

Log Transport Safety Council

The health and fitness of log truck drivers

An evaluation of the industry and recommendations for action



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Executive summary

Introduction

The Log Transport Safety Council has been undertaking a programme of work aimed at improving log truck safety. It is currently investigating concerns about the incidence of health and injury related problems and time off work as a result of these problems, especially among older drivers in their industry. There is also a concern that driver fatigue may be contributing to log truck crashes in some instances. For drivers, long hours of work can be exhausting, yet their job is relatively sedentary, with only intermittent and brief periods of physical activity during loading and unloading. Furthermore, a driver who gets home at 6pm and goes to bed at 8:30pm for a 3am start, has little opportunity for exercise and quality family time. This life-style may contribute to health, family and relationship problems. These working conditions also sit within an industry where the profit margins of many log transport operations are very modest which presents significant challenges to those wishing to improve driver working conditions.

There is a significant amount of overseas research that describes the health, fitness and safety issues associated with truck driving. There is also literature that reviews and evaluates the effectiveness of health and wellness initiatives that have been implemented specifically for truck drivers. It appears that the truck driving life-style is associated with a number of health problems. It is also evident that health and well-being initiatives have the ability to successfully address many of these health problems with reported cost:benefit ratios of 3:1-4:1, depending how they are implemented.

The purpose of this project was to identify health and fitness issues related to log truck drivers of varying ages and provide recommendations for interventions to address these issues.

Research approach

Initially, a day was spent with a log truck driver and health and safety staff from log transport operations were interviewed. This provided an opportunity to learn about the operations, requirements and subtleties associated with log truck driving.

Based on these initial investigations, a questionnaire was developed so that the major health and fitness issues facing log truck drivers could be evaluated. The questionnaire aimed to obtain a broad range of information about their personal details (height, weight etc), lifestyle habits including physical activity, nutrition, sleep and fatigue, health and well-being (including specific medical problems), difficulties within their job and the driver's overall perception of how easy or difficult it is for them to be a log truck driver. A final part of the questionnaire allowed drivers to mention any initiatives that they felt would help to make log truck driving easier, safer or more attractive. The questionnaires were mailed in batches to operators, and then drivers returned them individually using 'FreePost' envelopes.

Following the return of the questionnaires a number of themes emerged that required deeper investigation. Structured (in cab) interviews were then carried out with drivers and conversations with company management staff allowed many of the themes to be explored further, from a different perspective. From the questionnaire, interviews and conversations a number of issues and possibilities for addressing the issues became apparent.

A working group (organised by the Log Transport Safety Council) was then formed to discuss the major issues and refine a framework for future initiatives. This working group will be used for the development of any health and fitness initiatives that are developed in the future.

Research findings

Some very clear findings resulted from the questionnaire and driver interviews:

- Log truck drivers appear to be very overweight compared with New Zealanders of similar age and gender.
- Hearing problems are wide-spread among log truck drivers.
- Approximately 10-20% of drivers have problems with sleepiness or fatigue.
- Drivers who have fatigue problems may also be more stressed and find log truck driving more difficult in general.
- A large proportion of drivers have had problems with relationships or family life and long hours of work appear to contribute to these problems. This appears to be more of a problem with younger drivers.
- There is a relatively high risk of musculoskeletal injury among drivers, especially during loading and unloading operations.
- In general, drivers have a positive view of their employer, have a passion for trucks and appreciate that many problems are related to the wider forestry supply chain system.
- There are advantages to log truck driving compared with other truck driving sectors. Periods of sustained driving are relatively short which helps with fatigue, being in the forest is a pleasant work environment and there is relatively little other traffic to worry about.

Conclusions and recommendations

The findings of this report have identified a number of workforce issues that need to be addressed. There is already a measurable log truck driver shortage. The added removal of drivers from the workforce through obesity related disease (e.g. diabetes, cardiovascular disease), accidents (either on-road or out of the cab) and stress (mostly through family and relationship problems) will add to this driver shortage and will ultimately add costs to log transport operations.

More positively, the industry's biggest health problem – obesity, is also a significant problem for the nation, and there is a wide range of government and national level resources available for addressing this problem. Within the log transport sector there are a number of areas that could be addressed, which would likely have an immediate impact on the health and well-being of drivers. In fact, many operators have already taken steps to improve driver health and fitness, and in these cases it may simply be a case of providing a centralised (and well publicised) repository for information on these initiatives.

There are also larger supply-chain issues that need to be addressed at a wider industry level. Co-operation with mills, ports, forest owners and greater co-operation within the industry will be needed in order to address some of these larger problems. Again, examples of this approach already exist.

The key areas that require attention are:

- Obesity – nutrition and exercise
- Work / life balance – hours of work, start times, relationships and family, stress
- Workplace injuries – Hearing, skid site safety, sitting in the cab, getting in and out of the cab

While some of these areas may be dealt with personally by drivers, transport operators and forest owners need to take a leadership role. It is recognised that many of these issues will take time to address and will require the involvement of the wider industry and the government.

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Introduction

Background

The Log Transport Safety Council (LTSC) was formed in the late 1990s following some high profile fatal log truck roll-overs and increasing concern about the safety of the industry. It was subsequently found that log trucks were more likely to roll over than other trucks and so the LTSC addressed log truck safety by focusing on vehicle design, vehicle dimensions, vehicle operation, driver behaviour and company management. These initiatives have resulted in a major reduction in log truck crashes and rollovers during a time of rapid growth in the industry. From being regarded as one of the worst sectors in the transport industry, it is now one of the better ones and no longer attracts the adverse media attention that it once did.

As part of its on-going programme of work, the LTSC has recently turned its attention to the increasing incidence of health and injury related problems and increased time off work as a result of these problems, especially among older drivers in their industry. There is also a concern that driver fatigue, caused for example, by sleep apnea, may be contributing to log truck crashes in some instances. Anecdotally, the age profile of log truck drivers has been increasing and a recent LTSC operator survey found that the average log truck driver age was 43 years. Health has also been cited as a major factor contributing to drivers leaving the heavy truck transport industry (Oliver et al. 2003). There is a need to comprehensively examine the demands of log truck driving and the health and fitness of drivers of varying ages.

Log truck driving can be demanding and hazardous in obvious and less obvious ways. Long driving hours, very early starts to their working day and physical hazards related to forestry skid sites and the truck and its load are examples of some of the more obvious hazard sources. Possible causes of driver ill health and injury which are less obvious include the relatively sedentary nature of log truck driving (apart from brief bouts of activity throwing and securing chains) and the limited access that drivers have to recreation and physical activity as a result of their long daily hours of service.

The hazards that log truck drivers face come from both the freight transport and forestry sectors. A typical day might see a driver begin work at 3 am, and then drive for up to 13 hours on-duty. Until recently The Land Transport NZ driving hours restrictions were as follows:

A driver must:

- *not drive for more than 5½ continuous hours*
- *have at least a half hour rest after 5½ hours driving and before they do any more driving.*

Over any 24-hour period, a driver

- *must not spend more than 11 hours driving*
- *must not spend more than 14 hours on-duty*
- *must have at least nine continuous hours off-duty.*

In addition, after doing 66 hours driving or 70 hours on-duty (whichever occurs first), a driver must have at least 24 continuous hours off-duty. The total of 66 hours driving or 70 hours on-duty has to be counted from the last off-duty period of 24 hours or more.

Recently, new rules on driving hours took effect. Among other changes 13 hours per day is the maximum allowable working time and there is no differentiation between driving and other work duties.

An addition to long hours of driving and duty, there are periodic exposures to a range of hazards specific to forestry and log truck work. These hazards include noise from loading machinery, throwing chains or strops, twitching (tensioning) chains, skid sites dangers including slips, trips and falls, loading and unloading logs or trailer and off-road driving. Drivers are exposed to these hazards through a range of weather conditions, which can exacerbate the significance of hazards.

These working conditions also sit within an industry where the availability of work to log transport operators can be very inconsistent and the overall profitability of many log transport operations means that there would be challenges in changing the working conditions of drivers.

However, the mix of long working hours and a relatively sedentary occupation means that log truck drivers may be at risk of obesity and all the accompanying health risks, including type two diabetes, increased LDL (bad) cholesterol, coronary heart disease and depression among others (Ministry of Health 2003).

Anecdotally, truck drivers in general are at risk of a sedentary life-style and becoming overweight or obese. Obesity can affect the quality of sleep that a person gets, which in turn can have a significant effect on fatigue throughout the day. Poor health and fitness and increased fatigue can also increase one's risk of injury through lack of alertness and a decreased physical readiness to perform daily tasks.

It is not known whether health and well-being issues among log truck drivers are simply a result of wider social issues in society, or whether these issues largely stem from the life-style that is imposed upon drivers as a result of their career choice. It is important to establish the origin of health and well-being issues, so that recommendations and interventions can be tailored accordingly.

Older workers

Many log transport operators and members of the LTSC believe that the log transport workforce is aging rapidly. An aging workforce means that workplace issues that specifically relate to older workers become increasingly important. There are both benefits and disadvantages associated with older workers. For example, most studies suggest that older workers have fewer accidents, but when an older worker does get injured, the injuries are often more severe. (Laville 1998). In general, younger workers are more likely to receive hand and eye injuries, while older workers are more likely to experience back problems. In general, studies report that older workers exhibit lower turnover, more dedication to the workplace, and have more positive work values. Absenteeism is also less frequent, although it is longer when it does happen.

Physical changes that occur with ageing that may affect work:

- In general, people lose approximately 15-20% of muscular strength between the ages of 20 and 60. However, there is a large range between individuals and the general health and/or presence of disease can confound this.
- As people age, they generally become less physically flexible, which may affect work or their risk of injury.
- Posture and balance may diminish as workers age.

- Older workers may find it more difficult to adjust to hot or cold conditions due to poorer body temperature regulation.
- Aspects of older people's vision naturally deteriorate with age. Being able to focus at various distances can be corrected with glasses or contact lenses, but things such as depth perception and peripheral vision may also be affected.
- High frequency sound becomes less distinguishable with age. Older workers might have difficulty hearing instructions in noisy environments.
- Verbal tasks and vocabulary tend to improve with age
- Older workers may find it more difficult to work with lots of different things at one time or in busy environments.

It must be emphasised that these are generalised findings of studies that have involved a number of people. Individuals may vary in their abilities as they age. For example, not all fifty-year olds require glasses to read. Nevertheless, an investigation into the capability of older log truck drivers is warranted given the level of concern that the industry has expressed regarding the hazards, health and well-being and demands associated with log truck driving.

Literature on the health and well-being of truck drivers

Although this is changing, government information regarding truck driver fitness for duty tends to focus on the assessment, diagnosis and examination requirements of driver's medical problems that are known to have a direct link to accidents. Most developed countries have extensive guidelines for assessing driver fitness for duty. Examples are Australia's *Assessing Fitness to Drive*¹, and the 'Health' section² on Land Transport New Zealand's website.

In most countries there is little formal recognition by transport organisations of the connection between driver's lifestyle and risk factors and the affects that these might have on crash risk, disease, extended leave, attrition and negative perception of the industry. This is surprising given the stereotypical image of a truck driver (overweight, smoker with poor eating habits and long shifts at the wheel) that has long existed. It is equally surprising given an established body of literature that exists within this area.

Risk factors and poor health

A large amount of research has focussed on professional driver health (more recent examples include Korelitz et al. 1993, Moreno et al., 2004, Perez-Chada et al. 2005, Taylor and Dorn, 2006 and Magnusson et al. 1996) and some of this literature spans back almost 50 years (Heady et al. 1956).

In a study titled *Health habits and risk factors among truck drivers visiting a health booth during a trucker trade show* Korelitz et al. (1993), a cross-sectional survey of 2,945 male and 353 female truck drivers was conducted in order to provide general information on their personal characteristics, health status, and health interests. It was found that a large percentage of male truck drivers smoked cigarettes (54% vs. 30% of all U.S. white males), did not exercise regularly (92%), were overweight (50% vs. 25% of all U.S. white males), and/or were not aware they had high blood pressure (66% vs. 46% of the U.S. population). Also, 23% of surveyed truck drivers tested positive on one measure of alcoholism.

¹ Assessing Fitness to Drive. <http://www.austroads.com.au/cms/AFTD%20web%20Aug%202006.pdf>

² Land Transport NZ. <http://www.ltsa.govt.nz/road-user-safety/motorists/health.html>

Taylor and Dorn, 2006 reported that a number of studies have shown that drivers who drive for work have a higher accident risk than the general driving population, even when their greater exposure is accounted for. It was also concluded that increased physical activity may improve driving performance and potentially reduce accident risk through reduced stress, improved psychological and physiological responses, enhanced sleep and alertness, reduced fatigue and cognitive functioning and physical health status. However, it was also concluded that further research should be conducted in order to demonstrate the causal relationship between physical inactivity and increased crash risk.

It is worth considering that a potential crash is not the only major negative outcome for a truck driver, their family or their company and to some degree the conclusions of Taylor and Dorn (2006) highlight a general tendency to focus on motor vehicle crashes. Although crashes are very significant in that a number of vehicle occupants are often involved, a driver who has a stroke or heart failure when they are not driving can also have a major impact on the driver, their family and their company. Furthermore, most adults are many times more likely to die from cardiovascular disease than a motor vehicle accident.

Part of the reason that the prevention of cardiovascular diseases does not rate as highly as the prevention of motor vehicle accidents may be due to a perception that cardiovascular diseases are general social problems of which causal factors are difficult to establish for any single case. However, the reality is that there are now some very well established pathways towards cardiovascular disease, and that a lack of exercise, poor diet and stress (among other factors) are all risk factors for ischaemic heart disease and stroke. High blood pressure (hypertension) is an important risk factor for cardiovascular disease, particularly stroke. Modifiable determinants of blood pressure include diet, body weight and physical activity (Ministry of Health, 2004).

The scientific literature is very clear in that truck drivers have an increased risk of developing cardiovascular disease, and that their working and lifestyle patterns contribute directly to this elevated risk. The connection between professional driving, ischaemic heart disease (reduced blood supply to the heart) and stroke by the scientific literature, is summarised in an extensive review of literature by Krueger et al. (2007). High blood pressure, caused at least in part by significant job stress is given as one of the main mechanisms for the development of stroke and heart disease along with long working hours, obesity and increased blood clotting factors.

Krueger et al. (2007) reports that the major health related issues for commercial drivers are:

- Obesity
- Poor nutrition
- Lack of exercise
- Hypertension
- Cardiovascular and heart disease
- Diabetes
- Hearing Problems
- Vision Problems
- Musculoskeletal disorders (especially low back and neck pain)
- Psychological stress and mental health disorders
- Alcohol, prescription drugs and other chemicals

The link between professional driving and stroke was examined by Tuchsén et al (2006). The authors cite many studies that have linked professional driving to ischaemic heart disease over the last half century, but point out that only three

previous studies had investigated stroke among professional drivers. Lorry drivers who were admitted to hospital for stroke diagnoses between 1994-2003 in Denmark, were compared with the incidence of stroke diagnoses of the general Danish male population. It was found that there was an increased risk of stroke among professional drivers and it was postulated that psychosocial strain, hypertension, long working hours, obesity and increased blood clotting factors are likely mechanisms for the association between professional driving and stroke.

Sleep and fatigue

In 1998 and 2000, TERNZ completed two reports addressing psychological fatigue while driving. The first of these reports (Charlton and Ashton 1997) gave an overview of the impact of psychological fatigue on the road transportation industry and described countermeasures that have been employed in the industry to combat the adverse effects of fatigue on health and safety. Based on the fatigue literature, the authors provided a list of the factors that are likely to cause fatigue within the trucking industry:

- **physiological factors:**
 - Working or resting at times incompatible with circadian rhythms (i.e., time of day factors) or disrupted circadian rhythms
 - Insufficient sleep, disturbed sleep, split sleep patterns
 - sleep disorders and other medical conditions
- **individual-related factors:**
 - age-related changes to circadian rhythms and sleeping patterns
 - personality factors (introversion/extraversion and morningness/eveningness)
 - motivational factors delaying rest
 - poor physical fitness
 - driving, traffic, and work experience
 - commitment to work (ability and desire to change one's lifestyle to suit work demands)
 - non-work demands (family commitments, recreational activities, etc.)
 - alcohol and medications interfering with sleep
 - poor diet/irregular eating
- **work-related factors**
 - shift work, irregular, inflexible, or abnormal working hours/schedules
 - dawn, dusk, and night driving
 - long working (driving and non-driving) hours and long hours on one task
 - monotonous tasks and monotonous driving routes
 - irregular, insufficient, inadequate, or inappropriately timed rest/sleep breaks
 - commercial pressures/over-tight delivery schedules/pay incentives
 - stressors in the driver's cab (e.g., heat, noise, vibration), poor rest in trucks
 - non-driving work (e.g., breakdowns, loading and unloading)
 - heavy city traffic, poor roads, poor weather

Of the factors that may affect driver fatigue, many are related to the organisational structure of transport operations and a number are related to driver personal health, fitness or lifestyle. Of course there may also be dependencies among these factors. For example, if a driver spends up to 14 hours on work duties, then there will be little time left for him to exercise and spend quality time with his family, and so he may become unhealthy, overweight and may experience relationship and family social problems.

The second report (Charlton and Baas 2000) provided a thorough assessment of the incidence and extent of truck driver fatigue in New Zealand by testing a sample

of 600 truck drivers, using a number of tools. The report concluded that there is a high incidence and degree of fatigue within New Zealand's truck driving sector, and that our current hours of service regulations are not effective in managing levels of fatigue within the industry.

Overseas truck driver health and well-being interventions

Increasingly, workplace health and wellness programmes are being recognised as potentially improving employee health, satisfaction and productivity. A number of studies have documented the development of truck driver health or well-being programmes, most of which are reviewed by Roberts and York (1997). This review was then followed by a related report focussing on health and wellness programmes for commercial drivers (Krueger et al. 2007). These reports provide 1) a technical review of the literature, highlighting the chief health risks facing commercial drivers 2) an analytical review of the literature associating crash causation with functional impairments affecting abilities to drive safely, 3) a description of identifiable elements of some industry employee health and wellness programmes, including several aimed at commercial drivers, and 4) an outline of findings from five case studies of successful employee health and wellness programmes in the trucking and commercial bus/coach industries.

These reports summarise the following criteria for successful wellness programmes (from all industries):

- Commitment from senior management
 - Monetary and personnel support
 - Philosophical support
 - Participation in programmes
- Clear statement of philosophy, purpose and goals
- Needs assessment
- Strong programme leadership
- Use of effective and qualified professionals
- Accurate, up-to-date, research based information made available to participants
- Effective communication
 - High visibility
 - Successful marketing
 - Motivating to employees
- Accessible and convenient for employees
- Realistic budgets
- Supportive physical environment
 - Cafeteria and vending with healthy options
 - Available fitness facility
 - Truck cab and surrounding working environment
- Individualised to meet the needs of individual employees
- Defined evaluation system
- Shows results

Many of the lifestyle and risk factors that are associated with poor health in truck drivers could be addressed through a health and wellness programme that are tailored to the needs of New Zealand truck drivers. Elevated blood cholesterol and pressure, obesity, lack of exercise, poor rest and sleeping habits, smoking, chronic fatigue and drug and alcohol use have all been suggested as problematic within the trucking industry overseas and could all be addressed in future driver wellness initiatives in New Zealand. From the reports of American health and wellness programmes (Roberts and York 1997, Krueger et al 2007) it is generally accepted by industrial health professionals that the return on investment for a good wellness programme is in the order of 3:1 to 4:1. The problem is that it can take time for

these savings to be realised and it is difficult to tangibly allocate savings to a particular wellness intervention.

A programme for reducing the levels of risk indicators of heart diseases among professional drivers were compared with a reference group by Hedberg et al. (1998). The intervention group received a health profile assessment which began with a dialogue between the driver and a healthcare consultant about their lifestyle including leisure time activities, exercise habits, diet, tobacco use, perceived stress and perceived loneliness. Drivers were encouraged to make a comparison between their current and desired health outcomes, and they were offered brochures and information about potential health problem areas and what might be done to address these problem areas. Drivers were contacted by phone after 3 months by the healthcare consultant to check on progress and to motivate the driver if action had not been taken. Changes in driver's health indicators were measured at the beginning of the study, at six months and at 18 months in the intervention and reference group. Positive changes in the intervention group occurred over the study period, especially improved oxygen uptake and some lifestyle habits, but many also occurred within the reference group. Because none of the differences in improvements between the intervention group and reference group were statistically significant, it could be argued that the programme was limited in its effectiveness. This may highlight the limitations associated with a relatively passive programme where drivers receive limited contact with support and are otherwise left to modify their behaviour alone.

Focussing more on diet, Gill and Wijk (2004) evaluated a healthy eating intervention for Swedish lorry drivers. The intervention involved the promotion of healthy food alternatives at a truck stop and included an information campaign, healthier "Today's specials" choices and by using truck stop staff as proxy health promoters. Although the study did not measure any resulting health benefits, drivers tended to choose healthier options and showed improved nutritional awareness.

The Australian TruckSafe accreditation scheme has a workplace and driver health module. Although, the standard requirements for the module does focus on the assessment of medical conditions and workplace hazards and rehabilitation, a driver health policy is required and a useful (albeit brief) "Health Tips" section is included that covers nutrition, fatigue, back care, waking up from sleep, cholesterol lowering actions, weight loss, caffeine intake, physical activity, drug use and warning signs. The true usefulness of this information is determined by how well it is implemented into effective actions and it is unclear whether the effectiveness of this module has been evaluated. Nevertheless, this module within the Trucksafe accreditation scheme is recognition that the driver is an important component of the heavy vehicle safety and productivity system.

Project purpose

The purpose of this project was to identify health and fitness issues related to log truck drivers of varying ages and provide recommendations for interventions to address these issues.

Research approach

In order to identify the health and fitness issues faced by log truck drivers, four stages of data collection were used:

- 1) Day spent with driver to observe job requirements and initial visits with health and safety personnel at two log truck operations
- 2) Driver questionnaire
- 3) In cab, in-depth driver interviews and supplementary operator discussions
- 4) Driver health and fitness working group to develop a plan for action

Day spent with driver and initial health and safety staff visits

The very first stage of the research was to obtain an understanding of the job requirements of log truck drivers. A full, typical day was spent with a driver from a Rotorua based operation. The day began at 3am, involved three return trips to Kawarau pulp and paper mill and finished at 4:30. By travelling with a driver for a whole day, the researcher was able to observe the job requirements, discuss the job with the driver and take still photos of various activities.

Meetings with health and safety personnel from two log transport operations enabled a further discussion of the demands that log truck driving require, but also some of the health and fitness issues that also commonly arise. At this point two key points became very clear: 1) the operators I spoke with had a very good understanding of their drivers in terms of the hours they had worked recently, start times and how well they were coping with the demands of the job, and 2) there are already some excellent initiatives that are being trialled and adopted by operators in order to address health and well-being concerns among their drivers.

Driver questionnaire

A driver questionnaire (Appendix 1) was then developed, based on the issues raised at LTSC meetings, the day spent with a driver and the initial conversations with operators. The questionnaire aimed to obtain a broad range of information about their personal details (height, weight etc), lifestyle habits including physical activity, nutrition, sleep and fatigue, health and well-being (including specific medical problems), difficulties within their job and driver's overall perception of how easy or difficult it is for them to be a log truck driver. A final part of the questionnaire allowed drivers to mention any initiatives that they felt would help to make log truck driving easier, safer or more attractive.

The questionnaire was mailed in batches to log transport operators, who distributed them for completion. Only operators who responded to an earlier questionnaire asking of the profile of operators received a batch of questionnaires for distribution to their drivers. This was done to reduce the wastage and improve the return rate of the questionnaire.

Each questionnaire had an accompanying consent form and 'FreePost' envelope. A unique number was stamped onto both the consent form and the questionnaire, and drivers were instructed to tear off and retain their number on the consent form, which was the only place where their name was written. This meant that as soon as the consent form and the questionnaire were separated, there was no way of knowing the identity of the driver unless they contacted the researchers and shared their unique number. As well as protecting driver's confidentiality, this system meant that a driver could pull their questionnaire form from the study if they wished.

Where there were concerns about the possible accuracy of driver's reported answers, the questionnaire answers were compared with operator held information

from health checks. This was only used to check the validity of driver's reporting their body weight and height.

Driver and operator interviews

Following the return of the driver questionnaires, a range of issues started to emerge, which related to the health, fitness and lifestyle of drivers. In depth interviews with 14 drivers representing the spread of log truck drivers around the country (from Northland to Dunedin) were then carried out to explore these issues with a particular focus on the causes of driver health and fitness problems and possible solutions for the future. The interviews were also used to ascertain possible links between lifestyle, working conditions, health status, fatigue and risk of injury or accident. Photos and some basic measurements (e.g. time spent performing different parts of the job, weight of chain to be thrown for log securing) were also taken in order to help define the job requirements of log truck driving.

All driver interviews took place while the driver undertook his normal duties. Typically 2-3 hours was spent with each driver, with two interviews from one operator being completed each day. Because the driver interviews were shared between two researchers, a standardised template was used to structure the interviews, with the themes following the topics that were covered in the previous driver questionnaire.

Once all of the driver interviews were completed, driver responses were grouped into common themes so that the responses of all 14 drivers could be analysed together. The two researchers who carried out the interviews then independently summarised the key points from the pooled responses for each theme. These independent summaries were then added together to create an overall summary of key points for each theme. The summary of key points from the interviews can be found in Appendix 2.

Visiting the log transport operations also provided the opportunity to informally discuss driver health and wellbeing with company owners, general managers, health and safety staff and dispatch staff. Although the content of these discussions have not been analysed formally, these discussions were valuable in that they provided a different perspective to the issues surrounding driver health and wellbeing, and gave greater depth to the issues that need to be understood in order to develop health and wellbeing initiatives for log truck drivers.

Drivers and other transport operator staff provided some excellent suggestions for initiatives to improve the health, fitness and wellbeing of log truck drivers. These suggestions were incorporated into a matrix that was used to create an initial framework for these potential initiatives.

Driver health and fitness working group

A working group (organised by the LTSC) was then formed to discuss the major issues and refine a framework for future initiatives. This framework can be found on page 32.

This working group will be used for the development of any health and fitness initiatives that are developed in the future.

Research Findings

Questionnaire

Some very clear findings came out of this research, as well as some trends that may require further investigation. Some of the most significant findings from the questionnaire were:

1. Log truck drivers appear to be very overweight compared with their age and sex matched New Zealand counterparts.
2. There is a high reported incidence of mental illness among log truck drivers, but it is similar to that reported within the age and sex matched New Zealand population
3. Hearing problems are widespread among log truck drivers.
4. The most common reported amount of sleep per night is six hours and approximately one quarter of drivers have reported getting less than six hours sleep per night.
5. Approximately 10-20% of drivers report problems with sleep, sleepiness or fatigue.
6. Approximately one third of all drivers have reported needing to visit an emergency department or hospital as a result of a workplace accident, with the most common cause of injury being 'slips, trips and falls from or around truck' (17% of all drivers) and the most common injury being 'pain in the neck, back, shoulder, elbow, wrist, hip, knee or ankle' (26% of all drivers).
7. Approximately 37% of drivers report having problems fitting work and home life into the day. This appears to be more of a problem with younger drivers than for older drivers, but in general this is a major issue with failed relationships and isolation from family being common.
8. When asked "What could employers and the industry do to make the job of log truck driving easier, safer or more attractive?", 33% replied that issues related to time should be addressed (including working hours, work / life balance, scheduling / early starts and productivity pressure). Money or pay related issues were mentioned by 32%. Road conditions were mentioned by 11%, truck related equipment by 10% and training by 5% of drivers.

Background information

A total of 225 questionnaires were returned and used in the final data analysis. This represents approximately 16% of the industry. When asked about their ethnicity, 72% reported being New Zealand European, 27% reported being Maori, 4% reported 'Other' and 1% reported their ethnicity as being Pacific Island. Within the log truck driver sample, New Zealand Europeans were over-represented (67% in New Zealand population) (Statistics NZ 2007), Maori were over-represented (15% in New Zealand population), while other ethnic groups were under-represented.

The mean age of the surveyed drivers was 43.8 years, which was very similar to the mean age (43.2 years) calculated from last year's LTSC demographic survey. The 25th percentile age is 35 years and the 75th percentile age is 52 years. The youngest driver in the group was 19 years and the oldest was 70 years. The age distribution of drivers is also shown in Figure 1.

It appears that log truck drivers are not unique in terms of their age profile. An analysis of a recent Statistics New Zealand Labour force survey (Statistics NZ 2006) found that the average age of working males is approximately 42 years.

Nevertheless, like other industry sectors, the log truck driving industry faces the challenges of an ageing workforce.

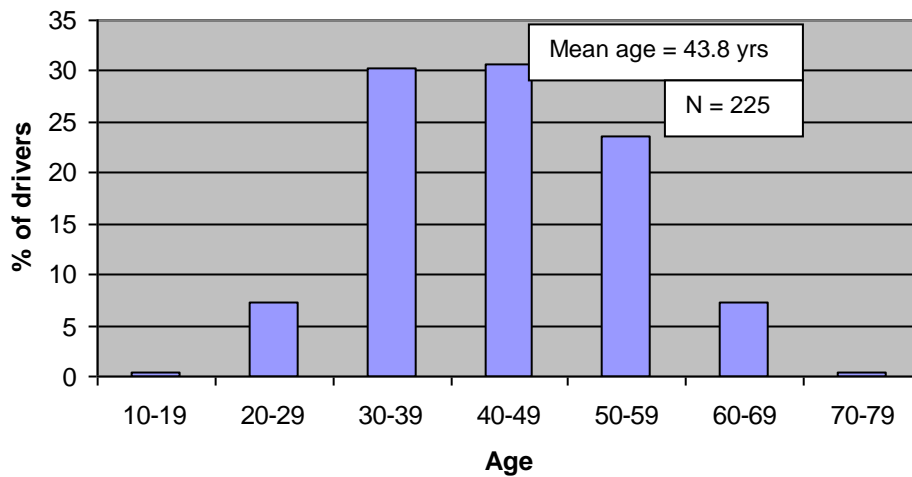


Figure 1. Age profile of the drivers surveyed in the driver health and fitness questionnaire

When asked “Do you smoke one or more tobacco cigarettes per day?”, 33% responded with “yes”. This is higher than the incidence reported for the New Zealand adult male population (24%) (Ministry of Health 2004), but then there were a higher proportion of Maori within the log truck driver sample. Within the broader New Zealand Maori population. Approximately 43% of Maori males are current smokers.

Obesity

Overweight and obesity are important risk factors for several diseases, including type 2 diabetes, ischaemic heart disease, ischaemic stroke and several common cancers (Ministry of Health 2004). The ‘fatness’ or ‘thinness’ of a person is commonly measured using body mass index (BMI). BMI is calculated by the following formula:

$$\text{BMI} = \text{bodyweight (kg)} / \text{height (m)}^2$$

Table 1 (Ministry of Health 2004) is then used to convert BMI into a statement of how under or overweight they are:

Table 1 Weight categories and associated BMI scores

Classification	European, Asian and Other	Māori and Pacific
Overweight	25.0–29.9	26.0–31.9
Obese	≥ 30.0	≥ 32.0
Overweight or obese	≥ 25.0	≥ 26.0

The mean and standard deviation for driver's BMI was 29.6 (std dev 4.4), which was remarkably similar to the mean (std dev) BMI (29.6, std dev 4.6) from a sample of 82 anonymous health check records, supplied by four operators as a validation of driver's body weight and height reporting. As there were many drivers whose BMI scored significantly greater than 30 a further category 'very obese' was used for the purpose of this study.

There are some limitations in using BMI. For example, very athletic individuals who have a relatively high proportion of muscle mass result with a high BMI score, despite the fact that they have a low proportion of body fat. Nevertheless, BMI is useful in estimating the incidence of obesity in general populations.

Figure 2 shows that a large proportion of log truck drivers are categorised as overweight, obese or very obese, with 39% of the drivers being obese or very obese. Although a small number of drivers are likely to be incorrectly labeled as overweight or obese due to being very muscular (e.g. body builder, rugby forward, weight lifter), it is clear that a large proportion of drivers have a serious weight problem.

Figure 3 shows that the incidence of obesity among log truck drivers is much greater and statistically greater than the general New Zealand population. This suggests that either log truck driving contributes to being overweight or the type of people who drive log trucks are for some reason more likely to be overweight.

The Ministry of Health has published a report that compares the body fat of New Zealanders of varying Education, income and social deprivation status (Ministry of Health 2006). The study found that BMI is not significantly affected by socio-economic status among non-Maori males, but Maori males tended to have a higher BMI (i.e. are fatter) with higher socio-economic status. This suggests that the lifestyle that log truck drivers lead is directly related to their increased incidence of obesity. This suggestion will be supported further later in this report.

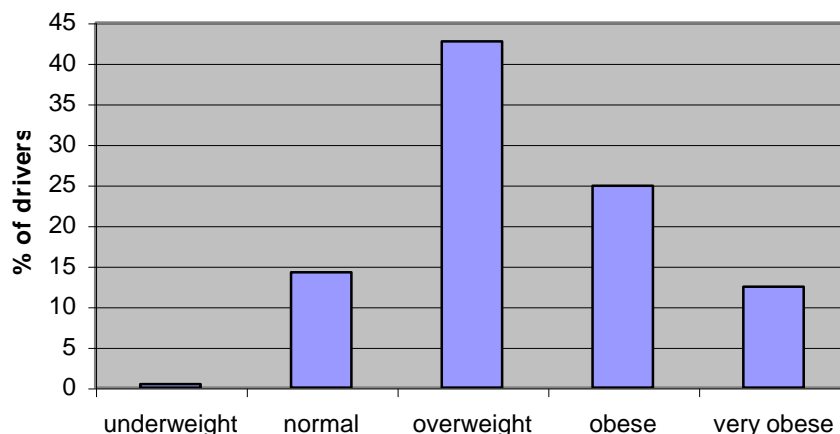


Figure 2. Percentage of log truck drivers in BMI categories based on their reported height and weight

As a group, log truck drivers appear to under-estimate their obesity. Figure 4 shows that the most common answers to the question "What are your thoughts about your weight?" were "I am a bit overweight" (47.5%) and "I am about the right weight" (42%). This means that approximately 90% of drivers believe they are about the right weight or a bit overweight, which is much higher than the 57% of drivers who actually were the right weight for their height or in the 'overweight' category.

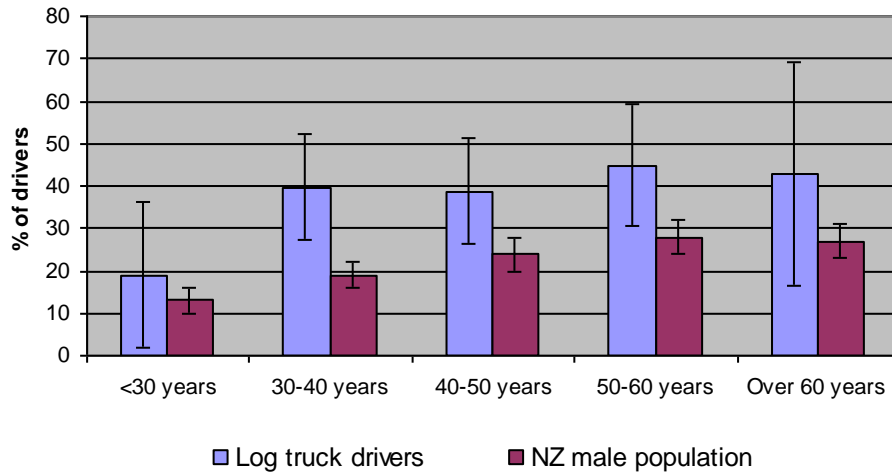


Figure 3. Percentage of drivers who are 'obese' or very obese compared with the New Zealand age and gender matched population. The error bars represent a 95% confidence interval, which means that at <30 years (due to the significant overlap between the error bars) we cannot be confident about a difference between log truck drivers and the NZ male population, whereas between 30 and 60 years we can be confident that there is a difference between the groups. The over 60 years group of people is small and a larger group would give us greater confidence in a difference between the groups (although this may be confounded by the increased risk of death of obese people at older ages)

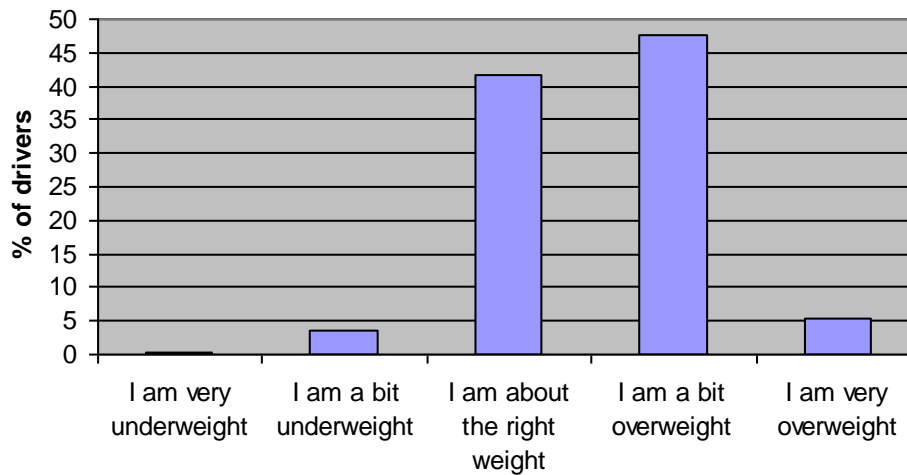


Figure 4. Drivers' thoughts about their weight

Apart from the misconception drivers have of their levels of obesity, there may be some additional reasons for the large difference between their actual and perceived obesity. As mentioned earlier, using BMI to estimate fatness can over-estimate the fatness of athletic individuals who have a relatively high proportion of muscle mass. Among the sample of drivers used in this study, there are no doubt some who were athletic or in good physical shape, with a high proportion of muscle mass.

Physical activity

The Ministry of Health defines being 'physically active' as accumulating at least 2.5 hours of physical activity in the last week, with exercise accumulated on one or more days of the week. Within this study, drivers were asked "How many times per week do you accumulate 15 minutes of vigorous physical activity or 30 minutes or more of moderate activity at home or at work?". For comparative purposes, those who stated that they achieved 4 or more physical activity sessions per week, were classed as 'physically active'. This is slightly conservative, but it accounts for those who might exercise for more than 30 minutes in one session (or more than 15 minutes of vigorous exercise).

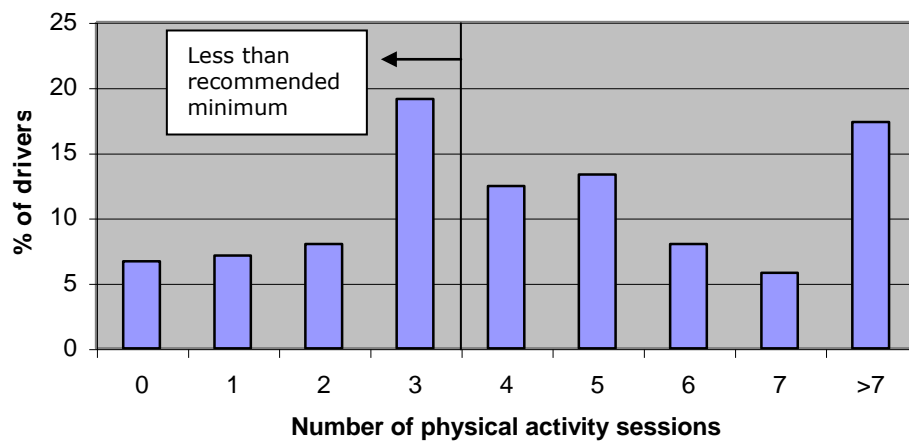


Figure 5. Number of reported physical activity sessions per week (15 minutes vigorous or 30 minutes moderate)

Figure 5 shows that using our conservative approach a large proportion of log truck drivers (42%) achieve less than the recommended amount of physical activity each week. Figure 6 also shows that drivers reported that walking and work related physical activity were the most common sources. This suggests that there may be a lack of vigorous physical activity among drivers. The main source of physical activity during work would come from throwing and securing chains. For each load this might take five minutes, and a driver might typically perform this about three times per day. This suggests that work-related physical activity for log truck drivers, although is possibly greater than someone working in an office, still provides a very small amount of the required physical activity for healthy living.

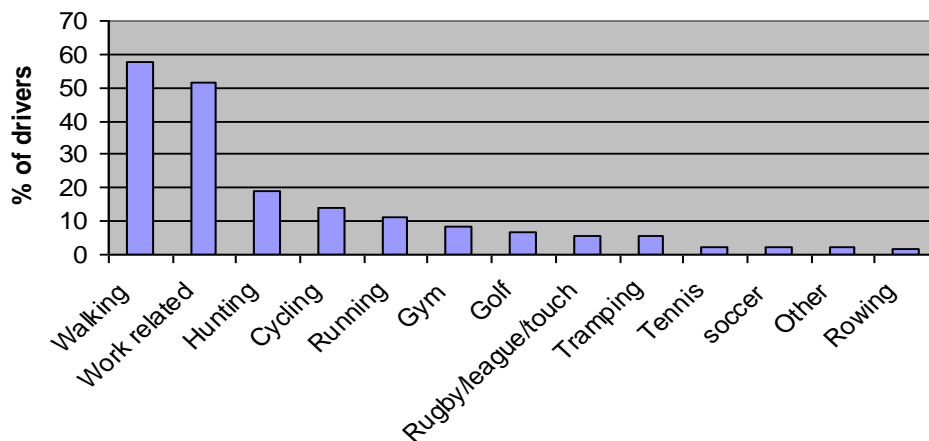


Figure 6. Most common sources of physical activity stated by drivers

Nutrition

The following breakfast patterns were reported by drivers:

- The most common food item reported for breakfast was "toast with butter / margarine and / or spreads" (34%)
- The second most common food item reported for breakfast was "Cereal with milk" (29%)
- 30% of drivers reported having either nothing or only tea or coffee for breakfast.

The following lunch patterns were reported by drivers:

- By far the most common lunch item reported was "Sandwiches or filled roll" (77%)
- The second most common lunch item reported was "fruit" (38%)
- The third most common lunch item reported was "Pie, sausage roll or savoury from bakery" (17%)

The following dinner patterns were reported by drivers:

- The most common dinner item reported was "Roast chicken, beef, lamb, pork with veges" (38%)
- The second most common dinner item reported was "Boiled vegetables"
- The next most common dinner items reported were "salad" (19%), "Pasta or rice with sauce, meat and/or veges" (17%) and "Barbequed meat with salad and veges" (14%)

The key points from the nutrition information is that many drivers appear to skip breakfast (probably due to early start time), although the majority of drivers appear to have at least some sort of food item for breakfast. It is encouraging that such a high proportion of drivers report eating "Sandwiches or filled roll" for lunch. The key trends for reported dinner items is less clear, and without the use of food diaries or some sort of estimate of the quantities consumed and the cooking habits (e.g. animal fat vs vegetable oil) it is difficult to determine the quality of drivers' dinner meal.

It is suspected that because breakfast is generally very light, and lunch can often involve snacking rather than a proper break (see driver interviews later in this report), a large meal is probably consumed at dinner time. If a driver were to eat this meal at 7pm and then go to bed at 8:30pm (in order to get up at say 3am), then it may be that a large amount of energy is being consumed when it is not needed, which may contribute to a drivers' weight problem.

Drinking

According to driver's reporting (Figure 7), 45% of all log truck drivers either doesn't drink or are light drinkers (1-3 drinks per week). For the New Zealand male population, approximately 63% drink less than once per week or 1-3 times per week (Ministry of Health 2007). Conversely, approximately 29% of log truck drivers drink at least 1-2 drinks per day, whereas approximately 18% of the New Zealand Male population in general drink "7 or more times per week". Despite these comparisons, the different units of measurement that have been used in the respective studies make comparisons between log truck drivers and the rest of the population difficult.

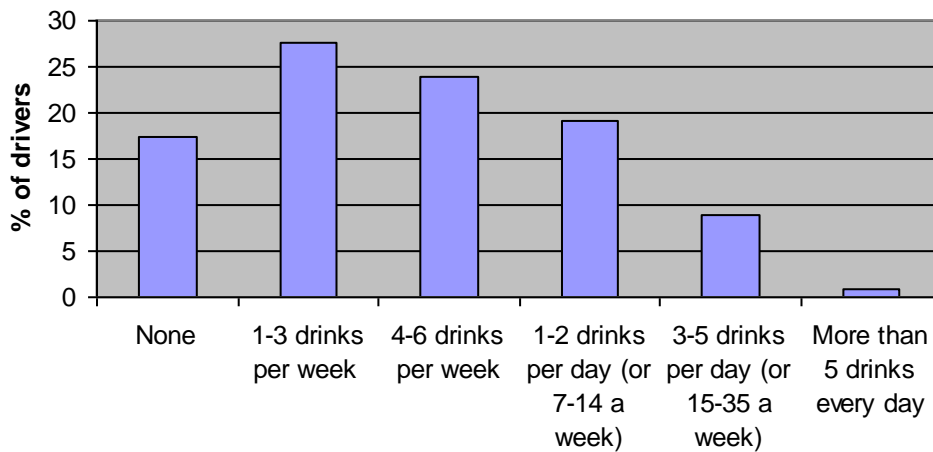


Figure 7. Reported number of drinks consumed by log truck drivers

Sleep and sleepiness

It is generally recommended that adults should achieve 7-8 hours of sleep each night, although this is likely to vary for different people, and factors such as the quality of sleep obtained can also affect the 'recharging' effect of sleep. Also, many people may over-estimate the duration of their sleep as their amount of physiological sleep may be less than the duration between when people recall falling asleep and waking up.

If the general rule of thumb of 7-8 hours of recommended sleep is used then 65% of log truck drivers are not achieving the recommended duration of sleep. Approximately one quarter of drivers are getting no more than 5 hours sleep each night.

Drowsy drivers – what is their profile?

Most drivers report that they normally feel sleepy or drowsy when truck driving only “now and then” (this would include those who feel they never feel drowsy while driving). However, approximately 15% of drivers reported feeling sleepy or drowsy when truck driving “fairly regularly” (7%), “quite often” (6%) or “most of the time” (1%).

There appear to be some key (and statistically significant) characteristics of drowsy drivers, compared with their more alert counterparts –

- They get less sleep each night
- They have a greater sleep debt in general (higher Epworth scores)
- They are more likely to pull over because they are too tired to drive
- They are stressed and uptight more often
- Overall they find the job of log truck driving more difficult
- They are more likely to mention pay and time related factors as areas where the job could be improved

Interestingly, there are other areas where there is no significant difference between the two groups including BMI, smoking (although drowsy drivers might be slightly thinner and smoke more), physical activity and eating habits.

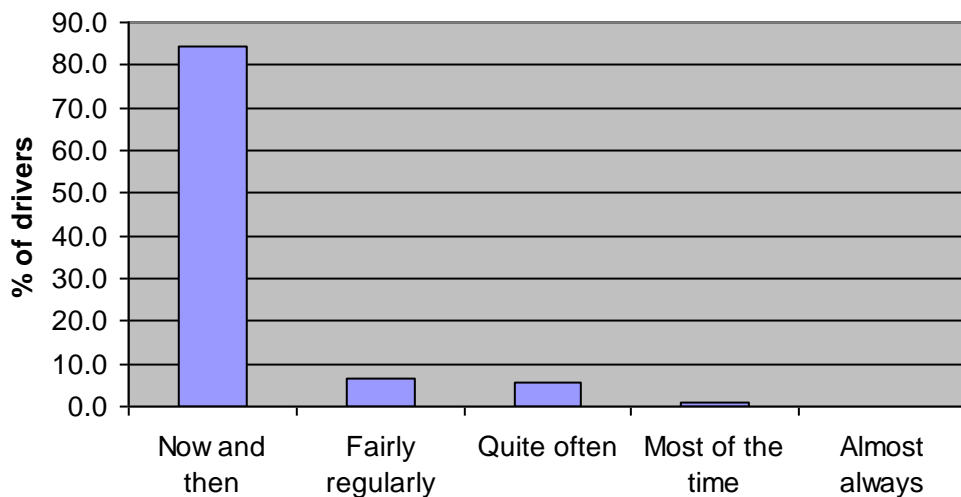


Figure 8. Log truck drivers’ responses to the question “On average how often do you feel sleepy or drowsy when truck driving? (please tick the closest match).”

In contrast to the relatively little sleep that some drivers get, most drivers report feeling sleepy or drowsy when driving relatively infrequently (Figure 8). Nevertheless, approximately 15% of drivers reported feeling sleepy or drowsy at least “fairly regularly”.

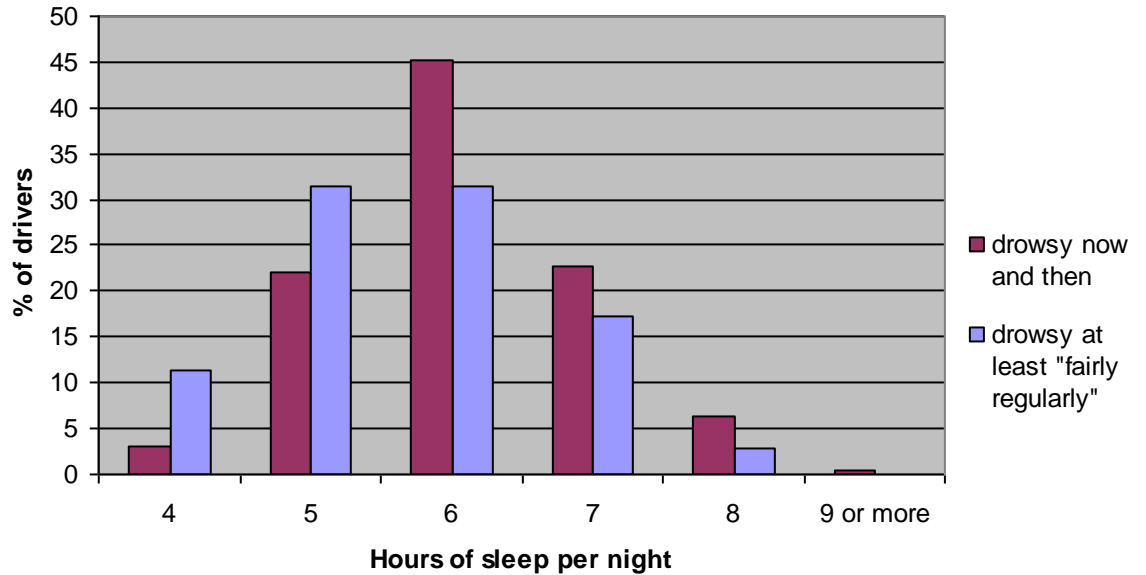


Figure 9. Reported hours of sleep that drivers normally get per night for drivers who feel sleepy or drowsy while driving “now and then” compared with “fairly regularly, “quite often”, “most of the time” or “almost always”.



Figure 10. Percentage of drivers who report normally getting less than 6 hours sleep per night

There appears to be an age pattern to the amount of sleep that drivers normally get each night (Figure 10). It appears that a greater number of younger drivers get relatively few hours sleep (less than 6 hours per night) compared with their older counterparts. This may be a result of the added family responsibilities and a more active social life at a younger age.

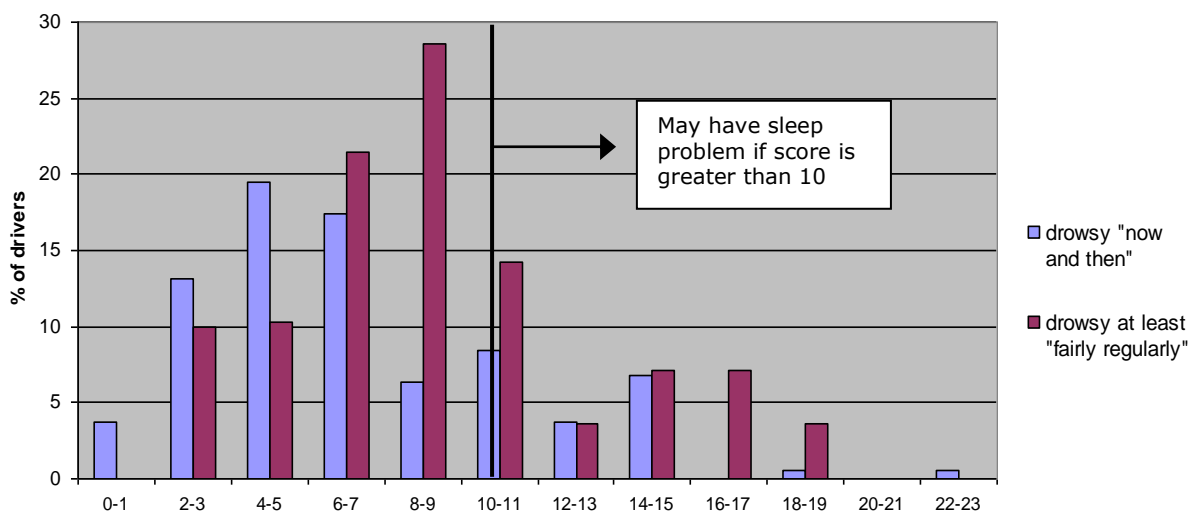


Figure 11. Epworth sleepiness scores for drivers who feel sleepy or drowsy while driving "now and then" compared with "fairly regularly, "quite often", "most of the time" or "almost always".

Although a statistical comparison has not been made, it appears that the drivers surveyed within this study have slightly higher Epworth sleepiness scores compared with a previous TERNZ study (Charlton and Baas 2000) of the levels of fatigue among the entire truck driving sector. In the current study the average Epworth score was 7.12, compared with 6.13 reported by Charlton and Baas (2000). Both of these average scores are higher than that reported among heavy goods operators in the UK (cited in Charlton and Baas 2000) where an average Epworth score of 5.7 was reported. An Epworth Sleepiness Score of greater than 10 is often used to indicate that a person may have sleep problems or disorder. Within this survey, 21% of those who answered the Sleepiness questions properly (182 drivers) scored higher than 10 and therefore may have daytime sleepiness problems. Figure 11 shows that drowsy drivers also tend to have higher Epworth scores than those that reported feeling drowsy when driving only "now and then".

Figure 12 shows that in general drivers are most likely to report pulling over to have a nap or get out of the cab because they too sleepy to drive "on the odd occasion". Logically, it also appears that those who feel drowsy at least "fairly regularly" are likely to pull over more often, with about 10% of this group reporting that they pull over to sleep or get out of the cab "almost every day". It is disconcerting that truck drivers have to pull over to rest because they are too sleepy to drive, as it indicates the presence of fatigue. More positively it is good that those who need it, are actually being responsible by getting off the road when they feel they need to.

Although statistical comparisons have not been made, Figure 13 implies that 'drowsy drivers' may also feel stressed and up-tight more often. This would be a logical connection to make, and it highlights that a number of characteristics are often related. For example, a person who is not getting enough sleep may also be tired and irritable and feel more stressed. Conversely, someone who is stressed through work or home issues may also not be sleeping well and may feel tired as a consequence.

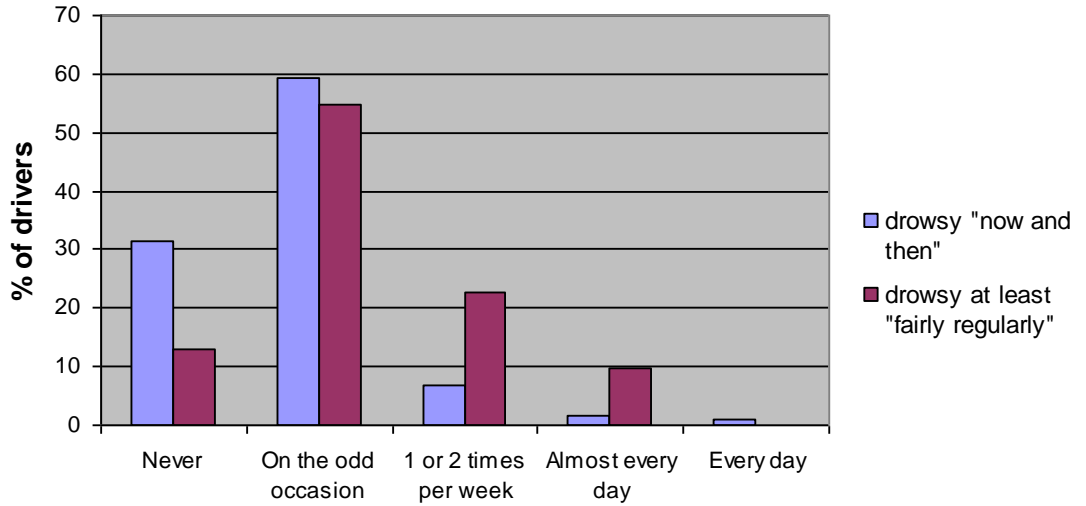


Figure 12. Log truck drivers’ responses to the question “On average how often do you pull over and have a nap or get out of the cab because you are too sleepy to drive your truck?” for drivers who feel sleepy or drowsy while driving “now and then” compared with “fairly regularly, “quite often”, “most of the time” or “almost always”.

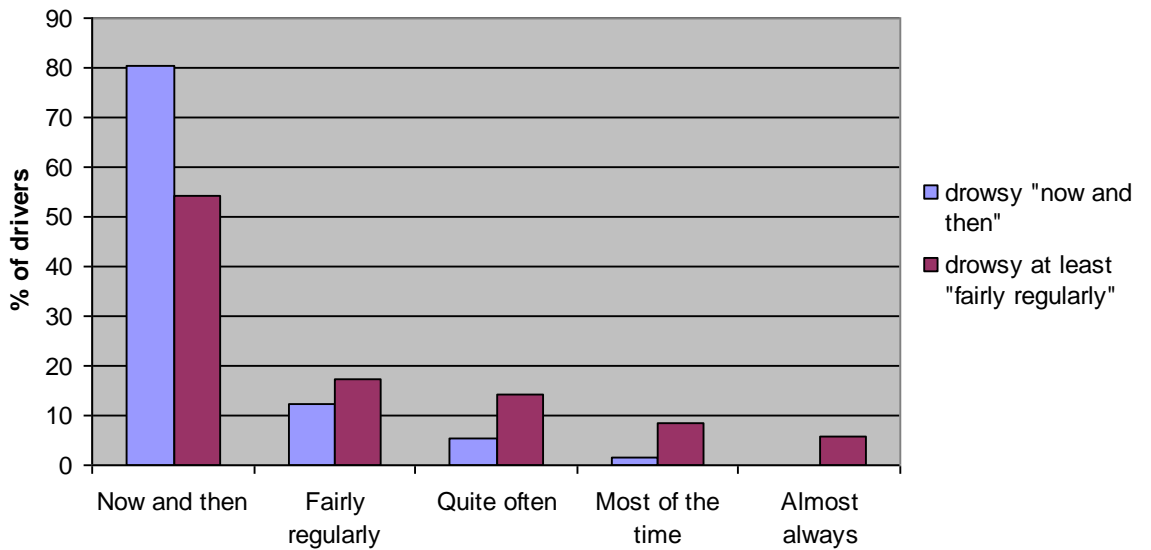


Figure 13. Log truck drivers’ responses to the question “How often do you feel stressed and up-tight” for drivers who feel sleepy or drowsy while driving “now and then” compared with “fairly regularly, “quite often”, “most of the time” or “almost always”.

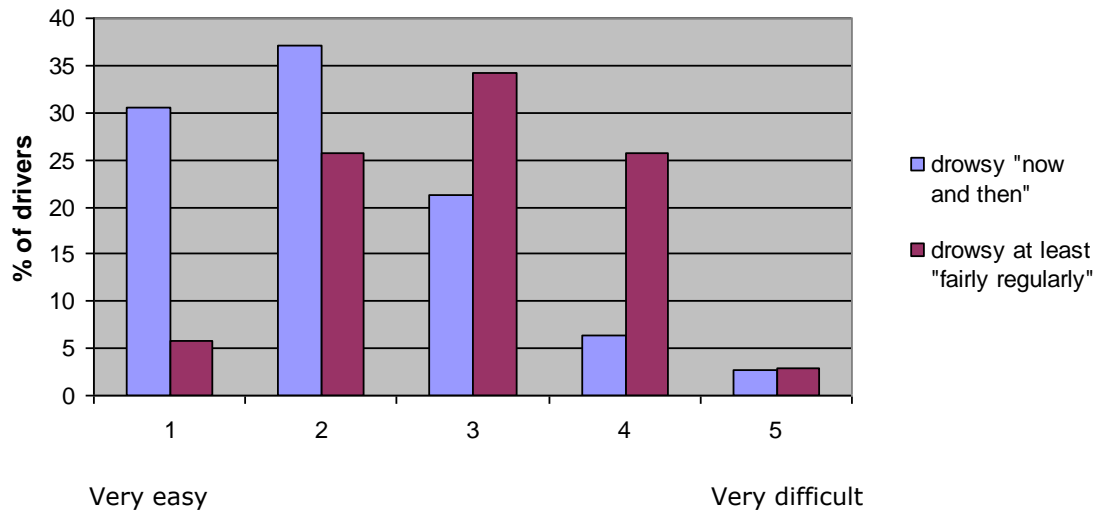


Figure 14. Log truck drivers' responses to the question "How easy or difficult is it for you to be a log truck driver? Please consider all parts of the job in terms of the physical demands, fatigue, stress, enjoyment and time constraints", for drivers who feel sleepy or drowsy while driving "now and then" compared with "fairly regularly, "quite often", "most of the time" or "almost always".

Figure 14 suggests that there is a relationship between drivers who are often drowsy, and their overall perception of how difficult it is to be a log truck driver. Again, this is a logical connection and it demonstrates that sleepiness, fatigue and stress may cause a driver to view his job as difficult or even 'not worth it', which may lead to them leaving the industry in search of an easier job for comparable pay.

Health and well-being

Three quarters of all drivers reported that they have a regular health assessment, of which 58% are arranged by their employer.

Twenty three percent of all drivers reported that they felt stressed and up-tight "fairly regularly", "quite often", "most of the time" or "almost always" (as opposed to "now and then"), although the incidence of feeling stressed and uptight appears to decrease through the ages (Figure 15). In general, this trend is statistically significant, which means that we can be confident that this trend exists for the entire log truck driver population.

Further to this trend, younger drivers tend to feel that the main cause of their stress is due to either home or both work and home issues, whereas older drivers tend to report that the main cause of their stress is due to work issues.

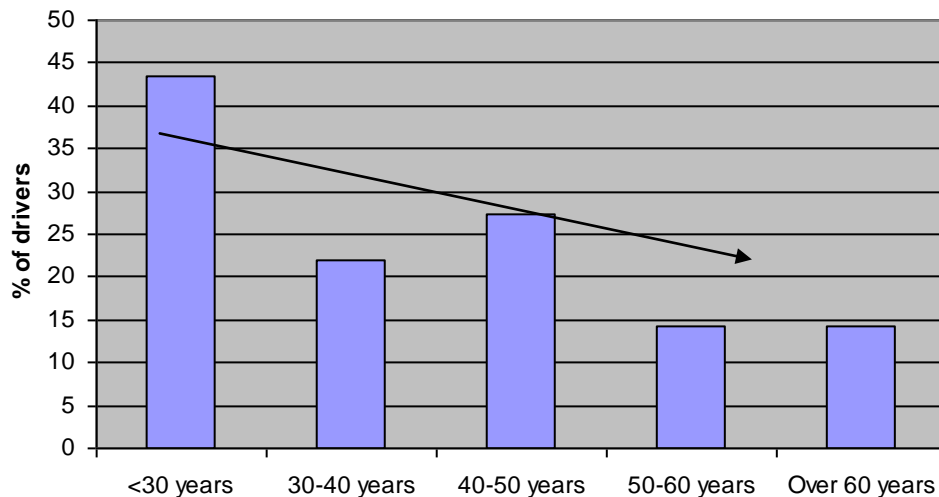


Figure 15. Proportion of drivers in each age category who feel stressed and uptight "fairly regularly", "Quite often", "most of the time" or "almost always"

When asked about problems that have been identified by a doctor, the most common diagnosis was mental illness (including depression, anxiety etc), hearing problems, disorders of the back and neck, high blood pressure, high cholesterol and vision problems (Figure 16). Apart from hearing problems, there is no evidence that the incidence of the other diagnoses are higher than what has been reported within the general New Zealand age and sex matched population (Ministry of Health 2004, Oakley Browne 2006).

However, it must be remembered that responses were only for those who are still driving, and so the levels of reporting may under-estimate the proportion of all log truck drivers who have been diagnosed with a problem, as some may have left the industry as a result of their problem or for related reasons. For example, levels of heart disease may be higher than has been reported here as the questionnaire has not covered those who have had a cardiac event and have stopped driving as a result.

Given the levels of obesity among log truck drivers that have been demonstrated, it would be expected that their incidence of diagnosis of high blood pressure and high blood cholesterol would be greater, along with their associated risk of heart disease and stroke.

The incidence of injuries and urgent medical conditions are shown in Figure 17, with "Slips, trips or falls from or around truck" being the most common cause for seeking urgent medical attention. The most common condition associated with visiting a hospital or emergency clinic was due to pain in the neck, back, shoulder, elbow, wrist, hip, knee or ankle, which may be related to the high reporting of slips trips and falls. It was found that one third of all drivers surveyed have needed to visit a hospital or emergency clinic for a log truck work related injury, at some point during their log truck driving service. The results highlight the relatively high prevalence of musculoskeletal injuries, and emphasises the fact that continued progress is required to improve the safety associated with working in and around the truck.

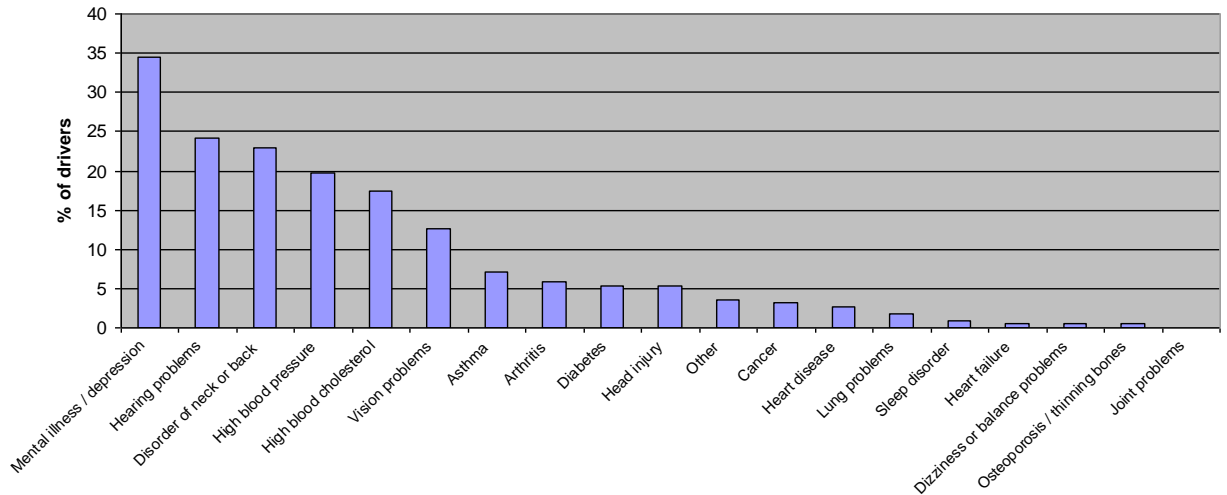


Figure 16. Log truck drivers’ responses to the question “Have you ever been told by a doctor that you had any of the following conditions? (tick as many boxes as you need to)”

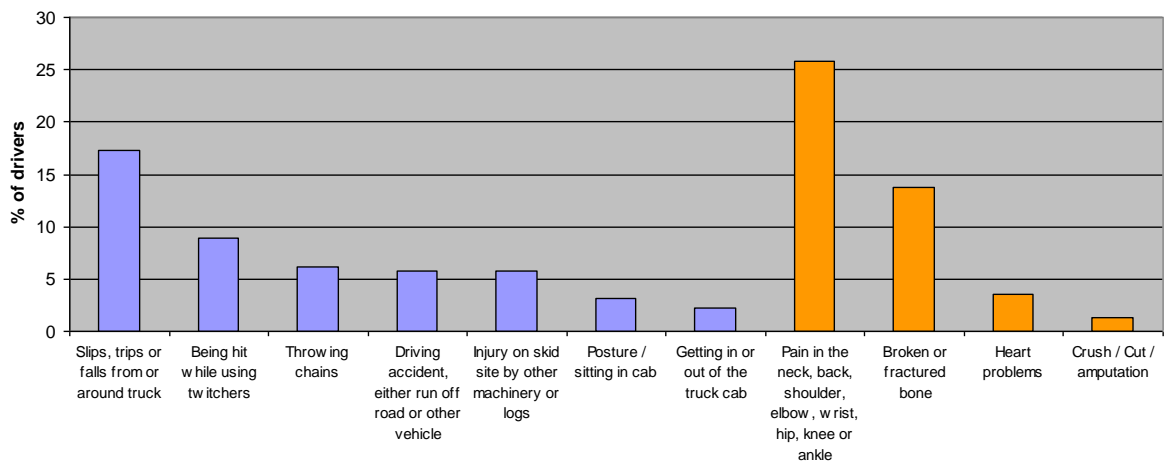


Figure 17. Log truck drivers’ responses to the question “Have any of the following required you to go to an emergency clinic or a hospital? (tick as many boxes as you need to)”

Difficulties on the job

While many drivers have reported needing medical attention for injuries sustained at work, most report that the difficulties that they encounter are more related to cognitive activities. Figure 18 shows that the areas that drivers have the most difficulty with are hearing, staying alert throughout the day, remembering things and posture / sitting in the cab. However, age does have an effect on what drivers find most difficult, with younger drivers finding fitting work and home life into the day, staying alert and posture / sitting in the cab more difficult.

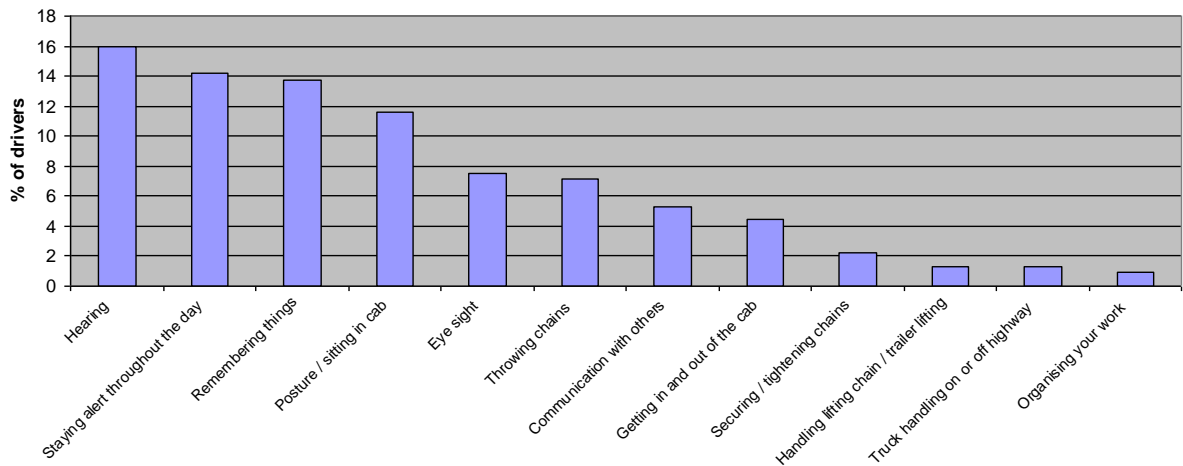


Figure 18. Log truck drivers' responses to the question "Do you have difficulty with any of the following when you are on the job? (tick as many boxes as you need to)"

Driver Interviews

In order to further explore the issues that were highlighted in the questionnaire, and to confirm some other major issues that are being faced by drivers, in-cab driver interviews were carried out with 14 drivers from seven different companies from Northland to Dunedin.

From the interviews, several themes stood out as being particularly important:

- Road conditions and other drivers.** Many drivers felt that these environmental factors have the ability add a significant amount of stress to the job. This was evident when off-highway drivers were interviewed. They found the job less stressful as they didn't have to deal with public road users on public roads that are often of poor quality. The quality of bush roads can also provide a great deal of stress, especially in poor weather conditions.
- Working outside of the cab.** This is considered to be a potentially risky environment for drivers, especially on skid sites where the ground can be very uneven. Staying visible to, and communicating effectively with the load driver can significantly improve safety. Throwing and securing chains can be demanding for some, especially for older drivers during poor weather. Apart from back pain related to sitting for long periods of time, working outside of the cab during loading and unloading is the time that musculoskeletal injuries are most likely to occur.
- Performance pressure.** A lot of pressure to be productive appears to come from a perceived mismatch between what the dispatcher is requesting and what the driver is experiencing on the job. For example, dispatch might want a driver to get in a short run at the end of the day, but the driver experiences delays in due to bad weather and heavy traffic on-highway, making it difficult for him to achieve the last run.

It should also be pointed out that many drivers appeared to create pressure for themselves by having high expectations of what can be achieved within the day. The commitment of most drivers to their job was impressive and most required high standards of themselves. In these situations, those who had clear messages from their company that the driver cannot be responsible for delays at ports, mills, skid sites etc and that all the driver can do is operate the truck efficiently and safely, appeared to have less self-imposed pressure.

- **Generally positive perception of employer.** Most drivers that we interviewed had a generally positive view of their employer and understood that many issues related to their work were a result of the wider industry (i.e. conditions imposed by forest owners, ports, mills). When drivers were less complimentary about their employer, it was usually to do with a perceived lack of understanding from their employer regarding family and work/life balance.
- **Fatigue.** The questionnaire findings were supported by most drivers in that fatigue appeared to affect most drivers “now and then” or in certain circumstances. Almost all drivers admitted that by the end of a 70 hour week they were getting quite tired and that early afternoon on Thursdays and Fridays can be problem times. Monday mornings were also times where tiredness can be a problem. Those who rarely exceeded 12 hours of duty appeared to be able to cope with a typical week much better.
- **Personal opinion of health and fitness.** Again, the questionnaire was supported in that most drivers appeared to have a relatively high appraisal of their personal health and fitness. There appears to be a mismatch between driver’s perception of their health and fitness and their actual health and fitness. Lack of available hours in the day was commonly cited as a reason for not participating in exercise.
- **Work/life balance, family and relationship stress.** This was the single biggest issue for the 14 drivers that we interviewed. Drivers were very forthcoming in describing the conflict that exists between their job and their families. Many drivers very clearly find it difficult to be a log truck driver and also lead a fulfilling and active home life. Older drivers appeared to be more settled in their home lives, although many reported previous broken marriages and regretted not spending time with their children when they were growing up.
- **Pay vs Hours.** Most drivers were happy with the income they received each week, but were less appreciative of the working hours required to earn it. It appears that some drivers get used to the maximum possible hours (70 per week) and then budget their lives accordingly. This causes problems in two ways: Driver’s get fatigued as they continue to work 70 hour weeks and also they struggle financially when there are less working hours on offer.
- **Knowledge and experience of older drivers.** The older drivers that we interviewed appeared much more capable and confident in most parts of their job and their knowledge and experience is clearly very valuable in log truck driving.

The summary interpretations (from two researchers) for each of the interview themes can be found in Appendix 2.

A plan for improving log truck driver health and wellbeing

Current and previous health, fitness and safety initiatives

This project represents a recognition by the LTSC that the driver is an important part of the log transport system and that there is significant room for improvement in the health and fitness of drivers.

In New Zealand, workplace health and safety is addressed by the Accident Compensation Corporation (ACC) and the Department of Labour. ACC administers New Zealand's accident compensation scheme, which provides personal injury cover for all New Zealand citizens, residents and temporary visitors to New Zealand. The Department of Labour's primary role is to improve the performance of the labour market and, through this, strengthen the economy and increase the standard of living for those in New Zealand. Part of the department's role is to support employers and employees to create safe, fair and rewarding workplaces.

Case study: McCarthy Transport Ltd – Greater utilisation of capital and working with industry for improved driving hours

McCarthy Transport Ltd has been trialling a system focussed on getting more productivity out of their trucks, while reducing the amount of driving hours for their employees over the working week. The increased salary costs associated with paying drivers a higher hourly rate for a four day week is offset by the increased productivity of the truck. Two drivers share one truck which runs seven days per week (with maintenance scheduled in as required). Within one week one driver works for four days and other for three, with his fourth day in the following pay period. This rolling roster means each driver gets three days off per week. There are also opportunities for extra days work in other trucks on occasions.

This system allows drivers to spend more time participating in family activities such as taking the kids to school. Wives and partners have more independence and some are getting part time jobs because they are not as tied to family life. The only disadvantage is weekend work, but drivers find that they become accustomed to the different hours. Some even prefer weekend driving – there is less traffic on the roads which is much less stressful.

There are four bush gangs that McCarthy Transport use each weekend, depending on grade of wood and access to log skid sites. The bush gangs have gone out of their way to make it work as fewer logs on their skid sites on the weekend means increased capacity for log harvesting the following week. McCarthy transport have also developed good relationships with the provincial sawmills in the lower north island, so that unloading can also occur seven days per week.

The dispatchers involved start planning the weekend work on Wednesday and by Friday a bit of fine tuning is all that is needed. It is felt that this system is much easier to organise than running a double-shift, twenty four hour operation as there are not the same worries about trucks getting stuck or the safety issues that are associated with prolonged work in darkness hours.

ACC has a range of information resources relating to the road transport sector and the forestry sector that are relevant to log truck driving. Perhaps two of the most important are:

- Guide to health and safety in road transport
- WorkSafe: Road Transport kit

The *Guide to health and safety in road transport* was created in partnership with the Road Transport Forum and is aimed at introducing the main hazards that are likely to arise in a transport business. With a focus on injuries and specific hazards in the workplace the guide provides a list of steps that need to be worked through:

- Accept that you are the employer so health and safety are your responsibility.
- Look at each area of the business and possible ways people might get hurt or suffer over time. Think about accidents or near-misses that have happened or may happen.
- Research health and safety requirements eg. Internet, industry organisations, government.
- Develop health and safety policies, procedures and documents.
- Train staff in the policies.
- Refresh health and safety training.
- Enforce the policies and pull up non-compliance.

In association with Forestry Industries Training, ACC has also published a document for the forestry sector that provides comprehensive hazard management information for the forestry industry, using the categories Plant and equipment, Chemicals, Environment and People. This information contains some information that is relevant to the log truck driver, but it is mostly targeted to those directly involved in operations within forests such as harvesters and loaders.

DriverSafe is a training initiative that has been developed by the Road Transport Forum, Transqual ITO and ACC. DriverSafe is a nationwide 'out of cab' introductory health and safety training programme for the road transport industry. The main purpose of DriverSafe is to reduce the number of incidents resulting from 'out of cab' hazards.

Land Transport NZ is currently in the process of coordinating a Fatigue Management Programme trial. A Fatigue Management Scheme is essentially a risk management programme. Operators are given the opportunity to manage working, driving and rest limits in a way that address the specific needs of their business, while also ensuring that driver fatigue is managed effectively. The operators would be required to undertake a full hazard analysis prior to entry. They would have to document the manner in which they would manage fatigue and have this approved by the Director of Land Transport NZ.

In Australia, apart from the identification and management of medical issues, driver fitness for duty largely focuses on driver fatigue. The Australian Transport Council (ATC) has approved new national laws to manage heavy vehicle driver fatigue to be implemented in 2008. The new laws are consistent with current obligations under Occupational Health and Safety (OH&S) laws that also require employers and employees to take all reasonably practicable steps to manage driver fatigue. The National Transport Commission (NTC) provides a range of information for operators outlining general fatigue information including chain of responsibility, work and rest hours and guidelines for napping.

Case study: Rob Dahm Ltd – Health and well-being initiatives

Rob Dahm Ltd is a logging truck company that has been operating for over 30 years. Since April 2006 Rob Dahm Ltd have been participating in the Health@Work Programme, a Sport Waikato initiative, after Rob Dahm Ltd's management team saw a need to provide the necessary resources to educate staff of the importance of a healthy lifestyle.

Rob Dahm Ltd has an average staff age of 47 and a number of smokers, 'jelly bellies', injuries and health issues that were concerning to the company. The company believes that the programme has contributed towards reduced absenteeism, improved physical and mental health, reduced staff turnover, increased performance and productivity and increased morale and motivation.

The Health@Work Programme is delivered and driven by the Health and Safety Manager with support from the company owner and Sport Waikato co-ordinator Donna Jacobs. The programme focuses on four key areas of health and well-being: smoke free, physical activity, healthy eating/nutrition and stress management.

So far Rob Dahm Ltd have initiated a company physical activity and nutrition policy statement, run quit smoking programmes, provided resources and information on healthy eating and stress management, started a summer soccer team, provided gym memberships to staff, offered free annual health checks and used pedometers to increase the average number of steps per day taken by staff.

It is not compulsory for staff to participate in the activities and therefore, it is difficult to measure the impact the programme has had however, Rob Dahm Ltd realise the importance of improved health and well-being in the workplace and will continue to provide the support staff require.

Other initiatives that may assist with the health and well-being of log truck drivers

- **Healthy Eating – Healthy Action (HEHA)**
(<http://www.moh.govt.nz/healthyeatinghealthyaction>) is the Ministry of Health's strategic approach to improving nutrition, increasing physical activity and achieving healthy weight for all New Zealanders. Improving nutrition, increasing physical activity, and reducing obesity are three of the thirteen health priorities identified in the New Zealand Health Strategy. The vision of HEHA is an environment and society where individuals, families and whanau, and communities are supported to eat well, live physically active lives, and attain and maintain a healthy body weight. The Key messages of HEHA are:
 - eat a variety of nutritious foods
 - eat less fatty, salty, sugary foods
 - eat more vegetables and fruits
 - fully breastfeed infants for at least six months
 - be active every day for at least 30 minutes in as many ways as possible
 - add some vigorous exercise for extra benefit and fitness
 - aim to maintain a healthy weight throughout life
 - promote and foster the development of environments that support healthy lifestyles.

The HEHA website has a number of resources, but many of its initiatives are delivered through other organizations, such as Sport and Recreation New Zealand.

- ACC has developed a unique initiative called "Active Smart" (<http://www.activesmart.co.nz/>). It is New Zealand's first fully tailored free online training and nutrition information and support resource that provides running, walking and cycling plans along with other features such as email alerts and even weather forecasts to help with planning.

Case study: Dunedin Carrying Company Ltd: - Health, safety and well-being as a part of company culture

When Dunedin Carrying employs a new driver they are sent out with a long serving driver who does all of their driver training. The new driver only goes in a truck alone when he is ready - this might be a few days or even a week or two but it only happens when the new driver is completely confident, and it is the new driver's decision to start out in a log truck alone.

Drivers are rewarded for long service. One driver was sent to Melbourne to visit the Kenworth plant, while another and his wife was given a trip to the Gold Coast after 25 years of service (other companies have also reported these types of rewards following varying durations of service).

Drivers are usually sent home if they are even mildly ill as it is considered that the benefits of the driver recovering at home outweigh the risks associated with a driver continuing to drive with his concentration not fully on the job at hand.

Health checks are provided for every driver every 12 months - early 2008 will see the third round of company health checks. These health checks have provided significant benefits for Dunedin Carrying. Serious health problems were diagnosed in one staff member, where this would not have been detected otherwise. The health checks have also highlighted that hearing was deteriorating among drivers and so ear muffs have been issued to all drivers to have on their hard hats and a box of ear plugs have been provided in the workshop for anyone to use.

Drivers are also given the option of carrying out their first load for Monday on the previous Saturday, in order to give them a later start on Monday morning. Monday mornings have been identified by the company as a risky time where mishaps are more likely due to drivers adjusting to getting back into the working week. They may go out anytime they want on Saturday as long as they have someone with them such as their partner riding with them or a second truck. Either way the truck does the same amount of work for the week it just gives the driver the opportunity to have a later start at the beginning of the week.

- A similar resource called 'LiveSmart' (<http://www.livesmart.co.nz>) is provided by the Cancer society and is run in conjunction with Foodstuffs through New World supermarkets. The LiveSmart also has an email coach in a similar way to the ACC ActiveSmart programme. This programme is aimed at reducing the incidence of cancer in New Zealand. Many of the principles provided are also related to reducing obesity and improving nutrition.

- Push Play (<http://www.sparc.org.nz/getting-active>) is a nationwide SPARC (Sport and Recreation NZ) campaign to get more New Zealanders more active, more often, and is designed to take 30 minutes a day. The programme is designed to add physical activity into people's everyday lives and has a huge amount of ideas and information targeted at different groups from children and schools to adults and workplaces.
- The Heart Foundation (<http://www.nhf.org.nz>) provides a large amount of information related to heart health including facts about heart disease, healthy eating and physical activity.
- The Department of Labour is working with a group of large public and private sector organisations from around the country to identify their work-life balance issues and to develop and trial tailored solutions. The results from these workplaces will be used to build practical tools and resources for employers and employees across New Zealand.
- While there have been some commercial driver interventions mainly focussed on driver fatigue in New Zealand (e.g. Fonterra and BP) there have been limited formal interventions (that we are aware of) that focus on the overall health and well-being of drivers and are actively promoted through commercial transport operations. This may be changing as highlighted by the case study on page 28. In addition, a major freight transport company within New Zealand is currently working with a corporate health and wellness company to initially carryout health measurements of their staff and then provide health and wellness expertise in 2008.

A framework for log truck driver health and fitness initiatives

In the report titled *Health and Wellness Programs for Commercial Drivers* (Kruger et al. 2007), a new paradigm is described where occupational health and safety, health promotion and employee productivity issues are addressed in an integrated manner. Goetzel et al. (2002) points out that often health, safety and productivity issues are addressed separately and discreetly by different functions and departments in an organization. Certainly in New Zealand, traditional health and safety management has involved the identification of hazards and prevention of accidents, which has been seen as something quite separate from employee well-being, fitness, recruitment, retention and productivity.

More recently, the inter-relationships between workplace hazards and injuries, health and wellbeing and employee human resource issues are being recognised. This is possibly partly as a result of employee shortages in many workforce sectors, where employers are having to give serious consideration to all of the factors that might cause employees to leave their workforce including poor health, mental and social problems or even death.

Regardless of the reason for an increasing and integrated awareness of health, safety and wellbeing issues, this is a positive path to take and it is recommended that further steps are taken to integrate health, safety and productivity issues. Addressing health and fitness problems within the log truck driving workforce has the potential to help reduce the likelihood of accidents, improve driver morale, improve driver recruitment and retention and ultimately strengthen the log transport industry.

A matrix for intervention

A number of key areas of concern have been highlighted in this report. The development of effective initiatives will be needed at different levels in order to address these key areas. Previously some health and safety initiatives have tended

to focus on the employee, despite the fact that it is the working conditions that have a significant influence on employee illness and injury. While it is important (and often easier) to target employee level initiatives using education resources, employer, industry and government level initiatives are also needed if material gains are to be made.

When designing higher level health and fitness initiatives, it is important to recognise that these initiatives are often more difficult to implement and often require the support of a number of organisations. It should also be recognised that business and productivity issues need to be respected, and a 'them and us' approach should be avoided. These initiatives are also likely to take more time to implement than employee focuses initiatives.

A number of driver and operator health and fitness initiatives are already in place in some companies and could easily be implemented throughout the industry to achieve 'runs on the board'. It is suggested that these areas be addressed immediately so that the process of improving driver health and fitness can begin without delay. However, work also needs to be started on the more difficult and longer term company, industry and government level initiatives that, in the longer term, may have the greatest effects on the overall health and well-being of drivers.

The ideas and areas of focus that have been provided by drivers, company management, previous literature and the research team have been developed by a working sub-group of the log transport safety council (Table 2). While this table can be considered a preliminary framework for the key elements of a driver health and wellbeing programme, it represents all of the key areas that need to be addressed and the levels at which actions are needed. It is envisaged that this table will evolve over the near future, and a more definitive workplan for health and fitness initiatives will be developed.

One of the initiatives that could begin immediately is to gather current information held by log transport operators, combine it with external knowledge of health and well-being to create a section within the Log Transport Safety Council Industry Standards folder. This could include suggested actions aimed at the driver and operator level, addressing the key problem areas that have been identified in this report.

Table 2. Driver health and fitness intervention matrix

Key issues	Driver initiatives	Operator initiatives	Industry initiatives	Government initiatives
<p>Obesity</p> <ul style="list-style-type: none"> • Nutrition • Exercise 	<p>Nutrition</p> <ul style="list-style-type: none"> • Education: Poster, message on docketts, Role modelling, involve other family members, use many govt web based resources <p>Exercise</p> <ul style="list-style-type: none"> • Exercise that can fit into working day • Education e.g. "15 min each day" concept. Use many govt web based resources • Set realistic goals • Mix exercise with family time i.e. cycling (Redwoods Rotorua) <p>Comments: Lots of expertise / resources outside of transport. Use drivers who have had serious medical problems (who are motivated) to provide lessons for others</p>	<ul style="list-style-type: none"> • Provide free health check plus 1 doctor visit per year • Education for operator • Use outside health and wellness consultants (lots of them, some good some not so good) • Sponsorship of events • Free gym membership (based on commitment from driver) 	<ul style="list-style-type: none"> • Integration of standards, initiatives, regulations and facilities so that healthy eating, rest and possibly brief exercise opportunities are available during the working day. • Develop new section for the LTSC industry standards folder that provides links to useful resources 	<ul style="list-style-type: none"> • SPARC , Regional Sports Trusts (e.g. Rob Dahm – Sport Waikato) • Many govt initiatives and information focussed a whole population (see details earlier in this report)
<p>Work / Life Balance</p> <ul style="list-style-type: none"> • Driving hours • Start times • Relationships • Stress 	<ul style="list-style-type: none"> • Outside interests • Start late on Mondays • Perceived stress by drivers - better communication with management • Get used to 12 hours pay (and try to smooth ups and downs) • Work on including family – take family member as passenger 	<ul style="list-style-type: none"> • Working hours: Work towards setting benchmark at 12 hours with 14 reserved for special circumstances • Budgeting advice • Four day week • Late Monday • Promote and respect family and partners • Mentoring of drivers • Code of practice, education, counselling for dealing with other drivers – risky driving, road rage etc 	<ul style="list-style-type: none"> • Work with Forest owners, ports, mills so family members can travel in cab • Examine entire supply chain structure – e.g. is there any way drivers can start at 5am instead of 3am?" • Improve business model for log transport operators • Total work hours 	<ul style="list-style-type: none"> • New driving hours rules e.g. 13 hours max per day • Land Transport NZ fatigue reforms
<p>Workplace injuries</p> <ul style="list-style-type: none"> • Hearing • Skid site • Sitting in Cab • Getting in and out of cab 	<ul style="list-style-type: none"> • Improved understanding of industry standards – folders in each truck should help with this • Ask employer for safety equipment and use it when available • Keep fit and healthy to help with prevention of back problems 	<ul style="list-style-type: none"> • Provide Industry standards folder in every truck (in progress) • Provide hearing protection • Choose trucks with good ergonomics and quieter cab 	<ul style="list-style-type: none"> • Integration of standards, codes of practice, initiatives, regulations so that injury prevention is coordinated • Develop a "Health, safety and fitness" section for the industry standards folder • Development of Health and safety strategy 	<ul style="list-style-type: none"> • Assists with the development of ACC and OSH guides • Encourage adoption through promotion and incentives

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Appendix 1: Driver Questionnaire

Survey of the health and fitness of log truck drivers

Questionnaire code

Recently, the Log Transport Safety Council carried out a questionnaire asking about the age and experience of log truck drivers. We had a very good response to this questionnaire and one of the findings was that the average log truck driver age is 43 years.

We would like to find out more about your personal profile and general health and fitness. Could you please complete the following quick and simple survey. The data will be used to better understand driver health and well-being issues. All of the information that you supply will be treated as **confidential** and no personal details will be disclosed without your prior permission. Also because your name is not included on this questionnaire, there is no way of knowing who answered the questions. Remember, the more honestly and accurately that you can answer these questions, the more we will be able to understand the health and well-being issues that are faced by log truck drivers

Thank you for supporting the well-being of log truck drivers

What is the time and date right now? **Time:** _____ **Date:** (/ /)

Personal profile details

1. What is your age in years?

2. What is your ethnicity? (please tick)

New Zealand European	<input type="checkbox"/>
Maori	<input type="checkbox"/>
Pacific Island	<input type="checkbox"/>
Other (please state below)	<input type="checkbox"/>
<input type="text"/>	

3. What is your height?

4. What is your weight?

5. Do you smoke one or more tobacco cigarettes per day? (please circle)

6. How many times per week do you accumulate 15 minutes or more of vigorous physical activity or 30 minutes or more of moderate activity at home or at work (please tick)

Number of times per week	
0	
1	
2	
3	
4	
5	
6	
7	
More than 7	

7. What is the most common source of the physical activity that you have specified above (please tick as many boxes as you need to)?

Work related activity	
Walking	
Running	
Cycling	
Golf	
Rowing	
Tennis	
Squash	
Rugby/league/touch	
Soccer	
Hunting	
Tramping	
Gym based exercises	
Other (Please detail below)	

8. Please tick the boxes that match what you had for breakfast **this morning**. (You can tick more than one box)

Fried steak, bacon, eggs or hashbrowns	
Toast with butter/ margarine and / or spreads	
Spaghetti or baked beans	
Poached or boiled egg(s)	
Cereal with milk	
Porridge	
Fresh fruit	
Fruit from tin	
Tea / Coffee	
Sugar on cereal or in tea / coffee	
Fruit juice	
I had nothing for breakfast this morning	
Other (please explain below)	

9. Is this close to what you normally have for breakfast?

Y / N

10. Please tick the boxes that most closely match what you ate for lunch and dinner **today or yesterday** (you can tick more than one box)

	lunch	dinner
Fried steak or bacon,		
Fried eggs or hashbrowns		
Pie, sausage roll or savoury from bakery		
Poached or boiled egg(s)		
McDonalds, KFC, Pizza hut, fish & chips etc		
Subway, McDonalds sub or equivalent		
Sandwiches or filled roll		
Pasta or rice with sauce, meat and/or veges		
Roast chicken, beef, lamb, pork with veges		
Sushi		
Stew or casserole		
Chinese, thai, Indian takeaways		
Barbequed meat with salad and veges		
Grilled or steamed fish or chicken		
Salad		
Boiled vegetables		
Sweets ie custard square, donuts, icecream etc		
Fruit		
Other (please explain below)		

11. Is this close to what you normally have for lunch and dinner

Y / N

12. What are your thoughts about your weight? (Please tick the answer that most closely matches what you think)

I am very underweight	
I am a bit underweight	
I am about the right weight	
I am a bit overweight	
I am very overweight	

13. On average how many drinks (ie one can of beer, one glass of wine, one nip of spirits) do you normally drink? (please tick the **closest match**)

None	
1-3 drinks per week	
4-6 drinks per week	
1-2 drinks per day (or 7-14 a week)	
3-5 drinks per day (or 15-35 a week)	
More than 5 drinks every day	

14. How many hours of sleep do you **normally** get each night? (please tick the closest match)

Less than 4	
4	
5	
6	
7	
8	
9 or more	

15. How likely are you to doze or fall asleep in the following situation, as opposed to just feeling tired? (*This refers to your usual way of life in recent times. Even if you have not done some of these things recently, try to work out how they would have affected you. **Tick the box** for the most appropriate answer for each situation*)

Situation	Would never doze	Slight chance of dozing	Moderate chance of dozing	High chance of dozing
Sitting and reading				
Watching TV				
Sitting in active in a public place (theatre or meeting)				
As a passenger in a car for an hour without a break				
Lying down in the afternoon when circumstances permit				
Sitting and talking to someone				
Sitting quietly after a lunch without alcohol				
In a car while stopped for a few minutes in traffic				

16. On average how often do you feel sleepy or drowsy when truck driving? (please tick the closest match)

Now and then	
Fairly regularly	
Quite often	
Most of the time	
Almost always	

17. On average how often do you pull over and have a nap or get out of the cab because you are too sleepy to drive your truck

Never	
On the odd occasion	
1 or 2 times per week	
Almost every day	
Every day	

Health and Fitness

18. Do you have a regular health assessment by a nurse, doctor or other medical professional?

Y / N

19. If you answered 'Yes', is this regular health assessment arranged by yourself or by your employer?

Arranged personally	
Arranged by employer	

20. How long has it been since your last **doctors visit** (not including regular health assessment through employer)?

_____ months OR

21. How often do you feel stressed and up-tight? (Please tick)

Now and then	
Fairly regularly	
Quite often	
Most of the time	
Almost always	

22. What do you think is the main cause of your stress? (Please tick)

Issues at work	
Issues at home or personal problems	
Both work and home issues	

23. Have you ever been told by a doctor that you had any of the following conditions? (tick as many boxes as you need to)

Heart failure	
Heart disease such as heart attack, angina or abnormal heart rhythm (Please exclude high blood pressure, high cholesterol or heart failure)	
High blood pressure	
High blood cholesterol	
Blackouts or fainting	
Stroke	
Disorder of the neck or back	
Dizziness or balance problems	
Osteoporosis or thinning bones	
Vision problems	
Hearing problems	
Diabetes	
Head injury	
Arthritis	
Asthma	
Lung disease, bronchitis or	

emphysema	
Shoulder, elbow, wrist, hip, knee or ankle problems	
Mental illness, depression, anxiety etc	
Cancer	
Sleep disorder	
Other (please explain below)	

24. Have any of the following required you to go to an emergency clinic or a hospital? (tick as many boxes as you need to)

Heart problems	
Slips, trips or falls from or around truck	
Being hit while using twitchers	
Posture / sitting in cab	
Throwing chains	
Getting in or out of the truck cab	
Driving accident, either run off road or other vehicle	
Injury on skid site by other machinery or logs	
Pain in the neck, back, shoulder, elbow, wrist, hip, knee or ankle	
Broken or fractured bone	
Other (please explain below)	

On the job

25. Do you have difficulty with any of the following when you are on the job? (please tick as many boxes as you need to)

Hearing	
Eye sight	
Getting in and out of the cab	
Securing / tightening chains	
Posture / sitting in cab	
Throwing chains	
Handling lifting chain / trailer lifting	
Truck handling on or off highway	
Staying alert throughout the day	
Fitting your work and home life into the day	
Remembering things	
Organising your work	
Communicating with other people at work (ie dispatch or loader)	
Other (please explain below)	

26. Please circle the number that most closely rates how easy or difficult it is for YOU to be a log truck driver. Please consider all parts of the job in terms of the physical demands, fatigue, stress, enjoyment and time constraints.

1	2	3	4	5
Very Easy				Very Difficult

27. Lastly, What could employers and the industry do to make the job of log truck driving easier, safer or more attractive?

Thank you for completing this survey. Your input will help to keep log truck drivers fit, healthy and safe.

Appendix 2. Interview themes

Note: R1 and R2 are the independent interpretations of two researchers of the pooled driver responses to each interview theme.

1. Environmental

1.1 Road conditions (on highway)

Theme (R1): Weather conditions especially can add a lot of pressure, more difficult for trucks than cars.

Theme (R2): Road design is for cars, cambers, widths etc. not for trucks going fast
Car drivers make the job a lot harder and more stressful – don't understand trucks

1.2 Other drivers

Theme (R1): Other motorists especially are a problem, particularly with overtaking. This is an area that adds quite a bit of stress to the job

Theme (R2): Car drivers make the job a lot harder and more stressful – overtake stupidly etc don't understand trucks. Other truckies and loaders drivers generally helpful

1.3 Off highway roads

Theme (R1): The conditions of off-highway roads can add stress to the job. Driving on them, while talking on the RT can be an issue

Theme (R2): Communication lets them down sometimes, RT unclear or miss call, this leads to problems – having to reverse with trailer on etc. Planning/maintenance of surfaces

1.4 Skid site safety

Theme (R1): Relationship and communication with loader driver important. Access into and out of skid sites can be an issue (related to off-highway roads). Also surface of skid site can present risk of injury for driver (i.e. sprains and strains of ankle and knee)

Theme (R2): Few complaints - on the whole pretty happy with it. Uneven ground when walking around cab.

Working outside truck cab.

Trailer lifting, log loading, chaining, weigh bridge

Theme (R1): Driver needs to stay in safe area and be visible to load driver, but this can be an issues (e.g. when loader is on opposite side to scales). Uneven ground and muddy conditions can be an issue for driver (as per skid site safety).

Theme (R2): Manual handling is markedly harder when the underfoot surfaces are slippery and chains muddy. Confusion over rules – Must be in cab/out of cab etc is unhelpful

1.6 Weather conditions

Theme (R1): Weather has big impact on the stress of the job and the skill needed. Everything takes longer if wet or icy and more care needed. Working to the conditions is important.

Theme (R2): As long as extra time is allowed for the task on bad weather days there seems to be less trouble than might be expected. Attention needs to be given though to track maintenance in areas most affected by weather – ie hard shaded slopes that stay icy

2. Work systems

2.1 Dispatch

Theme (R1): Some drivers find dispatch no problem. However, expectations that are different to those of the driver can add a lot of stress to the job (e.g. pressure not to take breaks)

Theme (R2): Unrealistic amount of time allowed for highway jobs by dispatch is a stressor Better off highway as less to get in the way.

2.2 Start / finish times

Theme (R1): 3:30am start, 5:30pm finish (14 hours)

Theme (R2): Start time is the only reliable point in the day when they know for sure where they will be, so can't commit to family things, Finish is only predictable for some off highway drivers

2.3 Breaks

Theme (R1): Breaks taken during loading and unloading. Break unlikely to be continuous time out of the cab though.

Theme (R2): Very uncommon. All but 2 (that I interviewed) said they didn't stop apart from loading/ unloading. Of these 2 only one actually stopped while I was in there.

2.4 Compliance / log book

Theme (R1): Mixed messages. By some log books are seen as a compliance hassle. Others think they are fine and have caused actual driving hours to reduce

Theme (R2): Don't like it but understand the need for some checks. System getting more streamlined apparently

2.5 Performance pressures

Theme (R1): Various things can add performance pressures to the job, sometimes dispatch is responsible for this. Some of the pressure may be self-imposed though.

Theme (R2): Lots to say. Main pressures seem to be from attempting to stick to a predetermined plan from dispatch in a dynamic road environment. Can't often meet expectations and be safe and legal

2.6 Relationships with loader driver, other truck drivers, operator, yard staff

Theme (R1): Good communication with other drivers and related staff can make job much easier. There may be scope for better communication.

Theme (R2): All seems very good, but there again the drivers recognise that they have to get on well with all the others, and so try really hard even if they are not outgoing and jokey by nature. Getting shut out would make the job very hard indeed, as they have seen with others.

2.7 Company culture: attitudes to safety, productivity and other people

Theme (R1): More good and supportive comments about bosses / company than bad comments. Perhaps more flexibility and understanding needed regarding, health, family and work/life balance.

Theme (R2): Drivers have few gripes about the companies. Problems are seen as coming from above and just passed on by the boss

3. Fatigue

3.1 Sleepiness when driving

Theme (R1): Most drivers report fatigue being an issue in some circumstances. Monday, Thursday and Friday are possibly the worst time, especially 1-3pm.

Theme (R2): Drivers very aware of importance of avoiding fatigue as much as possible by sticking to their sleep routine. These are probably the survivors – those who fought it have probably left.

3.2 What time to bed at night

Theme (R1): Between 7:30 – 9:30 typical. 8pm approximate average bed time.

Theme (R2): Bedtime ranges from 6-10pm, therefore 4-8hrs max sleep.

3.3 What time get up

Theme (R1): 2-3am typical.

Theme (R2): Average 2am. Tend to wake up same time at weekends and happy with this as they stay in cycle, but raises question of how to use the 5-6 hours while the rest of the family are still sleeping.

3.4 Rating of sleep quality at night

Theme (R1): Most sleep well. Those with family probably have bigger issues with sleep.

Theme (R2): Most seem happy with it. They report periods where it has not been good – eg. young kids in the house, ill health. Family noise in the evening seems to be a common problem

3.5 Naps during the working day

Theme (R1): Many don't nap (either feel they don't need it or scared of being caught out by boss or dispatch). Some do nap when they need it.

Theme (R2): Four say yes – sometimes, but not first choice strategy

3.6 Other strategies for staying awake during the day

Theme (R1): Getting in and out of the cab (either for loading/unloading or just for a break when tired) helps. Some use sugary food, and talking on the RT is another strategy.

Theme (R2): Most likely to chat on RT, and then if that doesn't work, get out for a walk
Some younger ones used caffeine and sugary foods but reported already learning health related unadvisedness of that.

4. Personal health and fitness

4.1 Rating of own health and fitness

Theme (R1): Most feel that their health is good. High blood pressure may be a common problem

Theme (R2): Mostly: ok but..... so would like it better, but identify time as the enemy – 'when would I do exercise etc?'. Too small a sample to compare to population stats for incidences but worth discussing anyway

4.2 Any medical problems

Theme (R1): Hearing, Back and other joint problems common, also high blood pressure.

Theme (R2): Hearing appears to be one that is above average for the group.

4.3 Physical activity at home

Theme (R1): Walking common. Exercise more likely in weekends. Time (and feeling tired) is barrier to exercise during the week.

Theme (R2): Lack of opportunity blamed for low levels beyond domestic chores and playing with grand kids / kids. Doctors orders following a scare seems to change this and they find time then.

4.4 Meals / nutrition

Theme (R1): Many drivers don't have breakfast. Eating after first load is alternative for some.
Tea and coffee common. Sandwiches common for lunch.

Theme (R2): Most have no breakfast. Big scares to themselves or others close by is mentioned most often as the motivation behind actual change.

4.5 Stress at work and home

Theme (R1): This was the area that received the most significant feedback. Long hours has effect on family life and relationship problems are common. Those with very

supportive partners find it easier, as do those whose kids have left home. Also, some find it difficult to fit in general social life. Being an owner / driver adds further stress.

Theme (R2): Lots to say on this, and 95% about home. They recognise that having a dad or husband who works driving trucks makes life harder for families. Many regret not being there for their kids. When family problems arise, they can't be dealt with straight away. Fester until Saturday when they can talk. A number say they wouldn't become an owner driver due to the perceived increase in stress that would come with it

5. General

5.1 Physical demands of job

Theme (R1): Physically the job is not too difficult, although throwing and securing chains can be a problem for some, which can become more difficult during wet and muddy conditions. Technique is important here. The cab environment can affect comfort, with vibration and long-term sitting contributing to back problems in some cases.

Theme (R2): Big variations in reported perceptions. Observations suggest big variety in skill/techniques/strength for chain throwing

5.2 Overall ease / difficulty of performing the job

Theme (R1): Overall not too demanding. There is much that can be done to make the job easier. Easier than some other truck driving jobs (e.g. line haul)

Theme (R2): Not hard as long as you don't want a life as well

5.3 Change in the job – becoming more easy or difficult?

Theme (R1): Forest owners have big impact on nature of the job. Better trucks make job much easier. Some compliance issues (such as the time and expense it takes to get a license) makes things more difficult.

Theme (R2): Gear is better, Industry is more demanding – which is passed on by companies and ends up with the drivers

5.4 Overall job satisfaction

Theme (R1): Some find it a satisfying job, mainly because they love trucks. Problem with lack of younger drivers coming through, as lifestyle not compatible with family etc.

Theme (R2): They all seem to love trucks, but also know that the job will be incompatible with relationships with all but the most understanding of wives. This, and their regrets about lack of involvement with their kids as they grow up bothers them.

5.5 Pay / working conditions

Theme (R1): Pay OK if work maximum hours. Some get used to this level of income and then struggle when doing less hours, which causes conflict with fatigue. Pay range between \$15-\$19 per hour, and not much variation between companies

Theme (R2): Happy with take home pay. Like not doing shifts. Don't like long hours – just too many to be able to do personal hobby and family things as well.

5.6 Advantages of being a more experienced driver

Theme (R1): Experience is a key advantage of being an older log truck driver. Possibly better at communicating and have more of a rhythm. Paid trip overseas is a benefit of being more experienced driver

Theme (R2): Knowledge and skills continue to improve making job easier.