



final report

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Worker Fitness Programs

Results, lessons and possible implications of a study conducted by Australian Country Choice

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1 Part A: The In-House Study Conducted by Australian Country Choice

1.1 Background

Injury rates in the red meat industry have greatly improved in the past 10 years (Meat and Livestock Australia OHS Reference Guide, 2008, Part 1). Like most other meat processors, Australian Country Choice (ACC) has highly developed safe work practices, and has taken a number of positive steps in the reduction of injuries in the workplace (Appendix 1).

However, despite these initiatives, work related injury is still an important issue for the industry and ACC. Of particular concern are 'body stressing' injuries which, in 2004/5, made up 48% of all claims (Meat and Livestock Australia OHS Reference Guide, 2008, Part 1). Hence, Worker Health Programs have gained some popularity in recent years as a way of potentially further reducing injuries. These types of programs have been put forward by some as a method of affecting the general health of employees, therefore impacting on the incidence, and magnitude of workplace injury and positively affecting employee morale, productivity and absenteeism (De Groot 2003).

During 2005, ACC, in agreement with the Queensland Division of Workplace Health and Safety implemented a Worker Fitness and Wellbeing Program. The purpose of the project was to assist ACC to assess if a program, focused on improving worker fitness and incorporating aspects of general health and wellbeing, can assist in the reduction of Work Related Musculo-Skeletal Disorders and improve the worker self-perception of health and wellbeing. It was also hoped that, if successful, ACC would experience a reduction in absenteeism, injuries and claims for workers compensation.

1.2 What the Available Research to Date Concluded

A review of literature by the original consultants found there was no substantive evidence proving that exercise, increased physical fitness and overall wellness did make a difference to workplace injury rates. However, there was some evidence to support the theory that it could make a difference. Those studies that did support the theory indicated that providing intervention was targeted to the individual and the level of communication between the parties was high, these programs were successful. However, most of the papers advised that more research is needed.

Hence, in the hope that a worthwhile contribution could be made in an industry that reports workplace incidences at much higher rates than other Australian industries, ACC undertook the planning, development, implementation and analysis of a multidisciplinary Worker Fitness and Wellbeing Program.

1.3 The Intervention

Participants were recruited from all areas of the business with the exception of the office staff. Twenty participants were randomly selected to the experimental group and 20 to the control group.

The inclusion criteria for participants included:

- Attendance at the Early Intervention Clinic (physiotherapy treatment) more than once in the last 2 years.
- Attendance at the Clinic related to injuries or problems of the upper limb related to work
- No formal or regular exercise outside of work
- No current workers compensation claims
- No known pathology in the muscles and joints of the upper limb
- Currently performing a physical job

The experimental group commenced a 16-week program that was structured as follows:

- Planned exercise at the local gymnasium, 3 times weekly for up to 40mins each session
- Each participant was paid for 2 hours per week to attend the gym out of work hours (3 x 40 minute sessions)
- Once each week, 2 qualified exercise physiologists, attended the gym and gave advice, supervised and upgraded individual programs as required.

Also included in the program were:

- A mid-program review
- A diet education session
- A stress management session
- Additional incentives introduced mid-program to facilitate gym attendance.

1.4 What actually happened

Participants average attendance at the gym was 1.5 sessions/week. The highest was full level of attendance (48 sessions over 16 weeks) and the lowest was 1 attendance. Therefore, only half of all possible sessions available to the group were used. (Appendix 2 outlines the participant's perception of barriers to attendance). Figures were not provided on attendance at the other aspects of the program.

1.5 Outcomes

1.5.1 Primary Outcomes: 3 Months Post Program Follow-Up

Absenteeism

In the 3 months post program the Experimental group had more man-days lost to absenteeism (71) than the Control Group (58). However, in the Experimental Group 24 of these days were from 3 workers who days off were not related to their own physical well-being.

Workers Compensation Claims

In the 3 months after the gym program was completed there were three upper limb soft tissue injuries, 1 in the experimental group and 2 in the control group.

Attendance at the Early Intervention Clinic

In the 3 months after the gym program was completed there were 8 presentations to the EIC in the experimental group and 10 in the control group.

Participant's Perception of Own Health

The SF-36 short form health survey was used as a measure of the participant's perception of their own health. (Refer to Appendix 3 for more information on the SF-36]

In the experimental group, there was an improvement in health perception for both physical and mental health. The average score for Physical Function improved from 63 to 67 and for Mental Health from 66 to 71. This indicates a slight shift in perception of better physical tolerances, pain reporting, coping with activities of daily living and mental health and vitality.

The Control Group saw a slight decrease in both parameters with a drop of 1-2 points, indicating a decrease in perception of Physical Function and Mental Health

However, as no significance inferential testing was conducted, both these results could have been measurement error.

1.5.2 Secondary Outcome Measures

Brachial Plexus Tension Test

There was an improvement in the upper limb tension test in the experimental group. There was no difference in the control group

Static Grip Strength

There was minimal change in the grip strength although grip strength decreased in both groups.

Static strength testing in lateral rotators of the shoulder

There was no significant change in the rotator strength of either experimental or control group.

Harvard 3-Minute Step

There was no significant change in the fitness of either experimental or control group, although fitness level improved in both groups.

Body Mass Index

There was a slight increase in BMI for the experimental group and a very slight decrease for the control group.

Resting Heart Rate

There was no significant change in the resting pulse of either experimental or control group, although resting heart rate decreased in both groups but more in the control group.

1.6 Conclusions

Most of the outcomes measured did not show improvements. On only one measure (Brachial Plexus Tension) was a measurable positive significant change recorded. This may be of particular interest because the industry as a whole reports many cases of upper limb injury with nerve involvement each year.

The main change would appear to have been the SF36 Health Survey. There was a positive change in the experimental participants own health perceptions. Whether they were fitter or not, anecdotally some reported that they felt fitter and healthier due to the program.

In light of the outcomes, despite a range of incentives, financial support, high supervision and support from allied health professionals, there was insufficient change to the outcome measures to suggest that the program created great physical change in the participants.

Based on this study alone, it would be difficult to recommend a gym based, employer sponsored multi disciplinary wellness programs as the answer to reducing Work Related Musculo Skeletal Disorders. However, given some encouraging results from this study, it may be justified in more extensive, industry-wide research being conducted in this area.

1.7 References

DeGroot T., Kiker D. (2003) "A Meta-Analysis of the Non-monetary Effects of Employee Health Management Programs" Human Resource Management, 42, (1): 53 – 59

Ware J., (2000) "SF-36 Health Survey Update" SPINE, 24:3130 – 3139.

1.8 Appendix 1: ACC Injury Prevention/Minimisation Strategies

Strategies implemented by ACC have included:

- Extension of Workplace Rehabilitation and Return-To-Work Coordinator role to cover all production hours
- Establishment of an Occupational Medicine Clinic onsite
- Ongoing Early Intervention Program – offering onsite physiotherapy and ergonomic services
- Extensive job assessment program (ergonomics and risk analysis)
- Continuous Job Rotation program
- Ongoing Certification to AS4801 for safety management systems including a commitment to continual improvement
- Trialled in-house targeted exercise program (Pilates) for those with high attendance at the workplace based Early Intervention Program and regular reporting of musculo-skeletal symptoms.

1.9 Appendix 2: Participant Feedback

80% of participants reported a very high satisfaction rating with the structure and content of the program and could not suggest any improvement.

Barriers to Attendance

Experimental candidates identified some of the barriers to attendance as:

- Personal and home priorities, including child care, household chores and social commitments
- Fatigue after work (Afternoon shift employees were much higher attendees of the gym than day shift employees)
- Recent changes in workplace hours so that some of the participants were working up 1.5 hours longer in the day than previously and could not fit in the gym after work
- Some did not enjoy the gym environment

1.10 Appendix 3: SF36 Health Survey

The SF36 tool examines a number of different physical and mental health parameters including:

- Physical functioning
- Role that physical function has on role
- Bodily pain
- General health
- Vitality
- Social functioning
- Role that emotion has on function
- Mental health

The tool has high reliability and construct validity (Ware 2000) and has significant normative data. It can be used to identify and compare data pre and post intervention and is user friendly. The Physical Functioning, Role Physical and Bodily Pain scales and the Physical component summary have been shown to be the most valid SF36s scales for measuring physical health.

The Mental health score has sensitivity and specificity to detect patients diagnosed with depressive disorders. All scores below 50 indicate poorer perception of health and those above better health and the standard deviation is 10.

In the experimental group, the average score for Physical Function improved from 63 to 67 and for Mental Health from 66 to 71. This indicates a slight shift in perception of better physical tolerances, pain reporting, coping with activities of daily living and mental health and vitality but is not a significant difference.

The Control Group saw a decrease in both parameters with a drop of 1-2 points.

2 Part B: Research Design Considerations for Any Future Worker Fitness Program Industry Studies

2.1 Background

During 2005, Australian Country Choice, in agreement with the Queensland Division of Workplace Health and Safety, implemented a Worker Fitness and Wellbeing Program. The purpose of the project was to assist ACC to assess if a program, focused on improving worker fitness and incorporating aspects of general health and wellbeing, can assist in the reduction of Work Related Musculo-Skeletal Disorders and improve the perceived health and wellbeing of workers. It was also hoped that, if successful, ACC would experience a reduction in absenteeism, injuries and claims for workers compensation.

Details of the study undertaken and the results achieved are outlined in Meat and Livestock Australia Industry Dissemination Document: Worker Fitness Programs (Based on In-House Study Conducted by Australian Country Choice 2005-6). This presented a review of the study process and outcomes. It concluded that despite a range of incentives, financial support, high supervision and support from allied health professionals, there was insufficient change to the outcome measures to suggest that the program created great physical change in the participants. Based on this study alone, it would be difficult to recommend a gym based, employer sponsored multi disciplinary wellness programs as the answer to reducing Work Related Musculo Skeletal Disorders. However, given some encouraging results from this study, it may be justified in more extensive, industry-wide research being conducted in this area. The following analysis outlines issues that may potentially have impacted on the study outcomes. They provide potential guidance for future research in this area.

2.2 Introduction

It is clear that a considerable amount of effort, expertise and resources have been expended by ACC in implementing this study. Based on the outcomes achieved in this project, the project authors are justified in their conclusion that a worker fitness program, such as the one implemented, had minimal impact on reducing Work Related Musculo Skeletal Disorders. However, there was some evidence that the experimental group did have improved perception of their health and wellbeing.

Analysis of the project report and discussions with project staff highlights a number of factors that could have impacted on the project outcomes. These are outlined below. It is not intended as a criticism of this project that was conducted with good will and with extensive input. The intention of the reporting on these is to allow the industry to more critically evaluate the disappointing results from this study, when considering the place of workplace wellness programs in the red meat industry.

2.3 Literature Review

It is acknowledged that there are large gaps in research in this area. There are widely different studies available, many just case studies and relatively few studies with consistent foci or methodology or larger numbers of participants. However, the literature review appears to have a

confused focus (eg started off investigating 'wellness' programs but then appeared to equate this with 'fitness' programs - only one component of wellness).

In addition, there was no apparent review of literature from the areas of health promotion or self efficacy. While these areas of research are generally not directly linked to the workplace experience, they have abundant material on how best to influence health behaviour as well as guidance on what can be considered 'success' in terms of behaviour change within generally healthy populations. Their inclusion may have helped to more successfully direct the intervention program. It would have also provided more understanding of the possible impacts of the changes that were seen in experimental participants' improved perception of their health and wellbeing.

2.4 Selection of Intervention Program

The implementation of a gym-based fitness program was agreed as the most manageable and controllable program. While the gym program was individualised for each participant, it was not 'individualised' in terms of literature review findings ie best results are achieved if the intervention is targeted to the individual. For example, some poor attendees at the gym stated they just did not like the gym environment. Having different types of 'fitness programs' available (such as sport-related programs or individualised walking/swimming programs) may have allowed a closer matching of participants own experiences and preferences to the chosen program and hence increased their options for participation.

It is also unlikely that research would support the efficacy of brief one-off sessions on diet and stress management in bringing about any behaviour change.

2.5 Outcome Measures

As a small pilot project this study selected a good range of outcome measures. However, if a wider study was to be implemented it would be valuable to add more pre-study measures or indicators (such as absenteeism/presentation to Early Intervention Clinic) for both groups to measure change within each group as well as between groups. This may have highlighted further differences in behaviour between groups. However, this would also add considerably to the resources required to conduct the study.

Participant Numbers

Only a relatively small number of workers were able to be included in this study (20 in each group). Studies with larger numbers of participants clearly would give greater confidence to any research findings.

2.6 Participant Analysis

As a small pilot project it is understandable that only certain issues could be studied but again, if a wider study was to be implemented it would be valuable to add more analysis of participants' perception of the intervention program and more detailed analysis of motivations and/or barriers to participation. This analysis could provide greater insights into why the program appeared to have been effective in some respects for some of the participants but not for others. However, again it would also add considerably to the resources required to conduct the study.

2.7 Study Follow-up

All the outcomes measured were done within 3 months of the end of the program. While it does give insight to the trends and the quantity of change that can be expected as a result of such a program in the short-term, no long term follow up of the parameters was conducted. Given that workplaces are likely to be keen to understand long-term impacts of such interventions, this may have been useful. However, given the poor results in the short term, it is understandable that longer term follow-up was not pursued.

However, feedback (from the injury management consultants involved in the program) stated that while 3 experimental participants had continued with the gym program, this did not appear to have reduced their attendance at the Early Intervention Clinic. There are a number of possible explanations regarding this (eg increased body awareness, chronic injury that overall fitness programs are not going to alleviate, chronic injury behaviour or that the injuries they are currently presenting for could have been worse if they were not attending the gym) that would benefit from further investigation in future studies.

2.8 Other Issues

2.8.1 Industrial Changes

There were considerable industrial changes being implemented at the workplace at the same time as the program was underway. While participants did not spend any more time at work, workers were required to learn and implement new work practices and new techniques. Those involved in the study reported that these may have had an impact on worker enthusiasm and participation

2.8.2 Industry Demographics

While there are few formal studies undertaken into the demographics of the industry's workforce, it is acknowledged the motivation and experiences of the workforce may also have an impact on this type of study.

3 Part C: Comments from the OHS Statutory Authorities

3.1 Background

Feedback was sought from state statutory authorities to determine if there was likely to be any due diligence implications from this study. Comments are outlined below.

3.2 Queensland

Workplace Health and Safety Queensland, who were responsible for prompting the initiation of the study, stated they did

“...not consider the publication of this study ‘experience’ by ACC [Australian Country Choice] will impose any implication or obligation on meat processors under the *Workplace Health and Safety Act 1995*.

WRMSD [work related musculo-skeletal disorders] continues to be a important issue for meat process workers and the industry as a whole. The more information that is made available to the industry on attempts within the industry (and externally) to tackle the problem, can only be seen as a positive step in the fight against WRMSD.”

Peter Lamont, A/Executive Director, Workplace Health and Safety Queensland
Jan 2009

3.3 New South Wales

3.3.1 Comments on the document

“WorkCover NSW promotes the application of practical workable solutions to effectively manage workplace risks. Work related musculo-skeletal injuries continue to be a significant issue within the meat process industry and in this light, the recently developed Meat Guide will, we believe, be particularly useful to the meat industry as it provides practical options of ‘what compliance looks like’ to effectively manage risks associated with working at heights from processing stands. This information is provided in easy to understand and implement and predominantly in a pictorial format. Hence, effectively disseminating and promoting information such as this will stand a better chance in building the capacity of employers and thereby positively impacting on the safety outcomes in this sector.

This report identifies the outcomes of what appears to be a very limited study which, based on its findings, is not positioned to inform or guide the industry in the benefits of holistic, systematic programs encompassing OHS and employee wellbeing. The report additionally does not guide the industry in terms of what a successful proven program may actually look like.

The report is interesting in that it identifies a number of challenges that would need to be considered if organisations were considering the implementation of such a program. The limited scale and neutral findings of this study may however, only serve to confuse industry stakeholders and potentially unfairly influence the decision to implement or not, programs based on employee wellbeing that might actually help with reducing workplace injury. It is important to note that programs run in a number of industries have reflected

improvements in a range of areas beyond OHS considerations, including improved workplace morale, reduced absenteeism and industrial harmony.

Whilst the findings of this particular limited study were not particularly positive it is acknowledged that it is important to continue to trial approaches that may contribute to reducing injury and illness in the workplace and for this reason the initiative and its findings are welcomed. It would be recommended however that the findings be considered in conjunction with the findings from other larger more structured studies looking at the benefits of wellbeing programs^{1, 2} and their interrelationship with OHS management systems.

3.3.2 Possible implications/obligations of the study

We do not foresee any particular implications or obligations stemming from the study or its outcomes.”

Tony Williams, Team Manager, Manufacturing, Primary Production, Transport and Storage Team, Occupational Health & Safety Division, WorkCover NSW
Mar 2009

1. “Building the case for wellness”, 4th February 2008, PricewaterhouseCoopers LLP (Prepared for the United Kingdom Department for Work and Pensions)
2. “Can workplace learning create healthier employees?”, Canadian Council on Learning March 31, 2006
<http://www.ccl-cca.ca/CCL/Reports/LessonsInLearning/LiL-31March2006.htm>

3.4 South Australia

“... can’t see how the publication of the report could possibly have any implications concerning changes to the employer or employee obligations that are already in place. Additionally, it would be universally agreed that MSDs are a major concern, and that any plausible means of reducing the problem would be worthy of investigation.”

Dr Michael White, Chief Advisor OHSW Research, SafeWork SA
Feb 2009

3.5 Western Australia

“Thank you for providing WorkSafe Western Australia with a copy of the *Meat and Livestock Industry Dissemination Document - Worker Fitness Programs: Results, Lessons and Possible Implications of a Study Conducted by Australian Country Choice*.

Your request for WorkSafe Western Australia to provide comments and possible implications of the study referred to in the dissemination document is noted. I appreciate your advice that the project was undertaken as part of an Enforceable Undertaking negotiated with Workplace Health and Safety Queensland. WorkSafe Western Australia supports measures aimed at reducing the incidence and severity of musculoskeletal injuries at the workplace. From the information provided, the dissemination document does not appear to raise any particular issues requiring compliance action by WorkSafe Western Australia. However, any implications will depend on the situation and where the findings for the report are applied.”

Alison Foskett, Acting Manager Legislation and Policy, WorkSafe Western Australia
March 2009

3.6 Tasmania

“Thank you for the opportunity to comment on the Meat and Livestock Industry Dissemination Document – Worker Fitness Programs: Results, Lessons and Possible Implications of a Study Conducted by Australian Country Choice.

I agree with the comments already made by Workplace Health and Safety Queensland and SafeWork South Australia. I do not see how the publication of the report could have any implications, adverse or otherwise on workplace health and safety obligations that already exist in Tasmanian workplaces including meat processing works.

Although on this occasion the health and well being outcomes that were measured did not show substantial improvements it is pleasing to see research and investigation being conducted in the important area. I believe the area is deserving of more study and analysis. My only comment about the study is that the exercise initiatives seem to have occurred over a relatively short 16 week period. I would be interested to see if a longer program may be more successful in achieving more greater and more sustained improvements. Changing behaviours is something that often takes a longer period of time, particularly if that behaviour that you want to change is well engrained.

Thank you for the opportunity to comment.”

Roy Ormerod, General Manager, Workplace Standards Tasmania
March 2009

3.7 Victoria

WorkSafe Victoria was asked for an opinion but, to date, no comment has been received.