.

The “Intensity of Effort” multiplier is a function of the perceived “Intensity of Effort” of the task. Looking again at the data entered for “Intensity of Effort” the team sees this:



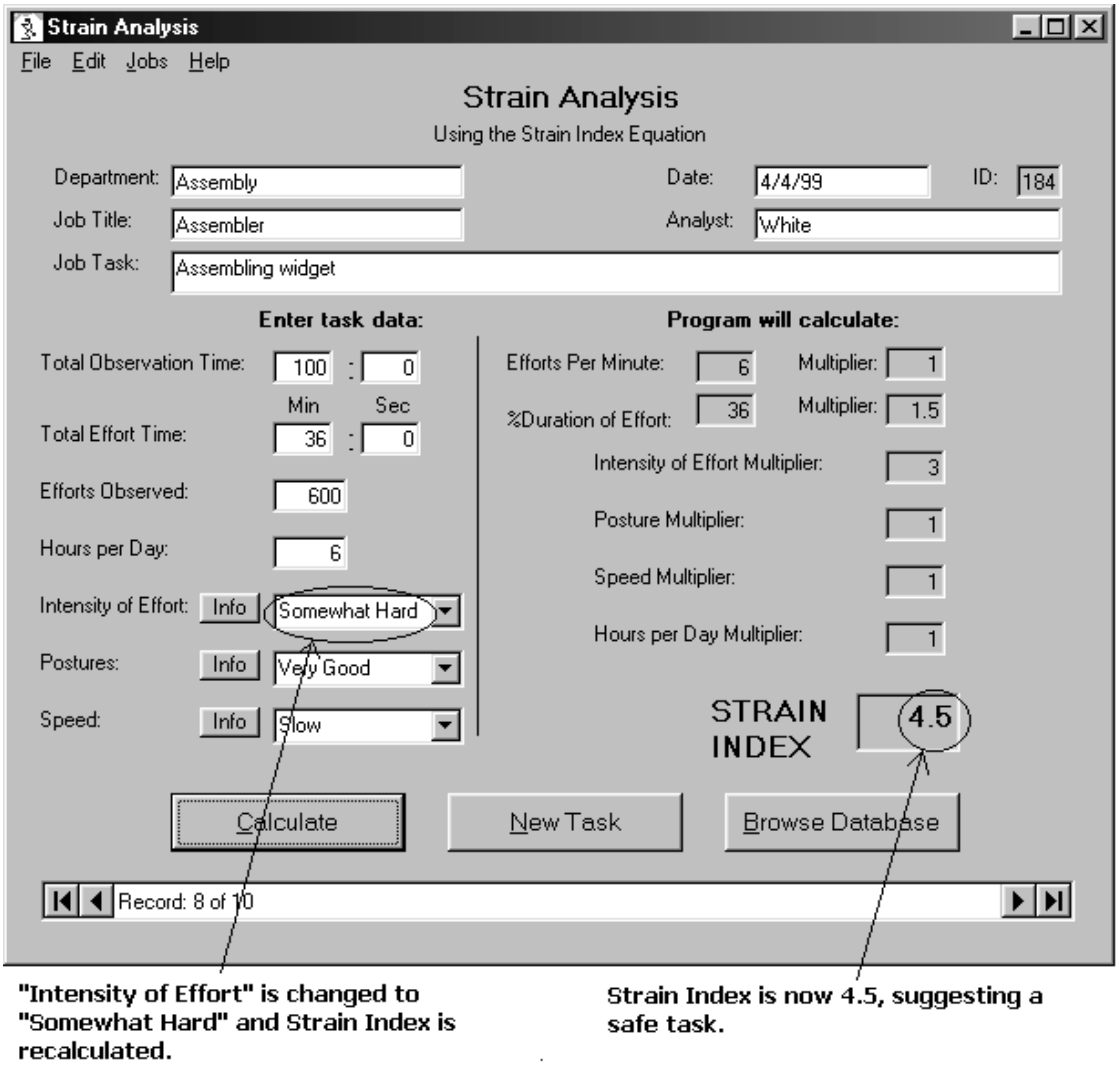
Current task intensity is "Hard."

The team agrees that the best way to improve the ergonomic characteristics of this task is to concentrate on the "Intensity of Effort." After some discussion and trial and error, changes are made in the work station which result in a decrease in the perceived intensity. The team reviews the choices which are available:



All agree that while the changes did not make it a light effort task, it is now in the category of "Somewhat Hard." The appropriate button is clicked, and the Strain Index is recalculated.

Now the data appear as follows:



This is now a safe task which is unlikely to produce upper extremity work related musculoskeletal disorders. A report is printed for inclusion in the job description file. The task data are saved to the database simply by moving to a different task or clicking “New Task.”

In a few simple steps, and without tedious mathematical calculation, a job task has been evaluated and fixed, with the data saved in hard copy as well as in the computer database, and this was all done at the work station.*

*If a laptop or notebook computer is unavailable, the data can be obtained using the worksheet, for entry later on a desktop computer.