

## Survey - Ergonomics in the Workplace

January 2005

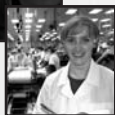
National Seafood Sector Council  
910 - 130 Albert Street  
Ottawa, ON K1P 5G4

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to the commitment from industry

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The opinions and interpretations in this publication are those of the author and  
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Canada



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Jennefer Griffith, Marketing & Communications Officer

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### **Consultants:**

Ergonomics in Motion  
Port Alberni, BC

Carl Butterworth

Tanja Yardley

Brent Armstrong

# Executive Summary

This Ergonomics survey and summary report have been commissioned by the National Seafood Sector Council (NSSC), which defines itself as “*an evolutionary organization which promotes a training culture and supports the development of a competitive and stable industry through it's greatest asset, namely people*”. ([www.nssc.ca](http://www.nssc.ca)). The NSSC implements strategies to meet the long-term human resource needs of the Canadian seafood processing industry.

Since the retention of human resources is a key factor in the competitiveness of Canadian companies, it is relevant to identify and address one of the major barriers to productivity, namely musculoskeletal injuries (MSI's). These sprains, strains and overuse injuries affect the joints, muscles and nerves and often result in consequences ranging from reduced productivity to significant time loss or long term disability with it's associated costs. In the Canadian workforce at large, it is estimated that time loss occupational injuries arising from MSI's resulted in a direct cost of 3.2 billion dollars to the Canadian economy in 1998 (Association of Workers' Compensation Boards of Canada, Work Injuries and Diseases, 1996-1998, Canada, 1999, p. 12-19). In British Columbia alone, the WCB statistics for 2002 indicated that the Fish Processing/Fish Reduction rate group had 478 accepted claims, costing a total of \$11,299,890 in claims costs with an average cost per claim of \$4402. This does not reflect the indirect costs associated with recruiting and training replacement workers, nor the other societal costs associated with short and long-term disability. While MSI's typically make-up 40 percent of time loss claims under the Worker's Compensation system, there is evidence that the seafood processing industry has an even higher rate of MSI than the national average across industries. In British Columbia, for example, the MSI rate was greater than 50 percent. Clearly, this is a significant problem with costly ramifications to both the employer and employee. Creating a safe, productive and positive workplace is critical to the success of all stakeholders in the industry.

Ergonomics is the study of human capabilities in relationship to work demands. In simplistic terms, ergonomics seeks to fit the person to the job and vice-versa. Ergonomic programs seek to reduce or

eliminate risk factors that lead to musculoskeletal and other types of injury. Ergonomics training can empower companies and individual workers to identify potential sources of injury, prevent potential hazards, and optimize working conditions.

The primary objective of the Ergonomics Survey was to review current practices and demand for training in the following areas:

- ▲ New employee orientation and skills training
- ▲ Employee refresher training
- ▲ Occupational Health and Safety training
- ▲ Specific Ergonomics training

The results of the survey were used to make recommendations pertaining to Ergonomics training and support.

The results of the Ergonomics survey indicated that most companies rely on their managers to take responsibility for health and safety issues. A large proportion of respondents (87 percent) also utilized a Joint Health and Safety Committee comprised of representatives from management and labour.

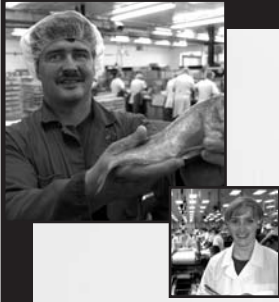
In terms of the make-up of the companies replying to the survey, the results indicated that most companies employ less than 500 people at one time. According to the survey, which is consistent with the most recent labour market assessment commissioned by the NSSC, there is a stable, long-term workforce (approximately 50 percent) co-existing with a transient or new workforce (approximately 50 percent). This is due to the highly seasonal nature of the work.

According to the 2004 NSSC Labour Market Information and Comprehensive Market Assessment:

▲ *“In 2003, there were 1369 seafood processing establishments in Canada of which 1001 had employees (i.e. were more than family businesses). Of these, 84 percent had less than 100 employees, 15 percent had between 100 and 500 employees and only 1 percent had more than 500 employees.”*

▲ *“... The labour force in the Canadian Seafood Processing industry as reported by the 2001 Census consists of about 46,000 people of which 30,000*





*(65 percent) are actively working, 10,000 (22 percent) are unemployed and a further 6,000 (13 percent) are no longer actively looking for work even though they still self-identify as being fish plant workers. This labour force has been in steady decline over the preceding 15 years from 60,000 people in 1986.”*

The distribution of respondents to the Ergonomics survey was somewhat proportional to the distribution of the seafood-processing workforce. Atlantic Canada represented 60 percent of our respondents, and, according to the recent labour market review, contains 70 percent of the processing workforce. British Columbia represented 22.5 percent of the respondents and contains 14 percent of the processing workforce.

In Canada, each province has its own occupational health and safety legislation, and organizations under federal jurisdiction are governed by the Canada Labour Code. Although the specific acts and regulations vary, the general principles remain the same: employers are responsible for maintaining the health and safety of employees at their work sites. Employees also have a responsibility to work safely and protect the health and safety of themselves, their co-workers and the general public where applicable. One of the objectives of the Ergonomics survey was to determine how knowledgeable companies are about current Occupational Health and Safety legislation. The results indicated that at least 5% of the respondents were not aware that any federal or provincial statute covered them. The degree to which the companies understood the health and safety regulations governing them was not clear within the context of the survey, but it was apparent that there was opportunity for improvement in this area.

In terms of actual Occupational Health and Safety programs or initiatives in existence, the results were quite promising. In accordance with provincial and federal law, most companies did have some form of Occupational Health and Safety Program, or at least an Occupational Health and Safety representative. The majority of respondents indicated that the Health and Safety Program currently in use was effective, although none went as far as to say ‘extremely effective’. On the other end of the spectrum, 5% of respondents did not regularly address health and safety issues, either because they did not identify any or because they were not adequately

equipped. It was encouraging to note that 67 percent of the respondents met regularly regarding health and safety issues and 92 percent reported consensus and implementation of recommendations most or all of the time. The other 33 percent of respondents who met less frequently about issues were indicative of room for improvement in the area of development of consensus and implementation of recommendations.

Of the Occupational Health and Safety programs identified by respondents, most (nearly 60 percent) did not include an element of ergonomics training. Programs that had an ergonomic component were not considered as “in-depth” training programs. It was evident that the majority of survey respondents had a basic understanding of the nature of ergonomics, but this knowledge was not disseminated to the workers in a consistent manner. This is due, in part to the lack of ergonomics training resources available.

The survey also queried the prevalence of safety training for new hires. Results indicated that less than 50 percent of company representatives who responded to the survey provide safety training on a consistent basis. Of the companies that do provide a safety orientation, the majority use verbal orientation (95 percent) or written booklets (60 percent), with a smaller percentage using video or multimedia presentations. Generally this training occurs formally or informally in the workplace.

Ergonomic training was mainly directed to the Joint Committees (82 percent) as opposed to the general production and maintenance workforce. The frequency of Joint Committee ergonomic training was extremely varied, ranging from once per month to less than once per year.

Only 26 percent of respondent companies currently provide ergonomic injury prevention training to the general production and maintenance workforce. Of the 25 percent, a further 50 percent provide this training in a formal manner via safety meetings at least once per year. The most common educational resource was printed material (67 percent), with occasional use of consultants (23 percent) and/or video training (21 percent).

These findings were consistent with the training survey results from the NSSC Situational Analysis carried out in 2002, which indicated that 72% of

respondents preferred “hands on” training methods. There was also a preference for on-site (43%) versus off-site training. Video training (28%) and classroom activities (27%) were favored over CD / Internet training (1%).

In spite of the low frequency of ergonomic training, a high percentage of respondents indicated the use of ergonomic strategies within the workplace. The majority (51 percent) utilized job rotation (typically 2 hour intervals), with lower proportions implementing workstation design (33 percent) and standard operating procedures (38 percent). These strategies are generally employed in an effort to reduce injuries and to improve productivity.

According to the Association of Workers Compensation Boards, occupational musculoskeletal injuries make up 40 percent of the lost time incidents affecting all industries, yet 61 percent of the operations surveyed had no specific strategy for dealing with this type of injury.

Over the past several years there has been a significant emphasis on early reporting and early intervention strategies to assist in the effective management of musculoskeletal injuries. This initiative has been driven by the Worker’s Compensation Boards across the nation. In spite of this, few respondents (less than 10 percent) reported a formal, standardized, written procedure for reporting and tracking injuries. This has some ramifications with respect to an employer’s due diligence requirements and liability exposure.

Based upon the results of this survey, the most frequent causes of injuries are repetitive strain (34 percent), lacerations (25 percent), slip and fall incidents (16 percent), awkward or static postures (14 percent), overexertion (12 percent), and production stressors (11 percent). The specific production stressors were ranked as follows: peak production (84 percent), extended production runs (71 percent) and overtime (66 percent). Changes in the size, weight or type of product being processed were also identified as a concern, although to a lesser degree. Each of these factors can be effectively addressed through ergonomic interventions.

A high proportion of respondents (54 percent) were dealing with lost time incidents. Of these respondents, 33 percent indicated that a proportion of workers had been off for more than 12 months.

Practical experience and clinical research has demonstrated an inverse relationship between the length of time off and the probability of returning to work, with a less than 1 percent success rate in individuals who had been off for more than 1 year.

In the process of planning and delivering ergonomics education, several factors must be taken into consideration:

1. Research has demonstrated that new and young workers are at greater risk of injury and make up a significant portion of disability claims (Canadian Survey on Youth Health and Safety, Association of Workers’ Compensation Boards of Canada).
2. There is also evidence that the aging workforce presents unique challenges from an occupational health perspective. According to the 2002 NSSC Situational Analysis, the average age of workers ranges between 40 and 50 years in 56% of the plants and over 50 years in 6% of the plants. Although the rate of injury is lower in this population, the length of disability is significantly higher as the injuries tend to be due to longstanding wear and tear as opposed to acute trauma.
3. According to the 2004 Labour Market Information and Comprehensive Market Assessment:
4. *“Education attainment levels in the sector are low – generally below levels in other food production and processing industries – reflecting the traditional minimal requirements of the work.”*
5. The document indicated that more than 50 percent of the workforce had less than a high school education.
6. The 2004 Labour Market Information and Comprehensive Market Assessment further indicated that 8.5 percent of the workforce was made up of immigrants to the country. A proportion of these immigrants may also have difficulties related to language.
7. Employers indicated that there are numerous barriers to training. These include : the short production season, the lack of accessibility of training courses, the cost of training, the shortage of materials and a lack of trainers.



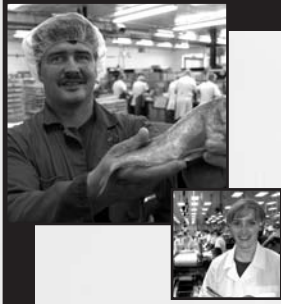


Since the workforce is made up of multiple age groups, cultures, education levels and experience levels, specific educational and training initiatives should strive to make the information concise and easily understandable by the layperson. It has been clearly indicated that written and visual media are currently preferred, and since the Joint Health and Safety Committee is the most common Occupational Health and Safety mechanism, it would seem logical to deliver training in small modules via the monthly joint committee meetings. If the information were broken down into 30-60 minute video modules, accompanied by a manual and a practical application component, then employers could choose to present training on a monthly basis. In the absence of a committee or if the training requires more flexibility, modules could be combined in such a way as to expedite learning through intensive half or full day courses. The Joint Committees would then be equipped with the skills to recognize and assess risks as well as the problem solving strategies to address them. The information could also be disseminated to the workforce at large through a brief summary video outlining basic information about safe work practices and postures; in essence, a “body” owner’s guide”. This could prove to be an invaluable, reusable tool for orientation and refresher training. Such a format would make on-site training easily accessible, cost-efficient, and flexible in terms of time and user friendly, thus overcoming the most common barriers to successful training.

It is also important to realize that effective ergonomics programming requires the active participation and input of all stakeholders in an effort to change the safety culture of the organization. Such a significant climate change requires introspection and on-going communication. Long before “Management of Change” became a business buzzword, the seafood-processing sector was awash with changes in technology and market conditions. It is evident that effective management of change strategies can positively influence an organization and boost productivity. Educational and training initiatives should also engage workers in the process of innovating and adapting to change through practical, problem-solving, and interactive activities.

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## Introduction

The strength and competitive edge of the Canadian seafood industry lies in its human resources. The industry has a skilled and dedicated workforce capable of maintaining high standards of quality and consistent production. Within this workforce, there exist a higher percentage of long-service and older employees. The challenge in the next decade will be the recruitment of new employees and the retention of these valuable individuals.

Seafood processing is by its nature a highly repetitive and cyclical industry. As a result, there is an increased incidence of repetitive musculoskeletal injuries. These injuries include, but are not limited to, sprains and strains of muscles, tendons and ligaments as well as nerve-related problems such as carpal tunnel syndrome.

The human and financial costs of these injuries are significant. In 1998, musculoskeletal injuries accounted for 40% of all time loss occupational injuries in Canada. This represented a total dollar value to the Canadian economy of \$3.2 billion (Association of Workers' Compensation Boards of Canada, *Work Injuries and Diseases, 1996-1998, Canada, 1999*, p. 12-19). Much of this cost is borne by industry in the form of compensation premiums, training of replacement workers, additional administrative time, and in the settlement and retraining of permanently impaired workers.

Ergonomics is the study of human capabilities in relationship to work demands. It seeks to reduce or eliminate risk factors (i.e. excessive force, awkward posture, repetitive movements) that lead to musculoskeletal and other types of injury as a result of work. This is accomplished through the implementation of workstyle strategies (education and training), administrative controls (job rotation, shift length) and engineering controls (tool design, line lay-out) within the production process.

With effective ergonomic training for managers, supervisors and workers, it is possible for operations to be self-sufficient in perpetuating safe work practices, recognizing risk factors and developing methods to reduce or eliminate them within their own operations.

A seafood processing operation that has successfully implemented a basic ergonomic process will:

- ▲ Reduce the incidence and severity of musculoskeletal injuries;
- ▲ Keep skilled and valuable people at work;
- ▲ Reduce absenteeism;
- ▲ Achieve greater production consistency;
- ▲ Achieve higher levels of quality management; and
- ▲ Improve operating profits by lowering injury costs and improving production levels.

When employees are taught to recognize risk factors that may lead to injury, they become empowered. As this leads to change and improvement in the overall operation, workers reciprocate by focusing more on their job as well as on prevention and a pro-active approach to reducing injuries. The result is a safer and more productive work environment.

## Anecdotal Evidence

There are several well-documented examples of effective ergonomic process within the seafood processing industry. Appendix A provides an example of how one processing plant on the West Coast was able to reduce their injury claims costs by 90%.

## Purpose of the Survey

The seafood-processing sector in Canada is experiencing unprecedented change. As processing plants become larger and more technically advanced, production levels increase while people struggle to keep up with the mechanization that has taken place. The gap between the human contribution and the contribution of machinery has become wider and more challenging to fill. More than ever before, it will be the training provided to workers and managers that will bridge this gap to stem an increase in absenteeism, injury rates and disability.

The Situational Analysis of Canada's Seafood Processing Industry commissioned by the National Seafood Sector Council (NSSC) in 2002 has shown that some ergonomic training is included with safety training in the seafood-processing sector.

This current survey was commissioned to evaluate the prevalence of ergonomics training and infrastructure within seafood processing operations throughout Canada. This survey was designed to:

1. Determine who is responsible for the development and supervision of ergonomic programs in the workplace;
2. Assess the seasonal vs. permanent nature of workers within the sector;
3. Determine how knowledgeable companies are about current Occupational Health and Safety legislation;
4. Assess the Occupational Health and Safety initiatives that currently exist and determine the level of satisfaction with those initiatives;
5. Identify current levels of familiarity with ergonomic concepts;
6. Evaluate the effectiveness of various delivery methods for ergonomics and safety training;
7. Identify the main types of musculoskeletal injuries and the perceived factors predisposing to them; and
8. Identify training needs.

## Methodology

### Survey Delivery

The survey was conducted over the Internet using the Ergonomics in Motion website. A link was placed on the Ergonomics in Motion website that connected respondents to the survey. Respondents were able to complete the survey at their own pace.

Several respondents either did not have Internet access or were not comfortable answering the survey on-line. These people were sent a printed version of the survey, either by fax or by mail, which they then filled out and sent back by fax.

In two cases, the respondents preferred to answer the survey over the phone. In these cases, the survey was carefully read to the respondent over the phone and care was taken to read the survey word for word without providing extra details.

### Contacting Respondents

Invitations to answer the survey were sent out to the members of the National Seafood Sector Council and to businesses in the food processing industry across Canada, in every province and territory with the exception of the Yukon, which does not list any seafood processing, or similar industries.

The National Seafood Sector Council members were initially contacted regarding the survey in the following manner : personalized emails, fax, and letter. These initial contacts were sent out in August 2004. As responses to the survey came in, members were removed from the contact list.

In addition to the NSSC membership database, companies from the food processing industry across Canada were contacted regarding the survey. Invitations to answer the survey were sent out by mail in early September 2004. Due to the volume of invitations sent out, these businesses did not receive follow up.

The response rate for the NSSC members was 27% and the response rate for the non-NSSC members was 1%. The survey officially closed on October the 15th.



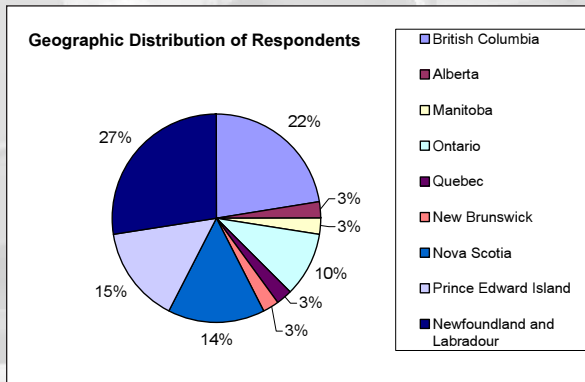


## Survey Results

The survey consisted of 38 questions designed to review both the safety and ergonomic performance of the operations surveyed.

### Geographic Distribution

The distribution of respondents was as follows:



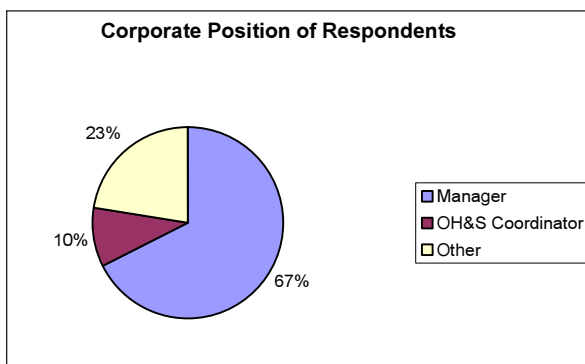
The provinces, ranked by the numbers of seafood workers, according to the 1995 census, were:

Newfoundland and Labrador	9,660 workers
New Brunswick	8,420 workers
Nova Scotia	8,065 workers
British Columbia	6,730 workers
Quebec	4,075 workers
Prince Edward Island	2,690 workers
Ontario	1,020 workers
Manitoba	255 workers

The survey was distributed in all provinces and was available in both official languages.

### Question 1:

Which of the following best describes your position in the company?



Other Specified as:

1. Accounting Clerk
2. Admin Supervisor
3. Controller
4. Human Resources Manager
5. Instructor
6. Owner
7. Production Manager
8. QA Mgr and OH&S Coordinator
9. QM / Head of Safety Committee

### Discussion:

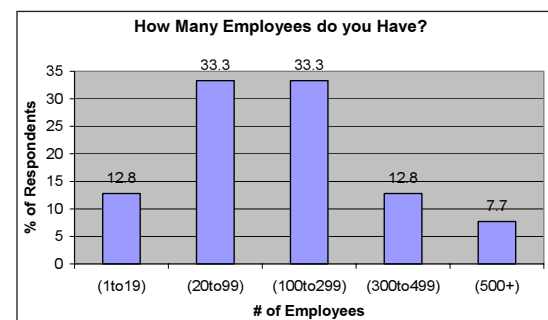
The majority of responses came from management personnel. This supports the supposition that the managers are in a position of responsibility with respect to health and safety. The overall percentage of management responses would be 79% if the management titles specified in the "other" section were factored in.

It is interesting to note that several of the surveys were answered by administration staff personnel who are not traditionally involved in production or health and safety initiatives, but rather in the financial and administrative operations associated with each business.

While the invitation did suggest that the person directly responsible for health and safety fill out the survey, it is probable that most managers with an active interest in their operations filled out the survey themselves.

### Question 2:

How many employees currently work at your company? Please give your best approximation.



### **Discussion:**

The majority of processing operations represented in this study employed less than 1000 employees. According to the 2002 NSSC study on Canada's Seafood Processing Industry, a typical sampling averaged 354 employees per firm. With this number of workers with varied cultures, ages and educational backgrounds, the consistent dissemination of educational materials may be challenging.

In order to reach the largest number of individuals, training efforts should be multi-faceted to appeal to a broad range of learning styles. In areas where language or literacy may be a barrier, individuals may respond best to hands-on training based upon the "train-the-trainer" principle. Isolated, small firms with minimal technology may be best served through a video-based program. Larger, more technologically advanced operations may respond well to training that can be accessed via CD-ROM or DVD technology, with an interactive component.

### **Question 3:**

What percentage (of your employees) are:

#### Regular Employees:

- ▲ 84% of respondents indicated the presence of regular employees.
- ▲ Answers ranged from 1% to 100% of the workforce.
- ▲ On average 58.66% of any plant's workforce consisted of regular employees.

#### Seasonal Employees:

- ▲ 66% of respondents indicated that they employ seasonal workers.
- ▲ Percentages ranged from 3% to 100% of the workforce.
- ▲ On average 55.38% of any plant's workforce consisted of seasonal employees.

#### Temporary (Non-Seasonal) Employees:

- ▲ 35% of respondents indicated the presence of temporary employees.
- ▲ Percentages ranged from 0% to 33% of the workforce.
- ▲ On average 10.32% of any plant's workforce consisted of temporary employees.

### New Hires:

- ▲ 53% of respondents indicated the presence of newly hired employees.
- ▲ Percentages ranged from 0.5% to 34% of the workforce.
- ▲ On average 13.07% of any plant's workforce consisted of new hires.

### **Discussion:**

At the majority of employers responding to the survey (51.28%), 50% of the workforce consisted of regular, stable employees. This is consistent with the findings of the NSSC Situational Analysis from 2002. Ideally, ergonomics education should be directed at those employees since their job attachment would be sustained long enough to utilize and pass along the principles introduced.

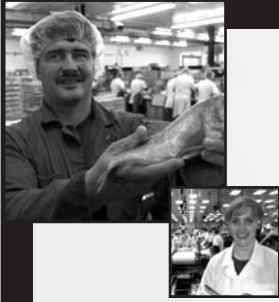
Of the survey respondents, 35.90% reported having a workforce 50% of which consisted of seasonal workers. The majority of these respondents are located in Atlantic Canada. Training for the seasonal population may prove to be challenging due to their short-term job attachment and limited experience.

Of all the survey respondents, 53% indicated that they had newly hired employees and interestingly, the operations that had higher percentages of new hires were spread out evenly between Atlantic Canada, Central Canada, and Western Canada. This trend further supports the need for specific training of young / new workers within the fish and seafood processing sector.

According to the 2002 Situational Analysis and the 2004 Labour Market Information and Comprehensive Market Assessment Reports, a common feature of the seafood sector workforce is the advancing age levels. According to the surveys, more than 60% of plants reported an average age above 40 years old. This has numerous implications in terms of health.

For the purposes of classification, older workers have been considered to be members of the workforce aged 45 years and older. Statistics Canada and the C.D. Howe Institute both predict the most significant growth in worker population to be within this sector of the labour force. In fact, growth in the working age population is expected to account for almost 70% of the net increase in the working-age population by





2010. By 2011, the average age of Canadians will be 41. And by 2026, almost 50% of Canadians will be over the age of 45<sup>1</sup>. The economy itself has had both a direct and indirect affect on the average age of the workforce. With the decline in returns seen in the stock market, retirement plans have seen delays, forcing individuals to remain in the job market longer. Employers need to recognize this trend and address the challenges and opportunities it presents.

Many employers recognize the benefits of hiring older workers. Data collected in the mid-1990's showed that older workers tended to remain with the same employer for longer periods. Their reliability and attention to detail in specific employment settings is also commonly cited by employers as reasons to hire. However, there are also potential difficulties with an aging workforce. The Bureau of Labour Statistics has noted that, "cost implications of severe injuries to older workers are especially troublesome for the future." The Bureau goes on to say that the "share of all serious injuries... is likely to increase...even though their risk of injury is relatively low".<sup>2</sup>

In 2000, the National Center for Health Statistics reported that almost 12% of individuals over the age of 45 considered their health to be poor or fair. As people age, the incidence of chronic degenerative diseases increases in the population. One such example is arthritis which is expected to afflict 50 people for every 1000 up to age 45 and after age 45, the incidence rises to five times as many per 1000. Hypertension afflicts almost one in three individuals over the age of 45 while only one in twenty are diagnosed with it in earlier years. Obesity, an ever growing health problem in North America, is particularly significant with 25% of men and 33% of women over age 55 being obese. These, and many more conditions often associated with an aging population can affect one's ability to complete tasks both at work and at home.

It is true that, with age, many physiological changes occur. The National Center for Health Statistics 2000 estimates that almost 20% of people over the age of 55 complain of some difficulty with daily tasks. The National Organization on Disability indicates that people aged 45 to 54 have an 11.5% chance of developing a disability. These disabilities include diminished vision,

hearing, dexterity and flexibility. Work limitations are no less significant. In fact, the National Academy on an Aging Society (2000) found that many older workers have elected to work on a part-time basis.

The National Institute for Occupational Safety and Health estimated that in 1997 musculoskeletal disorders (sprains/strains) accounted for nearly \$13 billion in injury costs to employers in the United States. Some estimates are much higher but, whatever the cost, increasing age in the workforce threatens to increase these estimates. After age 40, we lose 1-2% of our muscle mass per year making us more susceptible to injuries due to loading of the tissues (i.e. lifting, pushing, and repetitive movements). Respiratory capacity is reduced making us more fatigable and healing times increase due to the effects of chronic conditions associated with aging (i.e. arthritis, osteoporosis, diabetes, heart disease and obesity).<sup>3</sup> Unfortunately, older workers suffer fatal injuries almost twice as often as younger workers.<sup>4</sup> The susceptibility of older workers to more serious injury, resulting in lost time from work was found in Newfoundland and Labrador in 1989 to have increased from 26% of all lost-time claims to 39% in 1998.

Not all statistics related to injuries and older workers is of concern. As was found by Crimmins and Kim, the experience, maturity and judgment of older workers may help explain their lower rate of injury.<sup>5</sup> Over 70% of injuries in the workplace are experienced by workers under the age of 44.

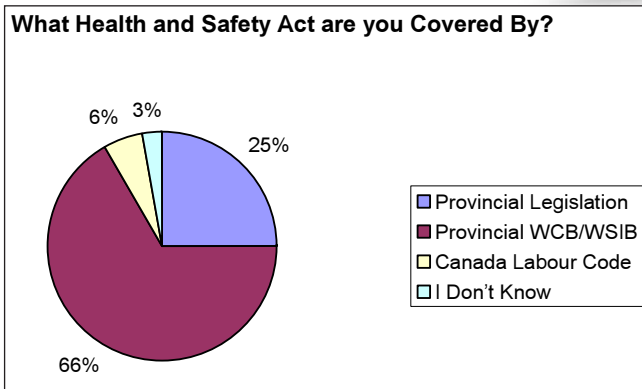
In summary, it is clear that older workers pose a specific set of challenges to employers in terms of disability and costs due to injury. The Workplace Health and Safety Commission found that despite having lower rates of injury, injuries incurred tended to have increased claims costs due to the severity of the injury, an increased need for medical management, increased barriers to re-employment and poor return-to-work rates. One of the most significant concerns to employers is that injured older workers present with a higher proportion of permanent disability claims.

<sup>1</sup> Denton, F. T., Feaver, C. H., & Spencer, B. G. (2000). The future population of Canada and its age distribution. In Frank T. Denton, Deborah Fretz & Byron G. Spencer (Eds.), *Independence and economic security in old age* (pp. 27-56). Vancouver: UBC Press.

<sup>2</sup> U.S. Department of Labor, Bureau of Labor Statistics. Undated. "Number and Percent Distribution of Nonfatal Occupational Injuries and Illnesses Involving Days Away from Work by Selected Worker Characteristics and Number of Days Away from Work," Table R71 for 1991 and 1998. BLS Safety and Health Statistics Program.

### Question 4 and 5:

Are you covered under a workers compensation statute? If yes, what Health and Safety Act are you covered under?



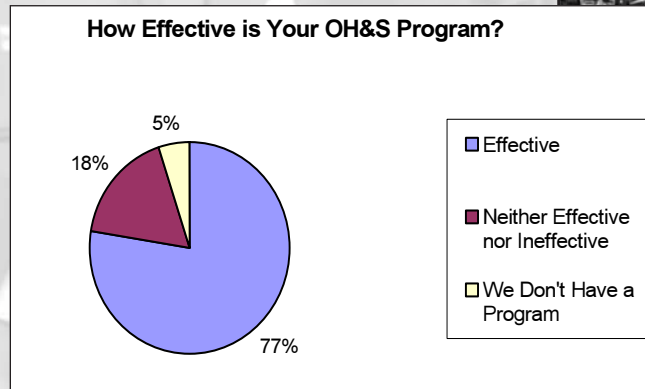
#### Discussion:

In Canada, each province has its own occupational health and safety legislation, and organizations under federal jurisdiction are governed by the Canada Labour Code. Although the specific acts and regulations vary, the general principles remain the same: employers are responsible for maintaining the health and safety of employees at their work sites. Employees also have a responsibility to work safely and protect the health and safety of themselves, their co-workers and the general public where applicable. The specific regulations pertaining to ergonomics vary widely from province to province, and the legislation is continuously being reviewed and updated.

### Question 6:

How would you rate the health and safety program currently in use in your company? Would you say it is:

- ▲ Extremely effective
- ▲ Effective
- ▲ Neither effective nor ineffective
- ▲ Ineffective
- ▲ Extremely ineffective
- ▲ We don't have a health and safety program

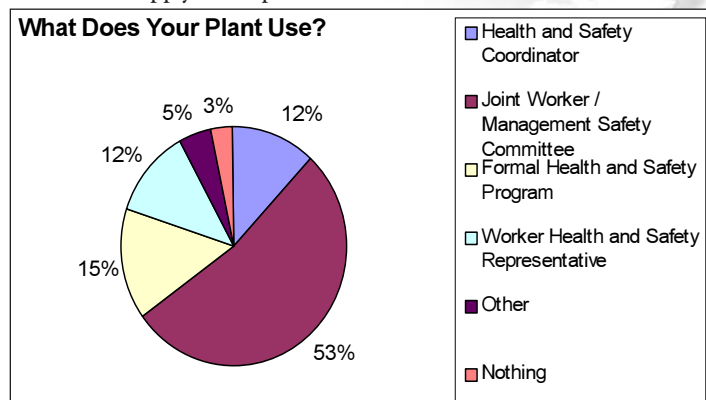


#### Discussion:

The majority of respondents indicated that the Health and Safety Program currently in use was effective, although none went as far as to say 'Extremely Effective'. The survey did not obtain information about the nature of the Occupational Health and Safety Program, nor the means by which the effectiveness was being measured. This may be an appropriate topic for future research.

### Question 7:

Which of the following does your plant use? Please select all that apply to the plant:



#### Discussion:

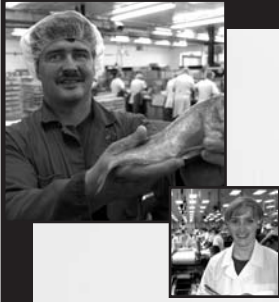
The majority of respondents indicated the use of a Joint Health and Safety Committee. According to the Canadian National Occupational Health and Safety Resource:

*"A Joint Health and Safety Committee or the appointment of representatives is either mandatory or subject to ministerial decision in all Canadian*

<sup>3</sup> Douglas, Bruce L. 2000. "Know the Company You Keep: Co-Morbidities at Work." *Journal of Workers Compensation* 9(4), 101-107.

<sup>4</sup> It is worth noting that, although injuries to older workers tend to be more serious, there continues to be a disproportionately higher number of injuries to younger workers.

<sup>5</sup> Crimmins, Eileen M. and Jung Ki Kim. 2000. "Health Status and Health Dynamics among U.S. and California Residents over A0." Paper prepared for the conference funded by the California Wellness Foundation on Employment and Health Policies for Californians over 50, January.



*jurisdictions. Certain types of workplaces may be exempt from this requirement, depending on the size of work force, industry, accident record, or some combination of these factors. Consult the most up-to-date applicable legislation to find out what are requirements for your workplace.”*

**Safety and Health Committees and Representatives Regulations<sup>6</sup>** (Most jurisdictions have regulations similar to this)

**▲ Work Place Health and Safety Committees**

Work place health and safety committees must be established in work places where there are 20 or more employees. At least half of the committee members must be employees who do not have managerial functions.

**▲ Policy Health and Safety Committees**

Policy health and safety committees must be established where an employer has 300 or more employees. The intent of this committee is to take a more strategic approach to health and safety in an organization by dealing with global issues.

**▲ Health and Safety Representatives**

In work places where there are fewer than 20 employees or in work places exempted from the committee requirement, there must be a health and safety representative.

**Provincially and federally the following regulations apply:**

<b>British Columbia</b>	<ul style="list-style-type: none"> <li>○ Workers Compensation Act, (R.S.B.C. 1996 as amended) Part 3, Division 4, Sections 125 to 140</li> </ul>
<b>Alberta</b>	<ul style="list-style-type: none"> <li>○ Occupational Health and Safety Act (R.S.A. 1980, c. O-2 as amended), Section 25</li> <li>○ Joint Work Site Health and Safety Committee Regulations (Alta. Reg. 197/77)</li> </ul>
<b>Saskatchewan</b>	<ul style="list-style-type: none"> <li>○ Occupational Health and Safety Act, 1993 (S.S. 1993, c. O-1.1)</li> <li>○ Part III Sections 15 to 22 (Called: Occupational Health Committee)</li> </ul>
<b>Manitoba</b>	<ul style="list-style-type: none"> <li>○ Workplace Safety and Health Act (R.S.M. 1987, c. W210)</li> <li>○ Section 40. (Called: Workplace safety and health committees)</li> </ul>
<b>Ontario</b>	<ul style="list-style-type: none"> <li>○ Occupational Health and Safety Act (R.S.O. 1990, c. O.1), Section 9(2)</li> </ul>
<b>Quebec</b>	<ul style="list-style-type: none"> <li>○ Act respecting Occupational Health and Safety (R.S.Q., c. S-2.1)</li> <li>○ Chapter IV, Sections 68 to 86.</li> <li>○ And the Regulation respecting health and safety committees (R.R.Q. 1981, c. S-2.1, r. 6.1, O.C. 2025-83) (Called: Health and Safety Committees)</li> </ul>
<b>New Brunswick</b>	<ul style="list-style-type: none"> <li>○ Occupational Health and Safety Act (A.N.B. 1983, c. O-0.2), Sections 14 to 18</li> </ul>
<b>Nova Scotia</b>	<ul style="list-style-type: none"> <li>○ Occupational Health and Safety Act (S.N.S. 1996, c. 7), Sections 29 to 32</li> </ul>
<b>Prince Edward Island</b>	<ul style="list-style-type: none"> <li>○ Occupational Health and Safety Act (R.S.P.E.I. 1988, c. O-1), Section 18</li> </ul>
<b>Newfoundland and Labrador</b>	<ul style="list-style-type: none"> <li>○ Occupational Health and Safety Act (R.S.N. 1990, c. O-3)</li> <li>○ Sections 37 to 40 (Called: Health and Safety Committees)</li> </ul>
<b>Yukon Territory</b>	<ul style="list-style-type: none"> <li>○ Occupational Health and Safety Act (R.S.Y. 1986, c. 123), Section 2 12 &amp; 13</li> </ul>
<b>Northwest Territories</b>	<ul style="list-style-type: none"> <li>○ Safety Act (R.S.N.W.T. 1988, c. S-1), Section 7 (Called: Joint Work Site Health and Safety Committee)</li> </ul>
<b>Nunavut</b>	<ul style="list-style-type: none"> <li>○ The Nunavut Act (S.C. 1993, c.28) states that all laws of the Northwest Territories apply in Nunavut</li> </ul>

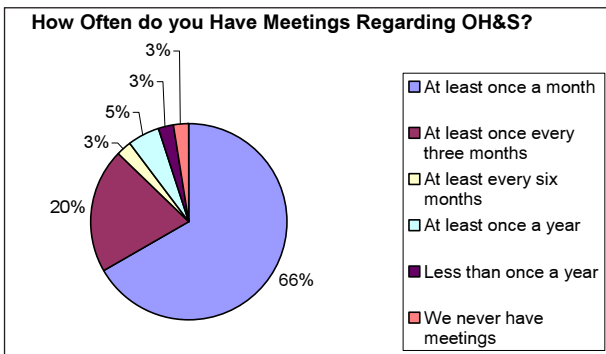
<sup>6</sup> Canada Labour Code, Part II (R.S.C. 1985, C. L-2), Sections 135 to 13

Since 87.18% of the respondents indicate use of a Joint Health and Safety Committee, it would seem logical to create group-training sessions with this target audience in mind.

It is interesting to note that nearly 14% of employers who responded do not have a Joint Health and Safety Committee. This sample may represent the smaller operations with less than 20 workers, or companies that operate on a temporary, seasonal basis. Such operations would still benefit from training initiatives directed at the designated Health and Safety Representative (often the Owner or Manager).

**Question 8:**

How often does your facility/company have meetings regarding health and safety issues?



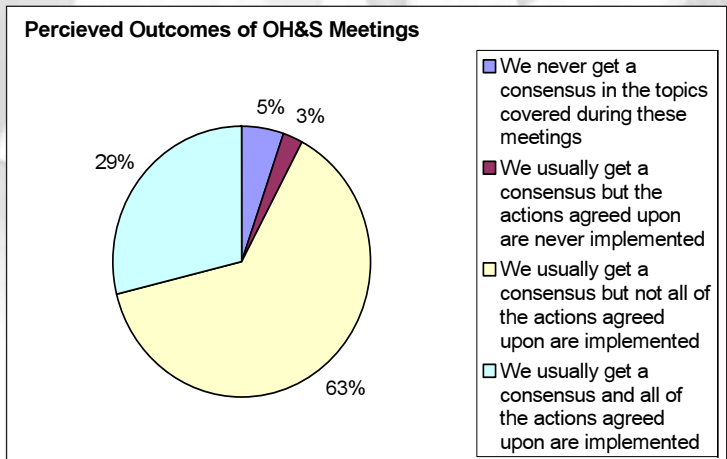
**Discussion:**

Since 87.18% of the respondents indicate that they meet at least quarterly, then quarterly training initiatives would meet the needs of most facilities. Annual training initiatives would reach 97% of companies, but the retention of information may be less effective.

The 12.81% of companies that leave safety issues for 6 or more months require education to meet regulatory compliance and to highlight the importance of addressing health and safety issues on an ongoing basis. A potential source of valuable information is the NSSC “Industrial Safety for Workers in the Seafood Processing Industry” training manual.

**Question 9:**

Which of the following best describes the outcome of these (health and safety) meetings? Please, select just one option.



**Discussion:**

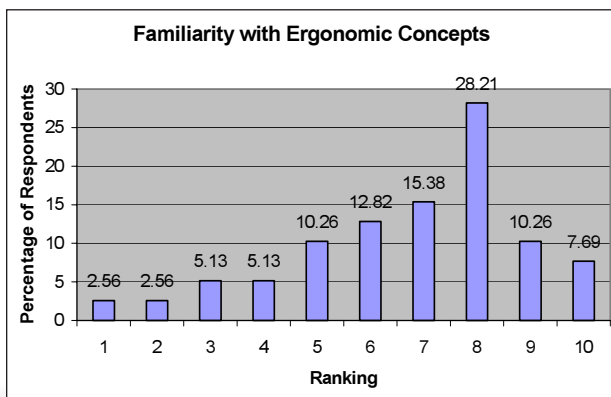
Of the respondents, 92.11% achieve consensus and implementation most of the time.

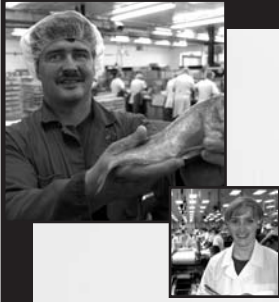
The 7.89% of companies that never get consensus or never get recommendations implemented may require education to:

- ▲ Communicate effectively;
- ▲ Develop negotiation skills;
- ▲ Develop a system to manage change; or
- ▲ Understand the legal rights and responsibilities of employees and employers.

**Question 10:**

On a scale from 1 to 10, where 1 means, “Not at all familiar” and 10 means, “Extremely Familiar”, how familiar are you with ergonomic concepts? Please select the option that best applies to you.





**Discussion:**

Of the respondents, 38.46% indicated a level at or below 6 on the 10-point scale, with 10.26% scoring at 3 or lower. The average score on this question was 6.74.

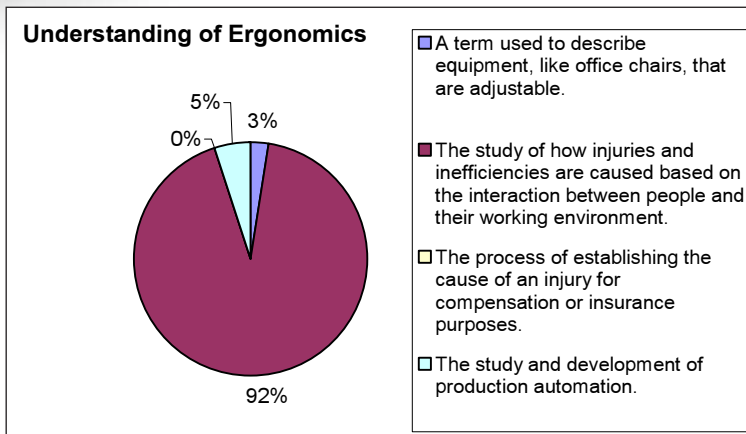
These scores indicate that most respondents have had at least a basic introduction to ergonomics principles. This was further supported by the 92.31% correct response to Question 11, which was a multiple-choice question designed to test the respondent knowledge of ergonomics.

There is an excellent base from which to build on amongst the respondent group. Ideally, standardized educational material for the industry that is tailored to seafood processing should improve the average level of understanding and bring those on the lower end of the scale up to a level on par with the group.

It is also probable that individuals with a higher familiarity with ergonomic concepts would be more likely to respond to an ergonomics survey. If this is the case, the low response rate may reflect a lower than indicated level of understanding of the topic.

**Question 11:**

Which of the following do you think best describes the concept of ergonomics? Please select just one option.



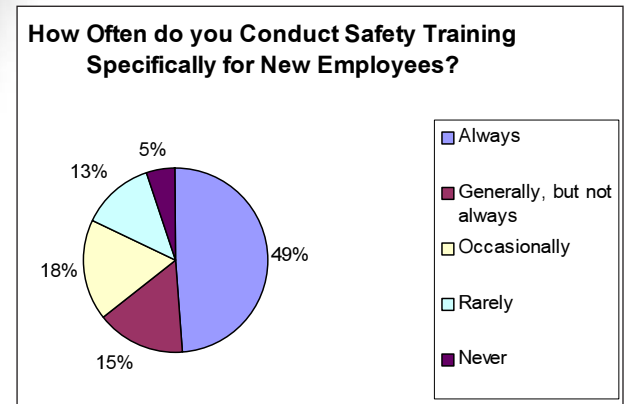
**Discussion**

It is encouraging to note that the respondents are familiar with ergonomic principles.

Based upon interviews with Occupational Health and Safety Personnel and practical experience in the field, it is evident that the concept of ergonomics is generally recognizable. These individuals are less familiar with the specific processes and the practical implementation aspects of ergonomics.

**Question 12:**

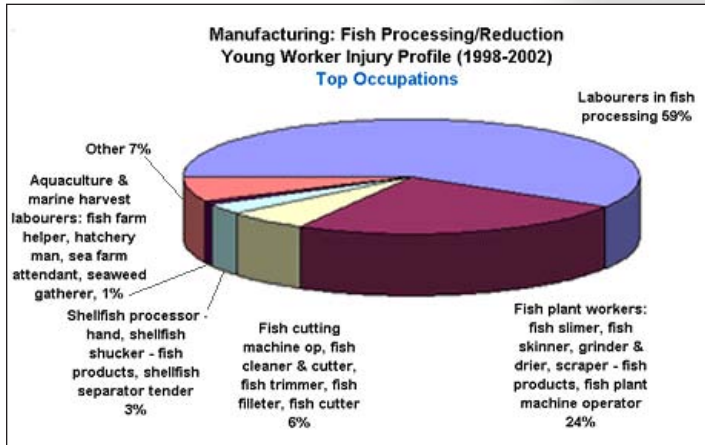
How often do you conduct safety training specifically for new employees?



**Discussion:**

Of the group that indicated the presence of new hires, 48.72 percent indicated that the new hires made up almost 25 percent of their total workforce. A significant amount of new hires are young workers, particularly in plants that process primarily during the summer months when students are available. This high percentage of new hires indicates the necessity of ensuring effective, targeted education for individuals at the orientation/training stage.

Workers' Compensation Boards around the country have paid particular attention to young workers due to alarming injury trends. Young people typically perceive themselves as immune to the serious consequences of unsafe behaviour in the workplace and they have a higher rate of injury overall. New hires are also typically placed in the lower skilled and more labour intensive aspects of operations.



Throughout Canada, almost 110,000 young people were seriously injured on the job in one year alone. These statistics mean injured young people (ages 15-29) represent one in every four injured workers in Canada. In primary industries (i.e. processing, fishing), young workers (aged 15-29) accounted for 44.1% of injuries.

The Association of Workers' Compensation Boards of Canada published a Canadian Survey on Youth Health and Safety in the Workplace that reported:

"With 57 deaths and over 62,000 injuries among young Canadian workers within this particular age group in 2001, health and safety is a major issue which deserves heightened awareness and real action ", says Ms. Ann Marie Hann, President of the AWCBC. "The young workers surveyed consistently showed a lack of training in the workplace. This has to change, and rapidly".

In fact, only 40% of the youth surveyed received health and safety training prior to starting their job or within the first week of work, and only half of these found that the training they received was comprehensive. Also startling was the finding that currently only about half of parents talk to their children about safety at work and advise them to be cautious.

"The survey shows that a majority of young workers say they need to become more aware of how to prevent workplace injuries (74%), and that these injuries would be preventable through education, training and proper supervision (72%). It is very encouraging to know that youth will welcome education about prevention: it is now up to all workplace parties to ensure that young workers are provided with a safe and healthy work environment and the appropriate training and communication", concluded Ms. Hann.

Occupation	Labourers in primary industry
# of Time-Loss Injuries (15 to 24 Years)	983
# of Time-Loss Injuries (15 to 29 Years)	1,685
# of Time-Loss Injuries (All Age Groups)	3,824
% of Time-Loss Injuries (15 to 24 Years)	25.7%
% of Time-Loss Injuries (15 to 29 Years)	44.1%

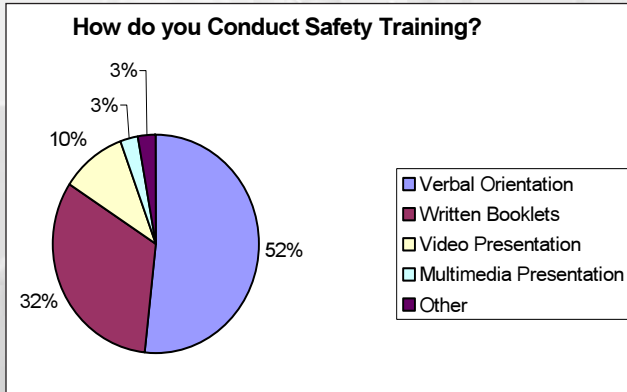
Nationally, the need to recognize this problem is seen in the establishment of specific initiatives within these organizations:

- ▲ **Canadian Centre for Occupational Health and Safety**  
Young Workers Zone
- ▲ **Canadian Society of Safety Engineering**  
NAOSH (North American Occupational Safety and Health Week)
- ▲ **Government of Canada**  
Human Resources and Skills Development Canada (HRSDC)  
Youth.gc.ca
- ▲ **Health Canada**  
Canadian Fitness and Lifestyle Research Institute Workplace Health System



**Question 13:**

How does your company conduct safety training for new employees? Please select all that apply.



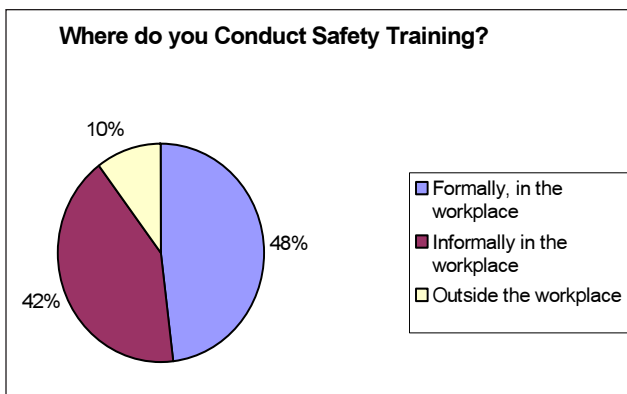
**Discussion:**

Verbal/visual orientation would appear to be the most popular form of training. This form of training could be supported through various means including:

- ▲ Video presentation during the orientation;
- ▲ “Train the trainer” education modules that include orientation scripts or standardized layouts; and
- ▲ Handouts to be distributed during the verbal orientation.

**Question 14:**

Where does your company conduct safety training for new employees? Please select all that apply.

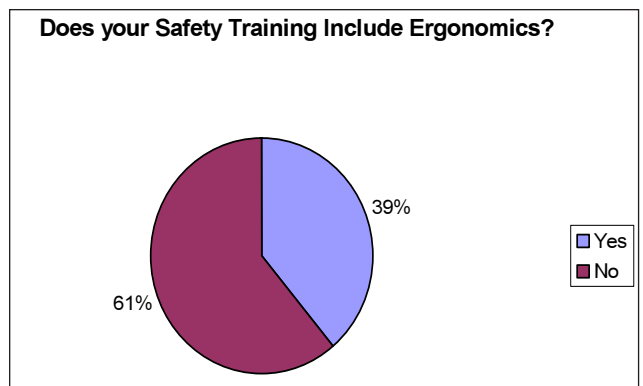


**Discussion:**

Most employers educate new staff either formally or informally within the workplace, therefore training initiatives should be easily accessible on-site. When interviewing a sample of employers, the respondents indicated that one of the main barriers to providing formal on-site safety training is the lack of human resources available to provide the necessary training. Often the individuals responsible for the training are also essential to the production of the facility and time away from the production line can be costly. Since human resources are often scarce, it may be prudent to consider video presentations as a time efficient, cost effective solution.

**Question 15:**

Does this training include ergonomics?

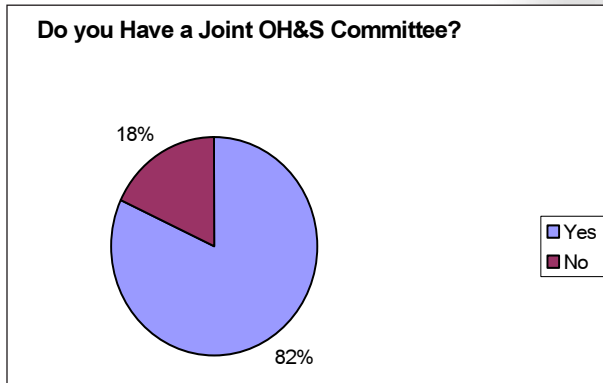


**Discussion:**

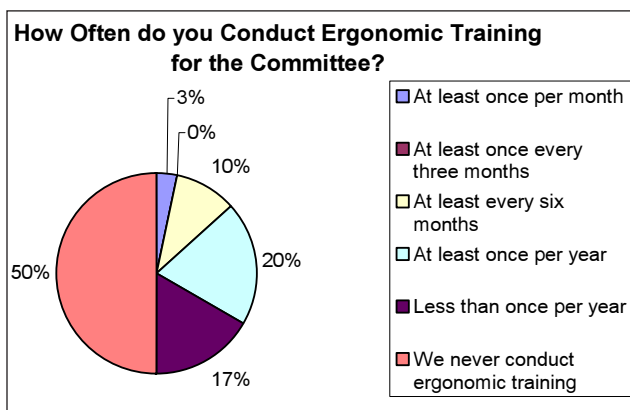
While most respondents are familiar themselves with the concepts of ergonomics, it is clear that this knowledge is not always passed on to employees. This is one of the most common challenges associated with the administration of Occupational Health and Safety programs.

**Question 16 and 17:**

Do you have a joint health and safety committee?



How often do you conduct ergonomic training for the committee?

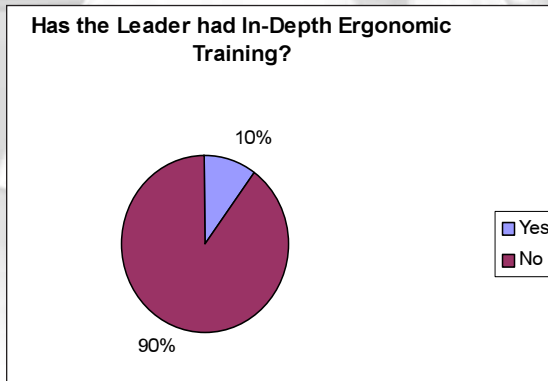


**Discussion:**

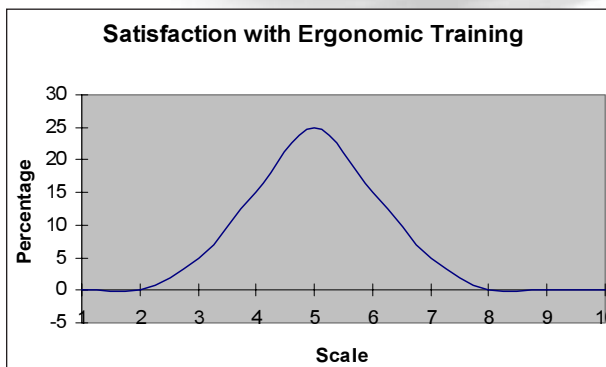
Although a large proportion of respondents have a Workplace Health and Safety Committee, relatively few provide Ergonomics training in spite of the fact that it is a core component of safety. Studies published by the Association of Workers Compensation Boards indicate that 40% of all occupational time loss accidents have ergonomic risk factors as a root cause. Clearly, further investment in ergonomic training resources is warranted.

**Question 18 and 19:**

Has the person in charge of ergonomic issues had additional in-depth training?



On a scale from 1 to 10 where 1 means “Not at all effective and practical” and 10 means “Completely effective and practical” how would you rate the in-depth training?

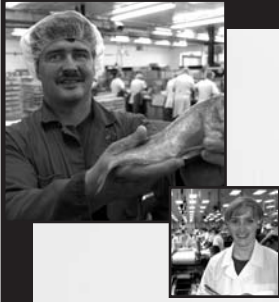


**Discussion**

Once again, this question was one of the key indicators of the need for further ergonomic training within the seafood-processing sector. When asking directly about the level of ergonomic education of the people responsible for ergonomics within the operation, 89% of respondents had not received in-depth training in this area.

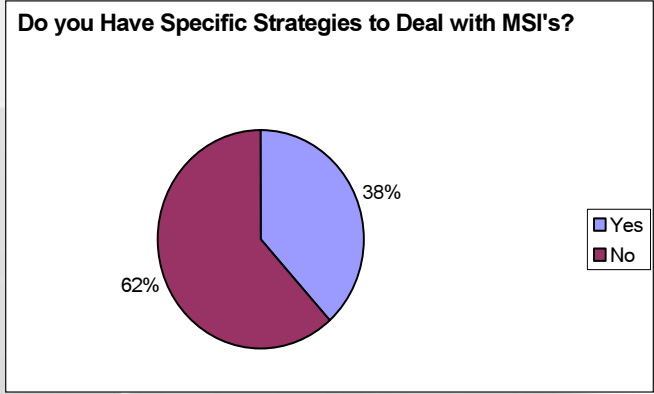
Of the people who went on to rate the in-depth ergonomic training they had attended, very few were satisfied with the level of instruction they had received.

In addition to the theme of ergonomic system and infrastructure training that occurs throughout this report, there are several questions, like this one, that highlight the need for basic ergonomic leadership training for those in a position of responsibility for safety within their organization.



**Question 20:**

Does your operation have specific strategies in place to deal with strains, sprains, tendonitis, etc...?



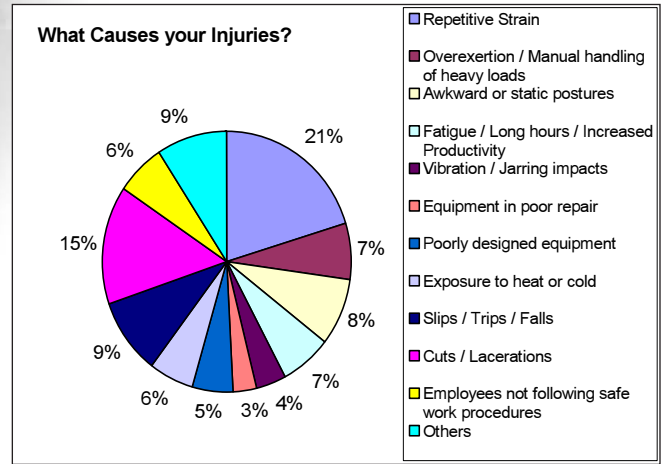
**Discussion:**

Both the financial and human costs of musculoskeletal injuries support the strong need to implement effective strategies in the workplace to deal with these problems. According to the Association of Workers Compensation Boards, occupational musculoskeletal injuries make up 40% of the lost time incidents affecting general industry and yet 61% of the operations surveyed had no specific strategy for dealing with this type of injury.

The response to this question highlights the need for further ergonomic training within the seafood-processing sector. Through appropriate education and awareness training, operations can be taught the necessary steps to implement strategies to deal with musculoskeletal injuries. This returns to our theme of ergonomic infrastructure training. This survey has pointed out a gap between the knowledge of the field of ergonomics and the practical steps necessary to achieve meaningful results that reduce the human and financial impact of these injuries. It is possible that the lack of strategies for dealing with musculoskeletal injuries relates directly to a lack of resources available in this field.

**Question 21:**

What percentage of your overall injuries / incidents are due to the following causes? Please give your best estimate and ensure that all of your answers add up to 100%.



**Discussion:**

Based upon the results of this survey, the most significant causes of injuries are musculoskeletal injuries, lacerations, slip and fall incidents, awkward or static postures, overexertion, and production stressors. Specific ergonomic interventions can deal effectively with each of these recognized risk factors. According to national surveys on injury types in food processing, this survey's results appear to be consistent with this industry.

**Question 22:**

If we look at times when injuries occur, please rank the following factors (first, second, and third) based on the number of injuries that occur.

- ▲ 71% indicated that extended production runs are a factor, with 17.86% ranking it as the primary factor
- ▲ 66% indicated that overtime is a factor, with 3.85% ranking it as the primary factor
- ▲ 84% indicated that times of peak production are a factor, with 60.61% ranking it as the primary factor
- ▲ 51% indicated that increased size or weight of the product is a factor, with 25% ranking it as the primary factor

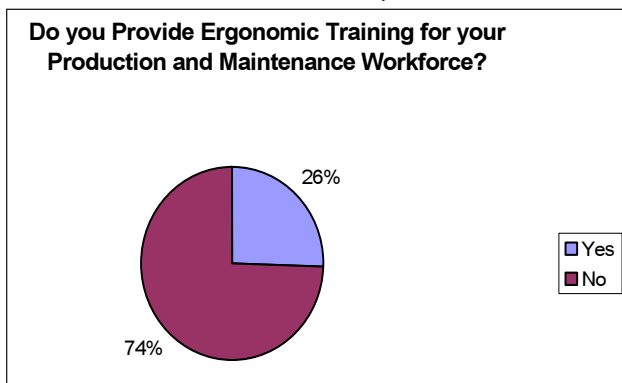
- ▲ 53% indicated that a change in the type of product is a factor, with 19.05% ranking it as the primary factor

**Discussion:**

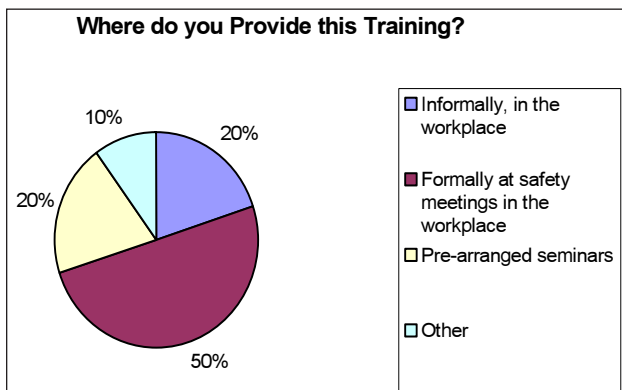
From the data it appears that the perception in the industry is that peak production periods predispose workers to injuries, followed by extended production runs, overtime, and changes to the size, weight or type of product being processed. Traditionally, employers note a spike in injury claims in many industries during these periods. The findings in the survey were consistent with this. Properly focused ergonomic initiatives such as task rotation, stretch breaks, early recognition of musculoskeletal injuries and risk identification may help to change this pattern.

**Question 23 and 24:**

Do you provide ergonomic injury prevention training for your general production and maintenance workforce, and if so, how do you do it?



If you do, where do you provide this training?



**Discussion**

Safety Meetings appear to be the most popular format for presenting ergonomics information. As such, providing concise, self-contained learning modules to worksites would enable each employer to schedule meeting content according to their individual needs and scheduling requirements. This format would add further benefit in that it would ensure content being presented and completed (i.e. completion of modules would be logged).

This question was one of the key indicators of the saturation of ergonomics in the workplace. Based on the response to the initial question, it is apparent that ergonomics education and design is not making it to the people who need it the most. Seventy Four Percent (74%) of the operations that responded indicated that they did not provide ergonomic training for their production and maintenance workforce.

This further illustrated the need for ergonomic training specific to the seafood processing industry. Half of musculoskeletal safety on the job is derived from the way in which a person chooses to use their body on the job. Our choices with respect to working posture and habits and our ability to recognize the early signs and symptoms of injury are key factors in our risk of musculoskeletal injury on the job. Without ergonomic education, a worker:

- ▲ Cannot make an informed choice about the way they use their body to accomplish a task;
- ▲ Cannot be critical of the training they have received and help to improve on-the-job training for others;
- ▲ Will not be able to recognize the early signs and symptoms of injury and take appropriate steps to avoid injury; and
- ▲ Cannot assist in the design and purchasing process when new tools and equipment are ordered.

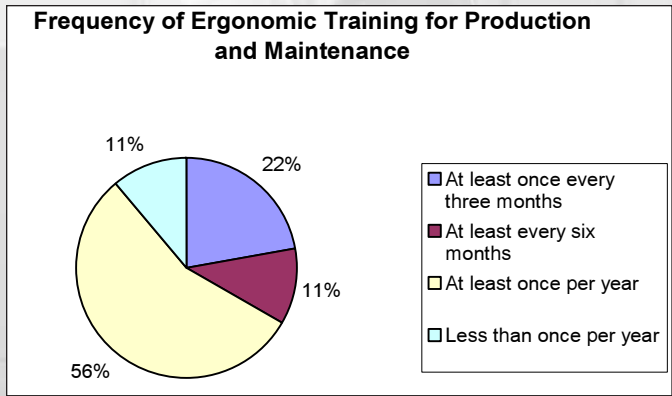
Of the operations that do provide ergonomic training for their workforce, we see that the preferred method of delivery is formally, at safety meetings.





### Question 25:

Of the respondents who said yes, how often do you provide this ergonomic injury prevention training for your general production and maintenance workforce?



#### Discussion:

A lack of ergonomic resources is an impediment to the presentation of this type of material. Ergonomics is often perceived as a large and complex topic, and managers and safety representatives have a difficult time breaking it down into small manageable parts. If ready-made resources are available for presentation and discussion at safety meetings the frequency of this training increases, and the retention of the material improves.

In addition to the lack of ergonomic resources, the operations may be experiencing a lack of time, money, and available trainers, as there are other topics that compete for safety training time. Ergonomic training resources developed in Phase Two will need to be clearly understandable and easy to use.

### Question 26 and 27:

How many employees do you currently have off work on compensation/ insurance due to work related musculoskeletal injuries (e.g. tendonitis, back injuries, carpal tunnel, etc.)? If none of your employees are currently off work due to musculoskeletal injuries, write a 0 down and skip to question 28.

Of the respondents that indicated that employees were off from work:

- ▲ 76% indicated that a proportion had been off from 0-3 months;
- ▲ 28% indicated that a proportion had been off from 4-6 months;
- ▲ 28% indicated that a proportion had been off from 6-12 months; and
- ▲ 33% indicated that a proportion had been off for greater than 12 months.

#### Discussion:

It is well known that there is a direct cost to employers for employee absence whether that is for injury, illness, or other reason.

The costs associated with illness or injury-related absence may arise from:

- ▲ Paid employee sick leave, weekly indemnity and/or short term disability;
- ▲ Salary for replacement workers;
- ▲ Recruitment and training of replacement workers;
- ▲ Health care benefits;
- ▲ Extended supplementary health care benefits;
- ▲ Rising provincial Workers' Compensation rates;
- ▲ Long term disability premium rates and costs; and
- ▲ Lowered productivity.

The National Institute for Disability Management and Research (NIDMAR) found that workers who had not returned to work within 6 months of an injury had only a 50% chance of ever returning to work. More surprisingly, it was found that workers who remained off work for greater than one year had a less than 1 percent chance of returning. The imperative nature of reducing worker absenteeism is clearly indicated by these findings.

Some of the factors associated with a delay in an employee's return to work are:

- ▲ The absence of a graduated return to work program;

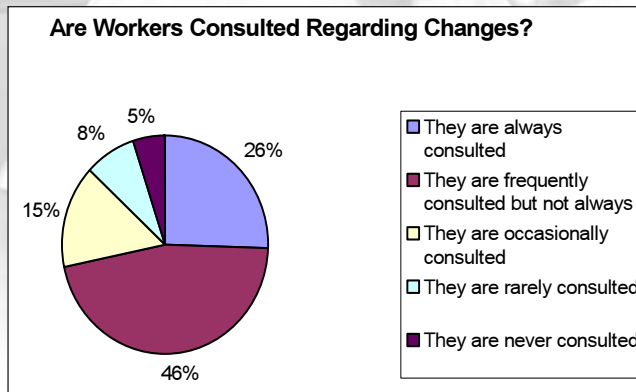
- ▲ Time lags in obtaining medical care or other forms of therapy;
- ▲ Lack of knowledge on the part of the community practitioner about the workplace and the accommodations available to the employee;
- ▲ Disability insurance plans that promote a “reward” for being disabled;
- ▲ Unreliable methods for tracking the ill or injured worker;
- ▲ Employee fear of losing disability income if he or she attempts an unsuccessful return to work;
- ▲ Physical pain;
- ▲ Employee fear of relapse of re-injury;
- ▲ Employee anxiety concerning poor job performance due to disability;
- ▲ Decreased self-confidence;
- ▲ A work situation perceived as intolerable by the employee;
- ▲ A negative industrial relations climate;
- ▲ Lay-offs due to “downsizing”; and
- ▲ A breakdown in communication between the employee and employer; and lack of understanding by all stakeholders of the real costs associated with disability.

In comparison, the factors associated with a timely return-to-work<sup>7</sup> are:

- ▲ Job satisfaction;
- ▲ Mutual respect for the employee/supervisor;
- ▲ Open communication between the supervisor and employee;
- ▲ Existence of a Graduated Return-to-Work Program; and
- ▲ The use of a team approach towards a graduated return to work with the employee being the key player.

### Question 28:

How often are workers consulted regarding changes in tools, equipment, and processes?



### Discussion:

There have been many business-related books written on the management of change and the need to involve workers in the decision-making process. All organizations that innovate or learn come up against innate challenges that block progress. The harder the organization pushes against these challenges, the more they seem to resist. However, if organizations learn to anticipate the reactions of workers and develop strategies for dealing with them, they become opportunities for growth. Initiatives in this area may involve developing “lines of communication” within organizations to ensure that everyone is kept “in the loop” as change occurs.

Anecdotally, it is known that involvement in the safety process is key to success. This is the central premise behind behaviourally based safety processes. The results from this question indicate that 70% of the operations surveyed believe in this principle as well. 70% of the operations surveyed frequently or constantly consult their employees before making changes to tools and equipment.

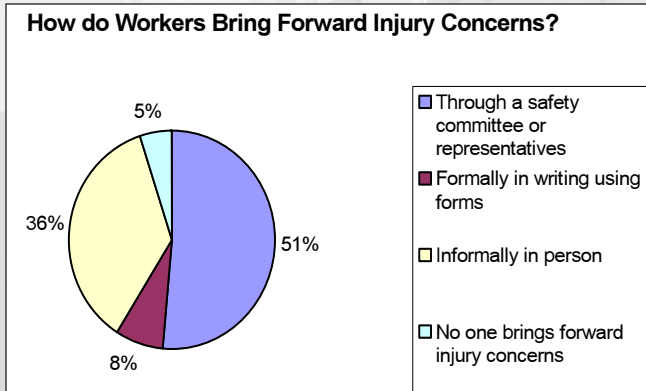
This level of consultation is excellent. There is now a need to ensure that employees are able to provide considered and meaningful feedback to the employer when consulted on changes to tools and equipment. Systematic ergonomic education will allow employees to provide useful and practical feedback regarding design elements and working postures. This will assist the operation to further reduce the human and financial cost of injuries through effective design.

<sup>7</sup> (from D. Dyck, Disability Management – Theory, Strategy and Industry Practice, 2nd Ed., (Butterworths Canada Ltd. 2002).



### Question 29:

How do workers bring forward injury concerns?  
Please select just one option.



#### Discussion:

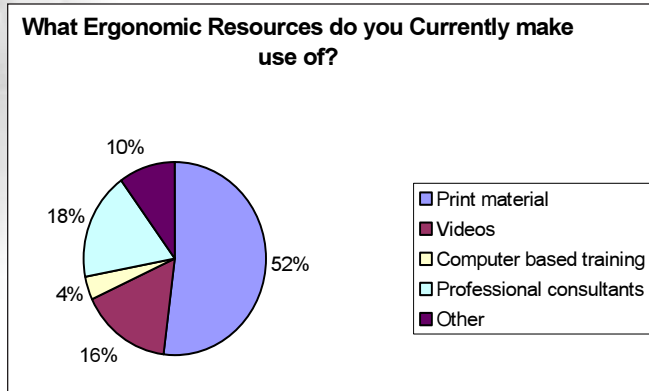
Of particular note is the high percentage of informal notification that takes place at the worksite.

This question demonstrates a split in responses. Approximately 60% of the operations surveyed have a recognizable safety committee or other structure for employees to bring injury concerns forward to. The other half of respondents did not have a formal process for identifying and following up on injury concerns. This has legal ramifications as guidelines and legislation pertaining to due diligence dictate the requirement for timely and formal reporting of injuries.

This has consequences for any ergonomic education that is designed and implemented as a result of this report. As reflected in other questions, there needs to be a focus within the ergonomic education on infrastructure and accountability / leadership. The ergonomic training needs to provide steps to assemble and implement a structure for the ergonomic process so that employees know where to go with injury concerns and are provided with informed feedback.

### Question 30:

What ergonomic resources do you currently make use of? Please select all that apply.



#### Discussion:

It is clear from the survey that written materials are the most popular form of ergonomics material. This may be for several reasons:

1. Cost;
2. Availability;
3. Computer or other technology access; or
4. Familiarity.

Any ergonomic initiatives must take this factor into account and ensure that material is provided in written form. Although other forms of educational materials are important, significant effort must be made to put all information into a written form (i.e. booklet, pamphlet, etc.) to ensure maximal dissemination of the information. However, being aware of emerging technologies and keeping pace with these technologies such as video, DVD's and CD-ROM based learning platforms is essential to ongoing success in delivering this information. These findings are consistent with those in question 13.

### Question 31:

On a scale from 1 to 10, where 1 means “Not at all accessible” and 10 means “Completely accessible”, how accessible is this information to employees?

#### Results:

- ▲ The mean for the respondents turned out to be 5.83, which would indicate that the ergonomics information is somewhat accessible to employees.
- ▲ 41.02% of respondents indicated a level of 7 or higher.
- ▲ 38.45 indicated a level of 4 or lower.

#### Discussion:

Whether it is through worksite “safety centres” or other similar information stations, just over half of respondents indicated that ergonomics information is accessible to them. Accessibility takes into account:

1. Visibility of information;
2. Location where information is kept (i.e. lunch room, locked office or cabinet); and
3. Communication within the organization (i.e. are people told about the information available to them?).

### Question 32:

On a scale from 1 to 10 where 1 means “Not at all effectively dealt with” and 10 means “Completely effectively dealt with”, how do you consider that ergonomic injury concerns or recommendations are dealt with in your operation?

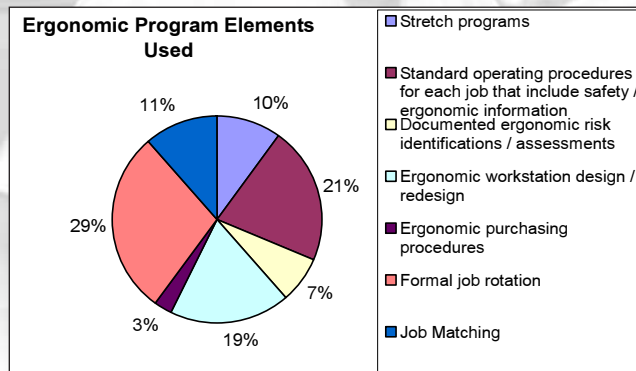
- ▲ The mean for the respondents turned out to be 5.58, which would indicate that the satisfaction with the way that ergonomics concerns are dealt with is not optimal.
- ▲ 38.46% of respondents indicated a level of 7 or higher.
- ▲ 33.33% indicated a level of 4 or lower.

#### Discussion:

The survey showed that almost 50% of the respondents did not feel that ergonomics issues were dealt with effectively within their organization. Once again, the results demonstrate the need for training in practical implementation and infrastructure.

### Question 33:

Do you have any of the following ergonomic program elements at your plant? Please select all that apply.



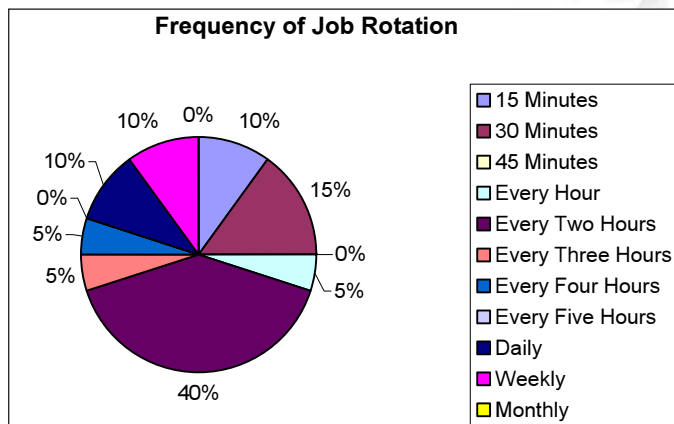
#### Discussion:

The most common ergonomic strategies used at work sites are:

- ▲ Job rotation;
- ▲ Standard operating procedures; and
- ▲ Ergonomic workstation design.

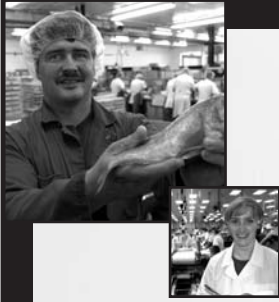
### Question 34:

What is the frequency of the job rotation mentioned in question 33? Every...



#### Discussion:

The most common rotation interval is 2 hours.



**Question 35:**

On a scale from 1 to 10 where 1 means “Not at all beneficial to the employees” and 10 means “Completely beneficial to the employees”, how would you consider the formal job rotation in place in your operation?

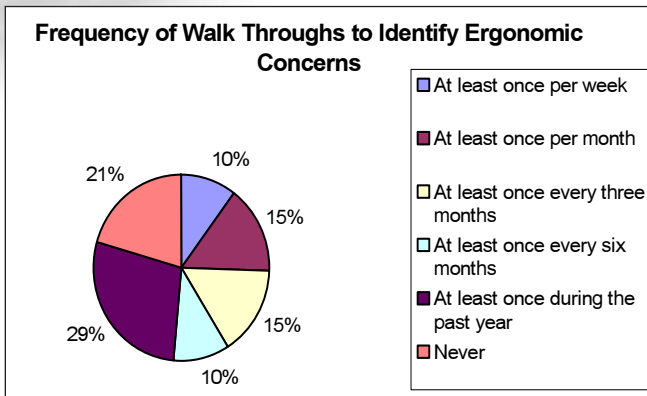
- ▲ The mean for the respondents turned out to be 8.05, which would indicate that the satisfaction with job rotation is relatively high.
- ▲ 75% of respondents indicated a level of 8 or higher.
- ▲ No respondents indicated a level of 5 or lower.

**Discussion**

This result reflects the belief that job rotation has positive benefits. This is borne out by ergonomic research indicating the value of task variability and rest from high levels of repetition. The benefits of job rotation are clearly demonstrated in a variety of workplaces, in a variety of circumstances.

**Question 36:**

How often during the last year did you conduct a walk through of the operation to identify ergonomic concerns?



**Discussion:**

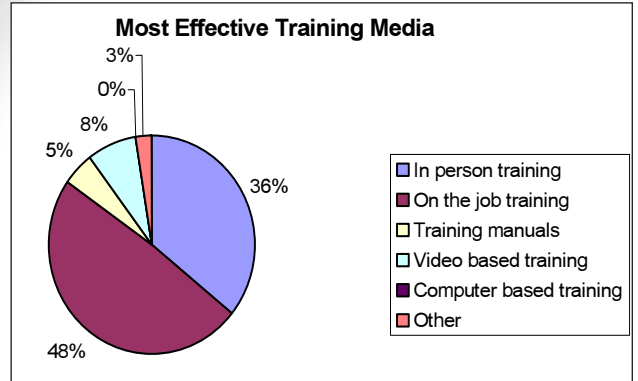
The relatively small percentage of respondents involved in specific ergonomic inspections may indicate a lack of:

- ▲ Understanding of the importance of this type of inspection;
- ▲ Time and/or resources to complete them;

- ▲ Training in this area; or
- ▲ Forms or templates with which to carry out this kind of inspection.

**Question 37:**

What educational media do you find the most effective for training purposes in your operation? Please select just the options that best apply.



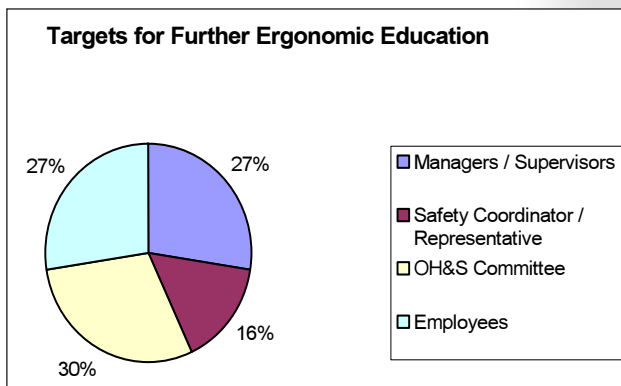
**Discussion:**

These findings were consistent with the training survey results from the NSSC Situational Analysis carried out in 2002, which indicated that 72% of respondents preferred “hands on” training methods. There was also a preference for on-site (43%) versus off-site training. Video training (28%) and classroom activities (27%) were favoured over CD / Internet training (1%).

The low preference for computer-based training may be indicative of a lack of resources for training in this area and/or a lack of prior exposure to this type of interactive educational media. It may be relevant to explore this further in Phase 2.

### Question 38:

Would any of the following groups in your organization benefit from further ergonomic resources? Please select all that apply:



#### Discussion:

There was a fairly equal distribution between management, employees and the OH&S Committee indicating the perceived value of this training at all levels.

## Conclusions and Recommendations

### Formats for Educational Delivery within this Sector

Currently, most training and orientation programs rely on verbal, on-the-job methods. Unfortunately this style of presentation does not lead to effective retention and only appeals to a specific learning style or aptitude. Multi-sensory learning initiatives incorporating written, verbal, and visual media, in addition to testing the practical application of the skills learned, has proven to be much more effective. As well, compliance issues may be satisfied more effectively if written records of training and on site resources are available for review.

Most employers educate new staff either formally or informally within the workplace, therefore training initiatives should be easily accessible on-site. When interviewing a sample of employers, the respondents indicated that one of the main barriers to providing formal on-site safety training is the lack of human resources available to provide the necessary training. Often the individuals responsible for the training are also essential to the production of the facility and time away from the production line can be costly. Since human resources are often scarce, it may be prudent to consider alternatives such as videotaped

presentations or multimedia computer-based training as a time efficient, cost effective solution.

### Types of Ergonomic Education Needed by the Industry

The results of the survey indicated that several areas for future development within the collective knowledge of the industry could be effectively addressed through ergonomic education and training. Training topics could include:

#### Cost-Justifying Ergonomics

It would be beneficial to create an initial training program dedicated to the demonstration of a sound business case for ergonomics. Employers need to realise that ergonomics can save an operation hundreds of thousands of dollars if correctly implemented. Such a program should include:

- ▲ An overview of the concept of ergonomics;
- ▲ Case studies with testimonials from people within operations that have experienced excellent results in their ergonomics programs; and
- ▲ The benefits derived from ergonomics including employee retention, reduced absenteeism, reduced disability and injury claims costs, improved production, and improved quality consistency.

#### Integrating Ergonomics into the Workplace

Ergonomic infrastructure and logistics have been identified as lacking in the seafood-processing sector throughout the report. A second course should assist operations to develop the necessary internal infrastructure to support an ergonomic process. This would include:

- ▲ Creating an internal group to take a leadership role within the operation;
- ▲ Developing internal policies and procedures governing the education of managers and workers, internal audits, risk identification, purchasing procedures, medical management, and a host of other necessary areas;
- ▲ A series of template forms for common tasks that the operation can adapt under its own banner; and
- ▲ A system for documenting progress and measuring success.





### **Ergonomic Risk Identification**

Once a system is in place and benchmarks have been set, a series of courses that educate management and the workforce on the nature of ergonomic risk factors should be presented. This will help to bridge the gap in the transfer of ergonomic knowledge to the general production and maintenance workforce. This section would include a series of brief educational courses on:

- ▲ The signs and symptoms of injury and the way in which injuries happen;
- ▲ Preventing upper limb injuries;
- ▲ Preventing back and knee injuries;
- ▲ Investigating ergonomic incidents;
- ▲ First aid for musculoskeletal injuries; and
- ▲ Other topics as required.

### **Solving Ergonomic Problems**

Once the process of ergonomics is in place and the necessary basic education has been carried out, specific modules that will take the organization to the “next level” can be developed. These may include the following areas:

- ▲ Starting an ergonomic early intervention process;
- ▲ Designing an effective job rotation;
- ▲ The process of ergonomic change;
- ▲ Design and redesign principles;
- ▲ Office ergonomics; and
- ▲ Other topics as required.

As part of the overall ergonomics modules, packages of resources would be made available for workplaces. These packages would include lists of internet resources, suppliers of equipment, consultants and a bibliography of relevant books, magazines and other literature to assist OH&S departments in their own ergonomic initiatives.

### **Existing Ergonomic Resources**

A search of the ergonomic resources available from the Workers Compensation Boards in the various provinces has revealed that while the regional WCB's have a variety of ergonomic resources on-line or in print format, very few of these resources are specific to seafood processing. In addition, these resources lack material on the cost-justification and system and infrastructure implementation aspects identified as lacking in the seafood-processing sector.

The majority of the information available is general in nature, which may help to explain the positive results seen in certain survey questions pertaining to general ergonomic knowledge. If the industry is interested in specific ergonomic training content, it will have to develop it internally.

### **The Need for Ergonomic Training in the Seafood Processing Sector**

Based on the results of this survey, there is a demonstrated need for ergonomic training within the seafood-processing sector. In addition, the survey has indicated that those already in charge of ergonomics for their operation do not have the training they need to carry out effective programming. These industry leaders would benefit from additional in depth training in ergonomics.

### **The Benefits of Ergonomic Training**

The benefits to seafood processing industry and seafood processing workers are numerous. As explained in the introduction, an effective ergonomic process can:

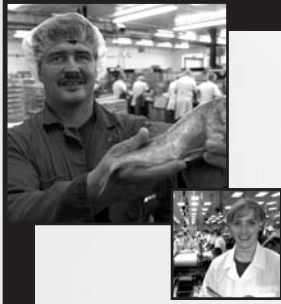
- ▲ Lower the incidence of musculoskeletal injuries;
- ▲ Keep skilled and valuable employees at work;
- ▲ Reduce workforce absenteeism;
- ▲ Achieve greater production consistency;
- ▲ Achieve higher levels of quality management; and
- ▲ Improve operating profits by lowering injury costs and improving production levels.

### **The Cost-Justification of Ergonomic Training**

40% of all occupational injuries have an ergonomic cause. In 1998 this represented a figure of 3.2 billion dollars to the Canadian economy. By reducing the incidence of musculoskeletal injuries in the seafood processing sector through ergonomic programming, skilled and trained employees can remain at work while continuing to improve the international competitiveness of our industry.

The report clearly indicates that the competitive advantage of the Canadian seafood processing industry lies in a skilled and dedicated workforce. Through ergonomic education, the seafood processing industry can reduce the human and financial costs of injuries and keep skilled and trained employees at work, doing the job they have trained for.





## Case Study

### ENGLEWOOD PACKING LTD - AN OCCUPATIONAL HEALTH AND SAFETY SUCCESS STORY

In 1999 Englewood Packing Ltd. recognized a need for intervention strategies in their Occupational Health and Safety programs. With an expanding workforce and demand for product, Englewood experienced a significant increase in injuries and disability. To deal with this, Englewood tackled the challenge directly by taking a close look at their existing OH&S Programs and utilizing consultants to re-structure their committee and present a comprehensive educational package to workers.

#### Their initiatives included:

##### 1. Structuring the OH&S program into 10 Modules:

- ▲ Leadership
- ▲ Employee Involvement
- ▲ Worksite Analysis and Ergonomics
- ▲ Accident Investigation
- ▲ Hazard Identification
- ▲ Inspections
- ▲ Industrial Hygiene
- ▲ Occupational Health/Disability Management
- ▲ Emergency Preparedness
- ▲ Training/Orientation

##### 2. Recruitment of Ergonomists to look at all aspects of the operation:

- ▲ Conduct risk analyses of all jobs within the plan;

- ▲ Provide education to the OH&S Committee on recognition, treatment and prevention of repetitive strain and other types of injuries in the workplace; and

- ▲ Provide ongoing advice and guidance during expansion of operations when considering equipment needs, placement and the effects of production changes on worker health.

##### 3. Equipment Changes/Modifications

- ▲ Over the first 3 years, Englewood worked closely with ergonomists, kinesiologists and physiotherapists to:

- i. Install adjustable foot stands at most workstations; and

- ii. Make changes to tools to decrease fatigue and strain:

1. Thickening spoon handles on the cut and wash table;
2. Thickening handgrips on pinboning pliers;
3. Provide alternate trimming knives;
4. Addition of Teflon strips to packing line to reduce shoulder strain;
5. Review and modify job rotation throughout the plant;
6. Implement a "stretch break" in the morning and afternoon;
7. Train first aid staff in the early recognition and treatment of MSIs.



Adjustable counterbalances on spoons decrease muscle fatigue on the cut and wash line.



Provision of fixed and portable foot stools enable workers to use neutral back, neck and shoulder postures at their workstations.





**SAFE WORK PRACTICE**

**GRADING - PRIMARY**

**PURPOSE:** To grade fish according to company grades. (i.e. Sterling, ordinary, prod. etc.)

**PROCESS:**

- Fish are delivered from the Bander and Pices suction line
- They come to the slide from the belts
- Look at the inside and outside of the fish
- Look for bruises, deformity, teeth, eyes etc
- Check head for gill plate, ensure both eyes are intact and not cloudy or red
- Look inside for heart, liver, bruising, black marks and remove any entrails/organs
- Check tail for splits or deformities
- Poor fish are downgraded and sorted into totes (Bander fish & production)
- The "good" fish, are transferred to the elevator belt to be taken to the chill tank
- With right hand slide along the outside of fish to feel for any deformation, then turn fish over using both hands, hanging onto belly wall to look at the opposite side of fish.
- Place onto chute/slide for delivery to gates
- Hold on to the salmon tail with left hand and then place onto downgrade chute/slide for delivery to a tote
- Ask for help if needed

**Displacements:**

- 2 to 3 fish per basket- will not exceed 20-30 lbs.
- Carry from bleeding tank to weight scale. 3 different baskets per load. Record on sheet provided.
- Send basket down the belt to be weighed and carry it back up. This will reduce the necessity of carrying the baskets both ways.

**PICTURES:**

PACE:	PPE:
<ul style="list-style-type: none"> <li>• 6-9 boxes per minute</li> <li>• 60-minute rotation</li> </ul>	<ul style="list-style-type: none"> <li>• Hair net</li> <li>• Gloves</li> <li>• Boots</li> <li>• Hearing protection</li> </ul>

POTENTIAL ERGONOMIC RISK FACTORS	PREVENTION STRATEGIES
Similar motions performed	✓ Encourage micro-breaks to complete forearm stretching.
Exposure to cold	✓ Encourage frequent immersion in warm water
Improper posture and stance	✓ Stand as upright as possible. Encourage standing spinal extension stretching.
Mental efforts required to perform task perceived by worker to be excessive	✓ Task rotation.

The processing and packaging of farmed salmon is a physical and repetitive job. A regular schedule of stretching and exercise can help to keep you muscles, tendons, and ligaments in good shape.

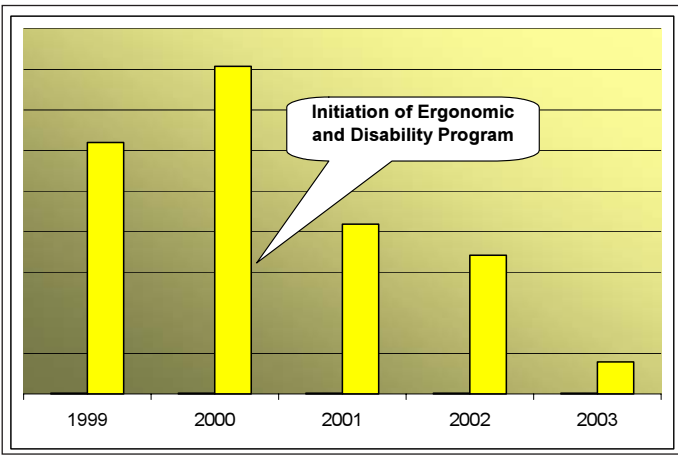
We have both a group stretching program and individual stretches and exercises tailored to each job. The program is an excellent preventative measure in avoiding injury. Group stretches and exercises are done at regular intervals during each shift. Stretching will help to warm up your muscles before they start the job and help to provide rest and reduce the normal strain of a physical job.

A certain amount of aches and discomfort is normal when starting a new stretching and exercise routine, but if any of the stretches and exercises become uncomfortable or hurt, don't do them. The Movement Safety Data Sheet for this job contains a list of stretches and exercises that will help reduce the impact of its more stressful movements. While working, stretches should be done throughout the day, as often as possible, and before you start to feel sore.

4. Implement Training Initiatives
  - ▲ Production of Safe Work Practice sheets for every job in plant; and
  - ▲ Incorporating training schedules and follow-up procedures to evaluate worker compliance and comprehension of safe practices.
5. New Worker Orientations
  - ▲ Production of training video to outline specific risk factors in operation.
6. Establishment of Ergonomics Committee
  - ▲ Instituted a means by which the effects of ergonomic change can be evaluated.
7. Prevention Initiatives
  - ▲ Review and implementation of comprehensive inspection and follow-up procedures.
8. Disability Management
  - ▲ The implementation of a systematic process to bring injured employees back to meaningful employment at the earliest opportunity;
  - ▲ Establishment of strong communication channels between Englewood and the healthcare team (physicians, physiotherapists, chiropractors etc.); and
  - ▲ Formalized meetings and planning sessions to assist injured workers.

With the improvements in rotation, tools and early intervention, local physicians and other healthcare providers began to recognize that Englewood was taking responsibility for injured workers and providing them with a safe workplace. As a result, they were less hesitant to sign workers back to work, knowing that they would have opportunity for modified or lighter duties. This immediately improved Englewood's "lost time" accident rate, as they were able to keep workers at work. The overall result was decreased disability rates, decreased claims costs, improved worker morale and an overall decreased absenteeism rate.

The reduced claims costs recognized by Englewood over the past 5 years is illustrated in the chart below:





## OVERALL CLAIMS COSTS AT ENGLEWOOD PACKING LTD.

As the infrastructure became more solid and the workers became accustomed to identifying and addressing the ergonomic risk factors, the need for consultants decreased steadily. The workers were given the opportunity for input into the changes proposed and implemented. The morale in the plant increased, as did the workers' sense of self-sufficiency and pride in their workplace. The frequency, severity and incidence of MSI's are continuing to fall and it is anticipated that Englewood will continue to make strides forward in the coming year.