



MAJOR SMELTING PLANT

Training the Trainer

Extended hours employees (shiftworkers) face considerable challenges compared to their day-working counterparts, including the inherent physical stress and social conflict of work around the clock. If not properly managed, employee health can be greatly affected, as shiftwork has been associated with an increased risk of cardiovascular disease, gastrointestinal disorders, obesity, diabetes, and obstructive sleep apnea. Sleep quality and quantity is often greatly reduced for those working at night, or starting early in the morning. In addition, family and social life can suffer, especially for those who work in the evening or on weekends.

These issues not only affect the employee and their families, but also the employer who incurs extra costs as a result of increased absenteeism, turnover, medical care, safety incidents and production errors. While all of these challenges can be effectively managed, the techniques that an employee can use to help mitigate shiftwork problems are not obvious, and, unlike other skill sets, cannot be “picked up on the job.”

Working closely with researchers, experienced shiftworkers and their spouses, CIRCADIANTM Technologies, Inc. has developed a highly informative program called Managing a Shiftwork Lifestyle that explores the problems associated with working rotating schedules, night shifts, and long, irregular hours. The program provides practical solutions for easing the day-to-day difficulties associated with shiftwork lifestyles, and adjustments needed to mitigate stress levels and family/ social conflicts.

To reduce per person costs and develop an in-house core capability to deliver the Managing a Shiftwork Lifestyle (MSL) training program on an on-going basis, CIRCADIANTM Technologies also offers a Train-The-

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Trainer program that teaches your in-house trainers on how to deliver the program to your workforce themselves. These could be master trainers, human resources personnel, safety specialists, supervisors, industrial hygienists, and even experienced shiftworkers or existing training staff, with no limit to the number of trainers who can participate in the program. This helps to ensure continuity of the program in the event of staff turnover.

The Train-the-Trainer program for in-house trainers is accomplished on-site through a four (4) day process. The first day is spent exclusively with the in-house trainers. This includes a comprehensive review of the program with the designated training staff, presentation of audio-visual materials, and extensive question and answer dialog. This session also reviews any specific needs of your shiftworkers that should be addressed during the training program. The second day is spent conducting a live session by a CIRCADIAN® trainer to a group of actual shiftworkers, with extensive review with the in-house trainers following the session. The third and fourth days would include live sessions conducted by the training staff and critiqued/supported by CTI.

As to the effectiveness of this training, a joint study by CIRCADIAN® and a major surface mining company recently found measurable improvements with a group of heavy equipment operators who were provided the training and educational support publications. These impacts were not just limited to areas of sleep, but also demonstrated improvement in overall health and well-being indicators due to improved timing and content of food.

Although there was no schedule change associated with the training, there were some significant differences between the pre- and post-implementation data with regard to the employees' perception of the schedule. For example, before the training, 41% found it "very" or

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“often” difficult to fulfill domestic responsibilities; after the training, only 23% felt that way. This change is attributed to a general improvement in overall management of work and family balance following the training. Similarly, 46% reported difficulty finding adequate time for entertainment and recreational activities prior to the training, compared to only 23% after the training. It is also striking that in the post-implementation survey, 77% felt that their overall health would improve with a different schedule, as compared to 59% in the pre-implementation survey. This could be the result of better understanding of how their own personal circadian rhythms, and their health and safety were impacted by the current schedule, coupled with the knowledge of how different schedule configurations might be easier for them to work.

Included in the survey were a series of scientifically validated diagnostic instruments, such as relative fatigue index, gastrointestinal index, family and social index, and sleep disorder potential. The post-implementation improvement in the gastrointestinal index was quite dramatic, dropping from a score of 17.9 to 13.6, versus a U.S. norm of 12.7. Heartburn, indigestion and other forms of gastrointestinal problems are frequent complaints for shiftworkers, so the significant downward trend from pre- to post-implementation results for this company were quite favorable. This correlated well with other survey results that indicated a high percentage of operators were more aware of good nutrition and were incorporating healthy eating habits into their lifestyle. The reduction in gastrointestinal score potentially represents a significant reduction in medical costs for the company.

Excessive use of caffeine, which is generally defined as drinking more than four 12 oz servings in a 24-hour period, decreased from 24% of employees to 16% during off-duty hours. Even more impressive was the decrease in excessive consumption during the

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night shifts, from 32% to only 8% of participants drinking 4 or more cups of coffee.

One of the more notable results from the sleep/wake/activity log data that was collected, was a significant increase in average daytime sleep length. The amount of sleep obtained during the daylight hours (when working night shifts) increased a full hour to 5.8 hours, as compared to the 4.8 hours obtained prior to the training (a 21% increase). This additional daytime sleep when working night shifts is attributed to a better understanding of sleep and sleep management techniques. This is further reflected by the fact that 67% of those surveyed reported getting more than 5 hours of daytime sleep when working night shifts, compared to only 45% prior to the training. This again illustrated a better understanding of sleep and commitment to improve one's sleep quantity and quality. More than half (54%) indicated making changes in their sleeping environment to further enhance their ability to get to sleep and stay asleep, especially during the daylight hours when they were working the night shifts.

Based on the results of this and other training studies, there has been a clear trend, employer costs decrease as a result of employee lifestyle training. This is further confirmed by the results from Circadian's national Shiftwork Practices survey. This cumulative survey of more than 10,000 managers of extended hours operations addressed the full spectrum of shiftwork issues, including absenteeism, turnover, policies and practices, and the level of shiftwork training provided to employees, etc.. For example, facilities that provided training to shiftworkers exhibited significantly lower levels of turnover and absenteeism. In fact, the turnover rate for facilities that provided shiftwork lifestyle training was only 7.6% compared to 11.4% for companies that did not provide any type of lifestyle training. These companies had substantially lower costs as a result of the lower turnover, amounting to average annual cost

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savings of \$952 per worker. These facilities also had reduced absenteeism (4.8% for companies that provided lifestyle training vs. 6.3% for those that didn't), saving an additional \$940 per shiftworker per year. Thus, total savings of \$1,892 per employee per year were indicated by this extensive survey.

Other results from the Shiftwork Practices survey show that morale is lower in facilities that do not provide any lifestyle training: 38% of facilities with no training have good to excellent morale, compared to 53% of facilities with shiftworker training, and 82% of facilities with training for shiftworkers and their families. There are even more savings possible, such as decreased health care costs, safety incident costs and workers' compensation costs, and increased productivity.

The results of both employer and employee analyses clearly indicate that shiftworker lifestyle training provides measurable benefits for both the company, its employees, and their families. In addition to improved alertness levels, health, and quality of life, such training can also reduce accidents, decrease legal liability, and reduce overall operating costs. As global competition becomes more and more demanding, companies must continue to reduce operating costs, particularly absenteeism, turnover, and human error related incidents. Training that will help employees better cope with their rigorous shiftwork lifestyle, combined with other support programs such as bio-compatible shift scheduling and staffing optimization, provide a new and largely untapped avenue of opportunity for making breakthrough reductions in operating costs.