

2.1 The intervention

The intervention was designed at a workshop of the project Advisory Team, and included a number of components.

Heartmoves training

The **Heartmoves** training and accreditation program for fitness leaders was developed by a working group that included representatives from:

- fitness centres
- fitness leader training providers (Department of Sport and Recreation, TAFE and fitnessnsw)
- providers of assessment and referral services for at-risk individuals (diabetes education, cardiac rehabilitation and Divisions of General Practice)
- the target group (at-risk individuals).

Heartmoves Leader Training Manual

A team of experts drawn from the Advisory Team developed the training manual for **Heartmoves** leaders, which was based on NHFA's Exercise for people with Heart Disease (guidelines for the prescription and conduct of non-medically supervised, community-based exercise programs). The draft document was then circulated to experts in endocrinology, cardiology and exercise physiology for comment. The NHFA's NSW Cardiac Rehabilitation Advisory Committee also reviewed the accuracy of the training manual's content.

Heartmoves leader training workshops

Two workshops that followed the training manual exactly, with 10-12 participants each, were developed and delivered over 2.5 days in Area Health Service facilities. The cost to participating fitness leaders was \$350, which was in accordance with current market prices. The course was designed to provide participants with a basic understanding of the nature of, and current treatments for, CVD and diabetes, with emphasis being placed on the ongoing self-management of chronic illnesses.

The health professionals and solicitor who delivered the training discussed the increases in risk and benefit of exercise among clients with CVD or diabetes, and the need for concomitant risk assessment and management. The session delivered by the solicitor was a crucial component of the training program and highlighted the need for adherence to training guidelines and professional standards in confidential record keeping, retaining documentation from health professionals, and adherence to the pre-exercise screening protocol within **Heartmoves**.

A fundamental element of the training was to affect attitudinal change among fitness leaders. This attitudinal change involved redefining the perceptions of what constituted a 'good' leader within the **Heartmoves** program (eg keeping the intensity low, encouraging people to perform at their own level of perceived exercise intensity). Further, concepts of what was a 'good' **Heartmoves** participant were explained (eg one who only exercises at their own (moderate) rate of perceived exertion, takes frequent rest stops as self indicated and alerts the leader to any signs of exercise intolerance). Fitness leaders utilised the practical components in the training program to work up and demonstrate their own **Heartmoves** classes, which adhered to the following training guidelines:

- participants are guided to work only at a Rate of Perceived Exertion of 3-5 (moderate) on the modified 10 point Borg Scale (see Appendix B), about 50-70% of Maximum Heart Rate
- classes are open to everyone to exercise in a social, fun and safe environment at a low to moderate intensity
- classes are specifically designed to be safe for those with or at risk of cardiovascular disease and diabetes
- class size is recommended to be limited to 25-30 (even smaller in the early phases of establishing a group)
- class format consists of 4 components:
 - warm-up (10mins)
 - conditioning/strength (10-15mins)
 - endurance (10-15mins)
 - cool down (10mins).

- participants are encouraged to work at their own pace and use chairs for rests within a session
- leaders should develop different levels or versions of specific exercises for use with individuals with limitations (eg seated versions of an exercise)
- leaders should overtly and regularly encourage exercising only at the moderate level
- music appropriate for the age group used as background (approximately 120-130 beats per minute)
- all participants must complete a pre-exercise assessment form (PEAF) prior to participating in a **Heartmoves** class (see Appendix C)
- leaders should advise appropriate participants (as indicated on their PEAF) to visit their GP for medical clearance to exercise
- referring health professionals should be informed of progress (using the health professional fax back form) at regular intervals if requested
- leaders should display the safety protocols (posters provided), for the management of hypoglycaemia and chest pain and have a rehearsed safety routine in the event of an incident (eg handy cards indicating specific actions for members of the class, such as front desk contact of ambulance, notification of GP, waiting at the front to direct the ambulance)
- leaders should have glucose tablets readily available (or jellybeans) for diabetics
- classes must have a mandatory ten minute warm up period at the beginning of a class (if late then a participant may not participate until completing this component) and a mandatory ten minute cool down period at the end. Additionally there should be a social 10-15 minutes at the end to enable feedback on the intensity and work rate and potential signs of intolerance
- within these guidelines, leaders may create multiple varieties of exercise programs including aqua, circuit, floor aerobics, games etc.

Fitness leaders were also invited to attend a local cardiac rehabilitation program for one session as an observer to witness the types of exercise being delivered in that setting. They were also invited to attend one session of a local diabetes education program for similar experience.

Heartmoves leader resources

A number of supportive resources were developed specifically for the **Heartmoves** leaders and included a pre-exercise assessment form, a health professional fax back form, and a class attendance log.

Pre-exercise assessment form

The pre-exercise assessment form (PEAF) (see Appendix C) was modified from an industry screening tool. The modifications ensured that the screening tool adhered to the current US and Australian guidelines^{13,14} for identifying individuals requiring medical clearance before participating safely in exercise at a low to moderate level. The aim of the screening tool was to systematically identify those individuals with a chronic illness and advise them to check with their GP prior to exercising and seek medical clearance to exercise. The PEAF was kept in the records of the **Heartmoves** leaders along with any referral or clearance from GPs.

Health professional fax back form

The fax back form was designed to enable **Heartmoves** leaders to send information to GPs and allied health professionals in a standard way. It provided information to GPs and Allied Health professionals about attendance and any reported symptoms of exercise intolerance among participants they had referred to the program. Permission was gained from the participant to transfer information to health professionals.

Class attendance log

The log enabled standardised record keeping across leaders and was considered appropriate professional behaviour for improving risk management and thereby minimising risk to the leader.

Workshops

General practitioner workshop

A continuing medical education (CME) workshop accredited with nine CME points was developed and delivered in collaboration with the Hunter Post Graduate Medical Institute. Two workshops were delivered, one each to the Rural and Urban Divisions of General Practice. The workshops attracted sponsorship from pharmaceutical companies and were free for participating GPs. Presenters included a National Heart Foundation (Hunter)

representative, and a cardiologist and endocrinologist, both of whom were members of the Advisory Team. The workshops were titled Physical Activity and the Management of Cardiovascular Disease and Diabetes and presented information about the:

- physiological and clinical evidence basis for the role of physical activity in managing specific chronic illnesses
- population evidence for physical activity and health
- behavioural evidence for the GP's role in the promotion of physical activity
- Active Australia messages
- **Heartmoves** program (which included a demonstration)
- local walking programs.

GPs were also provided with an 'Active Script' pad¹² and **Heartmoves** information pamphlets, which included a locality guide of accredited leaders and their contact details.

Allied health professionals' workshop

As many of the target group patients would be seen by allied health professionals through outpatient clinics, community health centres and home visits, it was considered important to provide these health professionals with a **Heartmoves** training opportunity. Therefore, a half-day workshop was presented with invitations and fliers sent to the Heads of all Allied Health Departments within the Hunter Area Health Service (HAHS). The workshop was again presented as Physical Activity and the Management of Cardiovascular Disease and Diabetes, and again experts from the specialties of endocrinology and cardiology were among the presenters.

Each attending health professional received a modified Active Script pad (including an option to refer to a GP for clearance to exercise), and a recommendation to exercise pad. The program for the workshop also included presentations on two community-based walking programs, *Walking for Pleasure* (Department of Sport and Recreation) and *Just Walk It* (NHFA). A demonstration of a **Heartmoves** class was also included in the workshop.

Fitness centre managers' workshop

Fitness centre managers were invited to attend a half-day workshop where **Heartmoves** and Active Australia information and resources were provided. The appropriateness of the **Heartmoves** program to at-risk clients was discussed, with further information presented at the workshop including:

- statistics on the current levels of inactivity and cardiovascular disease to illustrate the size of the potential target market
- the NSW Chief Health Officer's current message of the benefits of moderate intensity exercise
- the proposed involvement of health professionals in a referral and feedback mechanism with accredited fitness leaders
- the specific exercise needs of individuals with cardiovascular disease and diabetes
- the importance of risk management when exercising with at-risk clients.

Marketing

As **Heartmoves** was open to all population groups, not just at-risk groups, a social marketing component was included as part of the intervention.

Public launch

The public launch of **Heartmoves** during Heart Week in 1999 involved three shopping centre demonstrations and media releases about the importance of physical activity and heart health.

Demonstrations and presentations

Heartmoves demonstrations and presentations occurred at individual fitness centres and at the Seniors Expo, with individual fitness leaders providing free first session passes for potential customers. Information about **Heartmoves** was also incorporated into the general health promotion of the NHFA in the Hunter region during community talks and presentations.

Direct promotion to general practitioners

A pharmaceutical company offered to distribute **Heartmoves** pamphlets and the Active Script pad to GPs during their visits, as a value added program.

Newspaper articles

Briefing documents were supplied with photographs of **Heartmoves** classes to journalists at relevant times such as Seniors Week and Heart Week (see examples of media coverage in Appendix F).

Posters and pamphlets

The **Heartmoves** public information pamphlet (see Appendix D) and locality guide, supplied free of charge to GPs and allied health professionals, were also available for purchase by the fitness leaders (for their own marketing initiatives). **Heartmoves** program posters with space available for writing in specific contact and class details were also distributed.

Fridge magnets and t-shirts

A plain white t-shirt with the **Heartmoves** logo on the front was printed and supplied, at a cost of \$10 to fitness leaders for sale to their participants. Additionally, a small magnet with the **Heartmoves** logo was designed for use by fitness centres on their class schedule display boards (see Appendix D). This enabled consistency of the brand recognition by the public.

2.2 Evaluation

Baseline and follow-up cross sectional surveys of fitness centre managers and fitness centre clients were used to determine the intervention's effectiveness in:

- increasing the proportion of fitness centres offering low to moderate intensity exercise classes
- increasing by 5%, the proportion of clients with CVD risk factors exercising in fitness centres.

In addition to these surveys and a survey of **Heartmoves** participants, a number of process level indicators were used to assess the quality, safety, acceptability, reach, and retention rates of the **Heartmoves** program.

Surveys

Fitness centre managers' survey

To determine **Heartmoves** effectiveness in increasing the proportion of low to moderate intensity exercise classes offered by fitness centres in the Hunter, a baseline survey of fitness centre managers was conducted between September and November 1998 with a follow-up survey conducted one year later.

The follow-up survey occurred four to six months after the launch of the **Heartmoves** program in the Hunter region. The baseline survey provided information about the initial nature of fitness centres in the Hunter and the follow-up measured any changes after the launch of the **Heartmoves** program.

The surveys were conducted by telephone and included questions about characteristics of the fitness centre, staff profile, types of programs offered, and procedures for health risk screening. All fitness centres and personal trainers with businesses listed in the *Yellow Pages* in the Hunter region were eligible for inclusion in the study.

Fitness centre clients' survey

A baseline and follow-up survey of fitness centre clients was conducted to determine **Heartmoves'** effectiveness in increasing the proportion of fitness centre clients with CVD risk factors by 5%. The baseline, self-complete survey of fitness centre clients was conducted between September and November 1998 (before the introduction of **Heartmoves**) and the follow-up survey exactly one year later. The baseline and follow-up surveys were identical except for an additional question about **Heartmoves** participation in the follow-up survey. Cross sectional sampling on a randomly selected weekday ensured that each fitness centre was surveyed for one day randomly selected at both baseline and follow-up.

The questionnaire collected information about sociodemographic characteristics (including age, gender, marital status, education, employment, and country of origin). It also collected information about cardiovascular risk profile including:

- participation in physical activity (see Appendix E)
- smoking status
- body mass index (BMI) (see Appendix E)
- family history of CVD and previous history of CVD risk factors (diabetes, high blood pressure, previous stroke or heart problem and high cholesterol).

Knowledge questions regarding physical activity messages were also contained in the survey.

On the data collection days, research staff from the NHFA set up an 'information booth' and distributed surveys, information, and consent letters to each eligible person upon entering the facility between 8.00am to 12.00pm and 2.00pm to 6.00pm. Managers had been previously informed about the data collection protocol and were given 24 hours notice of the data collection day for their centre. An automatic counter was used to record the total number of people entering the exercise area of the fitness centre. People who were obviously not there to exercise were excluded from the count (ie sales representatives in suits, parents watching school sports, students in school uniform and staff). Fitness centre managers provided a 'prize' of a partial membership for one client of their centre who completed the survey. Participants were able complete the survey on the day, or nominate for a telephone interview at a convenient time.

Process level indicators

Quality and safety

Heartmoves leader training

The quality indicators for the Heartmoves leader training were the ability of the manual and course content to gain endorsement by the NHFA, and the ability of the training program to gain accreditation from fitnessnsw.

Adherence to Heartmoves training guidelines

Two quality assurance (QA) audits of each fitness leader were conducted during the program, and involved two members of the training team observing a Heartmoves class and rating the leader's adherence to the training guidelines. The first QA audit occurred approximately two to four months after the leader had completed their training at a mutually agreed time. Personalised feedback about the leader's adherence to Heartmoves guidelines was provided as a form of positive feedback in this first audit. Leaders were also provided with a collated summary of the average scores on each QA item for all leaders in the Hunter, enabling them to see their own score in relation to the average. Six weeks after the initial feedback was provided, the second QA audit was conducted by the same team with the timing of this visit unannounced.

Adherence to pre-exercise screening procedure

During a records audit at fitness centres, the following indicators were counted:

- number of participants on the Heartmoves attendance records who had a completed PEAf
- number of participants whose PEAf indicated a cardiovascular risk profile, for which medical clearance was advised
- number of PEAfs that had a written GP or allied health professional referral/clearance form attached.

In addition, the date on the PEAf and the date on the GP referral were recorded. This enabled a calculation of whether the GP had initially referred the participant or whether the participant had approached the GP for a medical clearance to exercise.

Acceptability

Heartmoves training

The indicators of the acceptability of the Heartmoves training program to fitness leaders were:

- number of registered fitness leaders completing the Heartmoves Training Program
- proportion of accredited Heartmoves fitness leaders who established a Heartmoves program in the Hunter after completing their training (the yield of the training program).

Heartmoves participants

A survey of Heartmoves participants conducted nine months after the launch of the program collected data about sociodemographic and attendance characteristics, and program acceptability. Heartmoves leaders were requested to either give or mail out the survey, with a reply paid envelope and information letter, to all participants who had ever enrolled in their Heartmoves classes. This included former participants who had dropped out and those who were still involved but just absent that week.

The **Heartmoves** participants' questionnaire used the same core questions as the fitness centre participants' survey. Additional questions included in the **Heartmoves** participants' questionnaire collected information about:

- how they became aware of **Heartmoves**
- how often they participated
- whether they had completed a cardiac rehabilitation program or a diabetes education program in the last 12 months
- their satisfaction with the program.

Fitness centre managers

Baseline and follow-up surveys of fitness centre managers (described previously) included questions about:

- barriers to the development of programs for special populations
- barriers to the implementation of **Heartmoves***
- the potential of **Heartmoves***

Reach

Heartmoves participants

The survey of **Heartmoves** participants included questions about radio, TV, and newspaper promotions, and how the participant found out about **Heartmoves**.

Fitness centres

Nine months after the public launch of **Heartmoves** a research staff member visited each fitness centre and determined the:

- number of fitness centres delivering at least one **Heartmoves** program
- total number of individual **Heartmoves** programs offered.

Telephone line referral

In a combined print media advertising initiative (jointly funded by fitness centres) and a **Heartmoves** editorial that ran in the Newcastle Herald, the NHFA telephone number at the Hunter office was given as the number to call for information. The names and phone numbers of those who responded were

logged and a **Heartmoves** pamphlet containing the locality guide was mailed to each caller. After three months these callers were telephoned and asked whether they had received the pamphlet, attended a fitness centre, or were currently participating in a **Heartmoves** program. This provided a response rate to the media coverage and an overall yield into the **Heartmoves** program from telephone inquiries.

GPs and Allied Health professionals

GPs' and allied health professionals' interest in the **Heartmoves** program was assessed by the number of GPs and allied health professionals attending the relevant workshop. Further, pro-active referral of clients from GPs and allied health professionals to the program was calculated.

Media coverage

Local monitoring of daily and weekly newspapers was conducted.

Retention

Heartmoves participants

An audit of participant records kept by **Heartmoves** leaders was conducted to determine the:

- number of participants who had ever enrolled in **Heartmoves**
- proportion of these 'ever enrolled' participants, who were still exercising in **Heartmoves** in the two weeks preceding the audit (ie had attended at least one **Heartmoves** session during the preceding two weeks).

Data analysis

Frequencies and proportions were calculated for descriptive data using Stata statistical package – Version 5. Differences between baseline and follow-up in the proportion of at-risk participants exercising in the fitness centres were analysed using Chi Square tests. Continuous data were analysed using ANOVA. For non independent samples the McNemar's Chi Squared test was applied to matched data points from Baseline to Follow-up. Refer to Appendix E for calculations of BMI and 'adequate physical activity'.

* Follow up survey only

Results

3.1 Surveys

Fitness centre managers' survey

Response rate

Of the 28 fitness centres in the Hunter, 27 of the managers participated in the baseline survey. At follow-up, of the 25 still operational centres, 23 managers participated. The response rates for baseline and follow-up were 96% and 92% respectively.

Fitness centre characteristics

The survey of fitness centre managers in the Hunter showed that the mean:

- length of time in operation for the centres was 13 years
- length of time the manager had been managing the centre was three years
- number of individuals estimated to be participating in exercise each week at the centre was 300 at baseline and 350 at follow-up.

At baseline, fitness centre managers in the Hunter reported employing 452 fitness leaders, with the majority (69.9%) being employed on a casual basis (11.5% part time and 18.5% full time). The main barrier to developing programs for special populations such as people with heart conditions, identified by the managers at baseline, was lack of trained staff (84% of managers, which dropped to 48% of managers at follow-up).

Programs offered by fitness centres

The proportion of fitness centres offering the high intensity program 'New Body' decreased significantly during the **Heartmoves** intervention. Additionally, the proportion of centres offering the lower intensity programs of Active Over 50's and **Heartmoves** increased significantly (Table 3.1) from baseline to follow-up (from 48% to 82% and from nil to 64% respectively).

Table 3.1 Programs offered by fitness centres

Programs offered	Baseline (n=25)	Follow-up (n=22)	X ^{2**}	p
Higher intensity:				
• beginners circuit	72%	68%	0.14	0.700
• advanced aerobics	80%	68%	3.00	0.080
• beginners step	76%	67%	0.33	0.560
• advanced step	80%	73%	0.33	0.560
• high impact aerobics	60%	64%	0.00	1.000
• fat burners/weight loss	88%	86%	0.20	0.650
• pump	68%	77%	0.11	0.740
• new body	84%	50%	6.40	0.010*
Lower intensity				
• yoga/stretch/relaxation	32%	45%	1.29	0.260
• active over 50s	48%	82%	8.00	0.005*
• Heartmoves	0%	64%	14.00	0.001*
• Aqua	28%	22%	0.33	0.560

* Significant difference between baseline and follow-up surveys at p<.05.

** McNemar's Chi Squared analysis performed on matched pairs (with data at both times).

Health risk screening and management

Significant increases were found in the proportion of fitness centre managers reporting risk assessment and risk management strategies between baseline and follow-up; in the areas of emergency protocols for managing fainting and chest pain (Table 3.2).

Table 3.2 Risk assessment and risk management strategies reported by fitness centres

Programs offered	Baseline (n=25)	Follow-up (n=22)	X ^{2**}	p
All clients asked at first visit about health/medical history.	56%	68%	0.00	1.00
All clients required to complete a written health/medical history at first visit.	40%	50%	1.00	0.32
Displayed emergency protocols for managing:				
• CPR	80%	91%	0.20	0.65
• fainting/collapse	24%	55%	4.45	0.03*
• chest pains	24%	64%	6.23	0.01*
• acute shortness of breath.	28%	45%	0.82	0.37

* Significant difference between baseline and follow-up surveys at p<.05.

** McNemar's Chi Squared analysis performed on matched pairs (with data at both times).

Fitness centre clients' survey

Response rate

At baseline, the 25 fitness centres had a total of 3,066 clients. At follow-up 23 fitness centres had a total of 2,310 clients. The response rate for the baseline and follow-up surveys of fitness centre clients was 60% and 72% respectively.

Characteristics of fitness centre clients

The sociodemographic characteristics of the fitness centre clients in the baseline and follow-up surveys are presented in Table 3.3.

Table 3.3 Sociodemographic characteristics of fitness centre clients

Characteristic	Baseline (n=25)	Follow-up (n=22)
Mean age	35 years	34 years
Female	56%	62%
Married	57%	55%
Education – Completed secondary school or above	66%	54%
Employment – Full time, part time or self employed	67%	62%
Born in Australia	88%	87%

The median length of attendance at the fitness centre was 0.9 years at baseline and 0.4 years at follow-up. Of those surveyed, 5% at baseline and 3% at follow-up reported being referred by a health professional.

Self reported cardiovascular risk profile of fitness centre clients

Table 3.4 displays the comparison between baseline and follow-up for CVD risk factors reported by fitness centre clients. In addition, a calculation was made of the total number of risk factors reported for each participant. As shown in Table 3.4, the levels of risk for BMI and smoking are similar to those found in a 1995 population survey.¹⁵ The level of adequate physical activity participation in the fitness centre population

is very close to 100%, which could be expected in this sample and much higher than in the general population. The proportion of fitness centre clients with high blood pressure, high cholesterol levels, and existing heart disease are less than those found in the general population, however approximately the same for those with diabetes.

An objective of the project was to determine the intervention's effectiveness in increasing the proportion of fitness centre clients with CVD risk factors by 5% from baseline to follow-up. However, none of the CVD risk profile characteristics were found to be significantly different from baseline to follow-up (Table 3.4).

Table 3.4 Self-report CVD risk profile of fitness centre clients

CVD risk factor	AIHW 1995 data¹⁵	Baseline (n=1831)	Follow-up (n=1666)
BMI (25 ≥ obese/overweight)	56%	54.6%	54.1%
Smoking	24%	21.8%	19.9%
Insufficient physical activity*	43%	3.0%	2.5%
Blood pressure	17%	10.6%	10.7%
Angina	16% (with a cardiovascular condition)	1.2%	0.9%
Heart attack		1.2%	1.6%
Stroke	0.6%	0.6%	0.7%
High cholesterol	35%	8.1%	10.0%
High triglycerides	No data available	1.7%	2.4%
Diabetes	2% (diagnosed)	2.3%	1.9%
Peripheral vascular disease	No data available	0.5%	0.6%
Family history of heart disease	No data available	26.5%	29.1%
No. of CVD risk factors:			
• none	20%	23.6%	23.8%
• one	68%	42.7%	41.7%
• two	(with 1 or 2 risk factors)	23.4%	23.6%
• three or more.	12%	10.0%	11.2%

* (< 800 Kcals/week)

Heartmoves participant survey

Response rate

The response rate for the Heartmoves participant survey was 65% (147/225) for Heartmoves leader distributed surveys, and 36% (74/204) for surveys mailed by the Heartmoves leaders. The overall response rate was 51% (221/429).

Characteristics of Heartmoves participants

A summary of the characteristics of Heartmoves participants compared to the general fitness centre clients measured at follow-up is provided in Table 3.5. Heartmoves participants were significantly more likely to be older, retired, not to be employed, not to have completed high school and have been referred by a GP than the general fitness centre client population. In relation to CVD risk factors, data on the two comparable risk factors – overweight or obesity, and insufficient activity showed that compared to the general fitness centre clients Heartmoves clients were significantly more likely to be overweight or obese (90% vs 54% $p < 0.001$) and insufficiently active (7% vs 3%, $p < 0.001$). Additionally 10% of participants reported having attended cardiac rehabilitation and 14% reported attending diabetes education in the preceding 12 months.

In the follow-up survey of general fitness centre clients only 49 (2.9%) participants reported being part of a Heartmoves program. However, there were 44 programs operating in the Hunter centres at follow-up with at least 400 participants (fitness centre audit data). It appears likely that the random selection of one weekday per centre on which to implement the survey may have omitted the days on which the Heartmoves programs were delivered. This possible omission of Heartmoves clients from the follow-up general fitness centre client survey, may subsequently have influenced the finding of no significant differences in the follow-up fitness centre population on CVD risk factors.

The sample of general fitness centre clients contained 49 people who reported being Heartmoves participants. It is possible these 49 people were also captured in the Heartmoves sample and there is no way of identifying and therefore removing them from the analysis. Given the large numbers in the fitness centre sample, even if these 49 were all removed there would be minimal effect on the Chi Squared calculations.

Table 3.5 Comparison of Heartmoves participants to fitness centre clients

Characteristics and risk factors	Heartmoves participants (n=225)	Fitness centre participants (follow-up) (n=1666)	χ^2	p-value
Aged > 60 years	70%	6%	359.09	0.000***
Female	79%	62%	484.04	0.028***
Retired	62%	7%	275.99	0.000***
Employment – Full-time, part-time or self employed	11%	62%	75.95	0.000***
Education – Completed secondary school	33%	63%	21.12	0.000***
Married	68%	55%	3.21	0.730
Born in Australia	87%	88%	0.00	0.988
Referred by GP	24%	3%	111.66	0.000***
BMI $\geq 25^*$	90%	54%	22.77	0.000***
Insufficient physical activity**	7%	3%	11.77	0.001***

* (Obese/overweight).

** (< 800 Kcals/week).

*** Significant difference at $p < .05$.

3.2 Process level indicators

Quality and safety

Heartmoves leader training

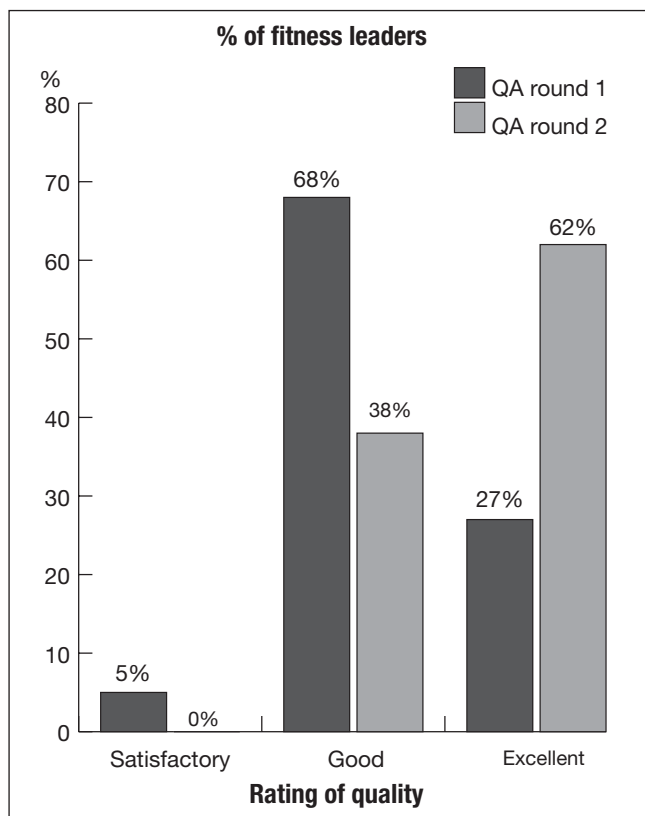
The Heartmoves training manual received endorsement from the NHFA (NSW) Cardiac Rehabilitation Advisory Committee. Further, the training program was successfully accredited with fitnessnsw and awarded the maximum 15 Continuing Education Credits (CEC) for participating fitness leaders.

Heartmoves leaders must have current registration as a fitness leader and current CPR training.

Adherence to Heartmoves training guidelines

The first QA audit of the 22 active Heartmoves leaders showed that 68% of leaders were ranked on average as ‘good’ and 27% ranked as ‘excellent’. The remaining 5% received an average ranking of ‘satisfactory’. As Figure 3.1 shows, there was additional improvement in adherence to the guidelines from the first QA audit to the second, with 62% of leaders ranked as ‘excellent’ on the second QA audit.

Figure 3.1 Comparison of overall scores for fitness leaders on quality assurance audit



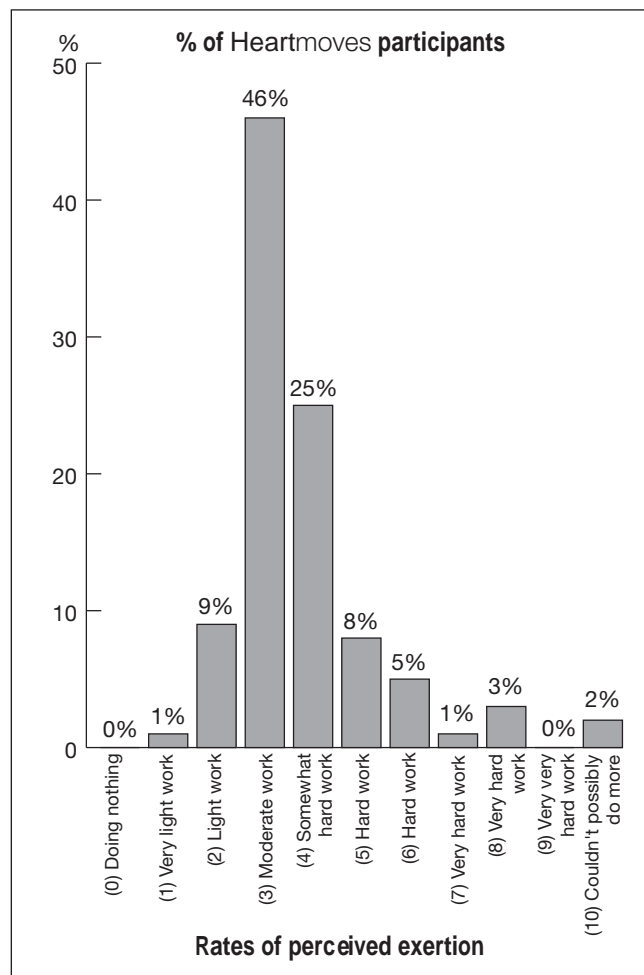
Adherence to pre-exercise screening procedure

Of the 400 enrolments in the Heartmoves program, 93% of participants had a completed PEAf. Of the completed PEAfs, 80% indicated that they had a chronic condition for which they were advised to seek medical clearance before exercising. Of those who indicated a chronic condition 65% signed the ‘waiver’ on the PEAf indicating that they already had medical clearance to exercise and the remaining 35% had a written medical referral/clearance form attached to their PEAf.

Adherence to low-moderate intensity

Figure 3.2 shows that among the Heartmoves participants surveyed, 89% reported their Rate of Perceived Exertion (RPE) as ≤ 5 on the modified Borg 10 point scale (see Appendix B). A total of 79% of the participants reported working between 3-5 on the RPE Scale, a further 10% reported working below 3 whilst 11% reported that they were working above 5.

Figure 3.2 Rates of Perceived Exertion (RPE) reported by Heartmoves participants



Acceptability

Heartmoves training

Twenty-four fitness leaders attended the two initial **Heartmoves** training workshops. Due to demand, an additional workshop was delivered two months later to a further 11 fitness leaders. Therefore in total, 35 fitness leaders completed the training workshop. Of these, 63% had established a **Heartmoves** class within six months of the launch (ie the training program yielded 63% 'active' **Heartmoves** leaders) and a further 34% reported that they intended to establish a **Heartmoves** class within the next 12 months.

Heartmoves participants

Satisfaction with **Heartmoves**

Heartmoves participants were asked to rate on a four point Likert scale how satisfied they felt with various aspects of the program. Response options for 'satisfied' and 'completely satisfied' were then aggregated and are presented in Table 3.6.

Table 3.6 Participant satisfaction with **Heartmoves**

Item	% reporting satisfaction (n=221)
Leader's respect for safety	99.5
Leader's ability to let them work at their own speed	99.0
Leader's understanding of their needs	98.0
Leader's helpfulness	98.0
Leader's music speed	96.0
Thought the name Heartmoves described the program well	96.0
Thought that the price structure was appropriate	95.0
Leader's music choice	93.0
Leader's music volume	93.0

Attendance and cost

Heartmoves participants reported that they averaged about two classes or 1.4 hours of **Heartmoves** each week, and walked an average of five times per week, in addition to their **Heartmoves** programs. The average cost of a **Heartmoves** session was \$3.60, with the majority (75%) of classes less than or equal to \$5. Almost all (95%) **Heartmoves** participants reported that they thought the price was appropriate.

Fitness centre managers

The survey of Fitness Centre Managers included questions about Managers' perceived barriers towards programs for special populations, and, specifically, their awareness of, and attitudes towards, **Heartmoves**. A summary of the results is contained in Table 3.7. There were a total of 35 fitness leaders trained in **Heartmoves**, some worked in centres which had not yet adopted a **Heartmoves** program, but their managers would have nevertheless been aware of the Fitness Leader Training program and have attended the Managers Workshop. This could explain the finding that 100% of fitness managers thought **Heartmoves** leaders were appropriately trained yet 100% did not have a **Heartmoves** program operating.

The proportion of fitness managers who thought that the lack of trained staff was a barrier to developing programs for special populations decreased significantly from baseline to follow-up ($p \leq 0.05$), after the **Heartmoves** intervention.

Table 3.7 Fitness centre managers' perception of Heartmoves programs

Main barrier identified to developing programs for specialised populations	Baseline (n=25)	Follow-up (n=21)
Lack of trained staff	84%	48%*
Awareness/attitudes of Heartmoves		
Aware of Heartmoves (n=22)	NA	95%
Delivering at least one Heartmoves program (n=22)	NA	64%
Agree with the following statements:		
• Heartmoves has the potential to become a core program in the fitness industry (n=21)	NA	67%
• Heartmoves is a good investment for the fitness industry (n=17)	NA	35%
• Heartmoves has the potential to grow (n=17)	NA	94%
• liability risks are too great (n=18)	NA	16%
• record keeping requirements of Heartmoves are too great (n=17)	NA	35%
• biggest barrier is attracting new participants when starting up new program (n=20)	NA	60%
• participants might be lost when requested to get a medical clearance (n=17)	NA	53%
• Heartmoves leaders adequately trained (n=17)	NA	100%
• sufficient support is provided to establish Heartmoves in centre (n=17)	NA	83%

* McNemar's Chi Squared analysis for matched data points at both times. $X^2=4.45$; $p \leq 0.05$.

Reach

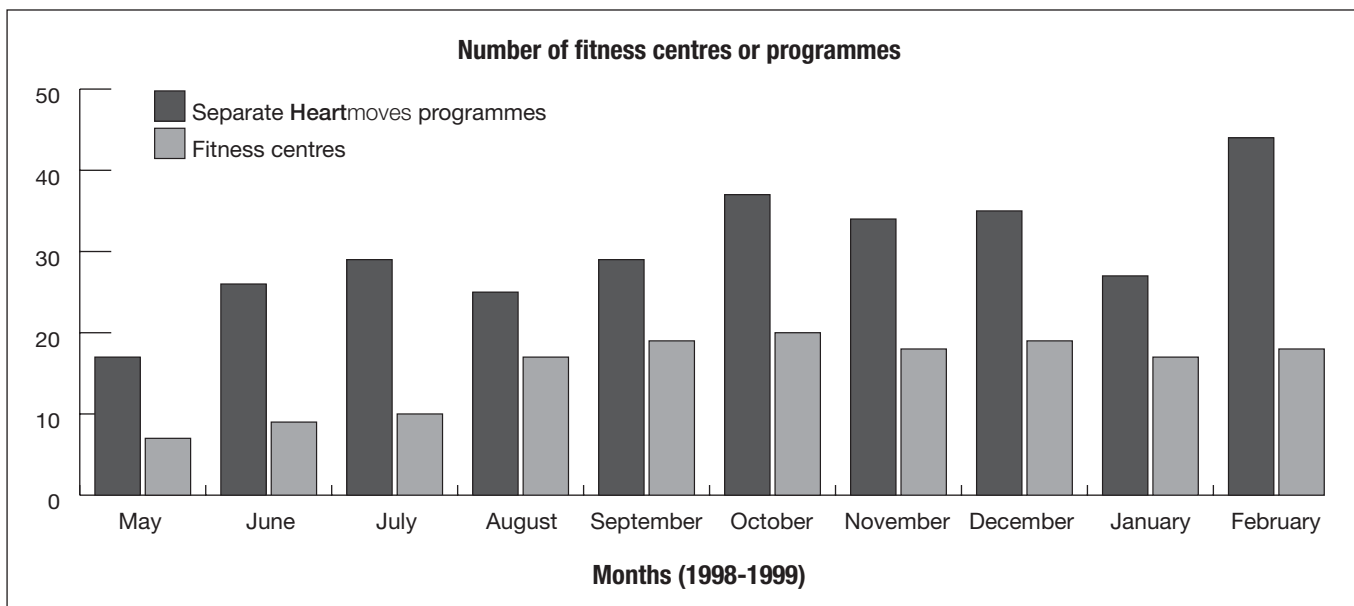
Heartmoves participants

Of the 225 Heartmoves participants who responded to the survey:

- 37% reported first finding out about Heartmoves through family and friends
- 28% reported seeing a TV commercial for "Active Over 50's"
- 14% found out through allied health professionals;
- 13% found out through newspapers
- 13% reporting seeing a TV commercial for Heartmoves (it featured in the NBN Today Extra)
- 11% found out through fitness centres
- 8% found out through mailed pamphlets
- 9% reported seeing the NSW Health 'Tin Man' commercial
- 6% found out through GPs.

Fitness centres

In 1999 (baseline) there were 25 fitness centres operating in the Hunter. Seven months after the launch of Heartmoves at the follow-up survey, there were 23 centres still operating and the survey of 22 consenting managers found that 14 (64%) were offering at least one Heartmoves program. Nine months after the launch of the Heartmoves program, the fitness centre record audit found 18/23 (84%) were offering at least one Heartmoves class. These centres offered a total of 44 individual Heartmoves sessions (an average of 2.4 programs per centre). The Heartmoves programs were offered between 9.00am and 4.00pm on weekdays (which is known to be the quiet period within the fitness industry). Figure 3.3 illustrates that the number of individual Heartmoves sessions increased over the intervention period from May 1998 to February 1999.

Figure 3.3 Fitness centres offering Heartmoves programmes**Telephone line referral**

A total of 87 calls were recorded at the Hunter office of the Heart Foundation as a result of the specific article on the Heartmoves program in the Newcastle Herald (see Appendix F for a sample of a media article). Three months later, 57% of these callers were re-contactable and 6% had participated in Heartmoves.

GPs and Allied Health professionals workshop attendance

A total of 55 GPs attended the Hunter Urban Division of General Practice workshop (there are approximately 350 GPs in this Division) and a further 16 GPs attended the Hunter Rural Division of General Practice workshop (there are approximately 160 GPs in this Division). A total of 66 dietitians, nurses and physiotherapists (from the Hunter Area Health Service) attended the Allied Health Professionals' Workshop.

General practitioner referrals/medical clearance to Heartmoves

As Heartmoves programs are openly marketed, clients can enter 'off the street' as well as through a referral from a GP. The audit of Heartmoves records in the fitness centres showed that 26% (104/400) of the Heartmoves participants had a signed referral or a medical clearance. An examination of the dates on both the PEAfs and the medical referral/clearance

forms (for these 104 clients) indicated that the GP had been proactive (instigated the referral to Heartmoves) for 21% (22/104) of these participants and reactive (signed the medical clearance brought to them by a patient) for 79% (82/104) of these participants. Additionally 41% of these 104 clients had had a requested progress report faxed back to the referring GP from the fitness centre.

In the survey of Heartmoves participants (n=400):

- Twenty-four percent reported that they were referred to the classes by a health professional, and of these:
 - 42% by a GP
 - 13% by a specialist
 - 18% by a physiotherapist
 - 11% by a nurse
 - 11% by a dietitian.
- Fourteen percent reported having participated in diabetes education in the preceding 12 months.
- Ten percent reported having participated in cardiac rehabilitation education in the preceding 12 months.

Participants were also asked questions about their perceptions of their GP's attitude towards physical activity and to Heartmoves specifically. Fifty-one percent of participants reported that their GP had raised the topic of physical activity in the last

12 months. Seventy-four percent reported that they informed their GP about **Heartmoves** and of these, 78% reported their GP was supportive and encouraging of **Heartmoves**.

Media coverage

In summary, local media monitoring over the nine months of the evaluation period recorded:

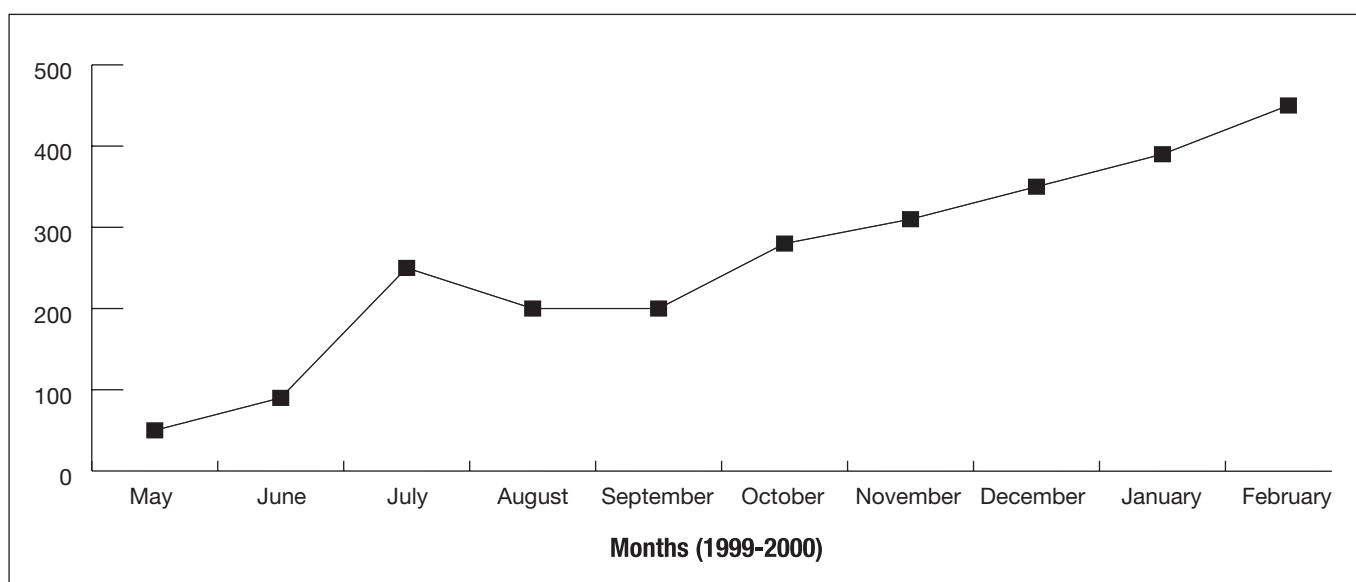
- three television media coverage items/interviews
- twelve newspaper articles in the general press
- three targeted print articles in specific newsletters (Hunter Health, Urban Division of GP, and fitnesssw)
- ten live **Heartmoves** demonstration/open days.

Retention

Heartmoves participants

A total of 400 people enrolled in the **Heartmoves** program during the nine months after the public launch. Of these, (320/400) 80% had attended their **Heartmoves** program during the two weeks preceding the audit (conducted six months after the launch) and were therefore deemed to have been 'retained'. Figure 3.4 shows the steady increase in enrolments in the **Heartmoves** programs over the nine months, and the dip in enrolments over the winter months of July and August.

Figure 3.4 Number of enrolments in **Heartmoves** classes



Insufficient physical activity is the most prevalent population risk factor for CVD. There is also strong evidence for the benefits of regular exercise for those with existing chronic illnesses such as diabetes, heart disease, asthma, arthritis, depression, and as a preventive strategy for falls. However, there are few available community-based exercise programs that are tailored to the needs of these special populations, many of whom are older and deconditioned. Fitness centres are an appropriate setting to provide exercise programs for special populations including those who are older and those with stable chronic illness (provided there is appropriate staff training and adherence to risk assessment, risk management, medical clearance, lower intensity and safety protocols). However, there is still considerable opportunity to bridge the gap between fitness centres and the health sector.

Heartmoves was an innovative intervention that incorporated a number of strategies designed to promote integration and overcome barriers between the health sector and the fitness industry. Due to the already extensive literature concerning the benefits of physical activity participation for the individual, the current study did not aim to measure the individual impact of the **Heartmoves** program. Rather, the project was designed to evaluate the ability of **Heartmoves** to provide a sustainable and safe exercise program that met the needs of clients and the fitness industry, and was an attractive referral option for health professionals.

Heartmoves attracted the target group it was designed for, older Australians, those with risk factors for CVD, and/or those who have stable heart disease or diabetes. Ten percent of **Heartmoves** participants reported attending a cardiac rehabilitation program in the preceding year, and an additional 14% reported attending a diabetes education program (indicating that 24% of the participants had existing and recent cardiovascular disease or diabetes).

The **Heartmoves** intervention targeted participants who were significantly different from the rest of the population of fitness centre clients. Compared to fitness centre clients, **Heartmoves** participants were significantly more likely to be over 60 years, retired, not employed, and be obese or overweight. **Heartmoves** appears to be successful in attracting a new market to fitness centres and the intervention was shown to have changed the nature and type of programs offered in local fitness centres. There was a significant overall increase in the proportion of centres offering the lower intensity programs. There was also a significant increase in the level of risk management of clients in relation to emergency protocols for managing fainting spells and chest pains. This suggests that the introduction of **Heartmoves** contributed to a refocusing in local centres towards safety, health and older populations.

4.1 Quality, safety, acceptability, reach and retention

Quality assurance and safety were fundamental components of the **Heartmoves** program. The **Heartmoves** leader training manual received accreditation from fitnessnsw and content approval from the NHFA, which would suggest it is a credible resource acceptable to both the fitness industry and relevant health professionals. Further, the quality of the classes conducted by **Heartmoves** leaders were assessed to be of a high standard. The assessed quality of **Heartmoves** leaders improved during the intervention, which may have been due to the increasing experience of the leader and/or the feedback provided after the first quality assessment. Further, the majority of **Heartmoves** participants (93%) had completed a PEAR, which indicates adherence to a key safety requirement of **Heartmoves**.

Initial demand from fitness leaders for **Heartmoves** training was very encouraging, with one-third of workshops being held due to demand. Sixty-three percent of fitness leaders participating in the **Heartmoves** training program subsequently provided **Heartmoves** classes, with a further 34% intending to do so within 12 months. Reasons for trained **Heartmoves** leaders delaying or not conducting **Heartmoves** classes were not measured, however anecdotal reports from leaders suggest that this may be related to management decisions outside the control of individual leaders. To ensure that appropriate supportive structures are in place for trained **Heartmoves** leaders, future evaluations of the program could consider collecting information about 'non-active' **Heartmoves** leaders and management. Opportunities for further targeted and limited health sector support could be explored to ensure establishment of the programs.

Participants in the **Heartmoves** program appeared to be very satisfied with the **Heartmoves** leaders, with the proportion reporting satisfaction greater than 93% in regards to leader's understanding, helpfulness, safety and music. Further, the majority of participants (95%) also reported being satisfied with the price. These results suggest that the **Heartmoves** program is very acceptable to the target group. However, alternate questions in the survey may have elicited varied results, and non-participants were not surveyed.

Enrolments in the **Heartmoves** program generally increased steadily over the intervention, with a total of 400 people enrolling during the nine months. Of these, 80% were retained at the time of the audit (six months after the launch). This high retention rate is valuable in an industry where, according to verbal reports from fitnessnsw, the industry generally expects a 20-30% retention rate at one year, and the survey of general fitness centre clients at follow-up indicating a median time at the centre of less than six months.

Heartmoves also appeared to be acceptable to fitness centre managers. It was very encouraging that the proportion of managers perceiving a lack of trained staff as a barrier to developing programs for special populations, decreased from 84% to 48% during the intervention. This result is supported by the fact that 17/17 (100%) of the surveyed managers agreed that **Heartmoves** leaders were adequately trained.

The majority of managers perceived **Heartmoves** as having the potential to become a core program in the fitness industry (67%). Further, the majority (83%) perceived there was sufficient support to establish **Heartmoves** and few (16%) thought the liability risks were too great. Despite this apparent support, only 35% of managers perceived **Heartmoves** as a good investment for the fitness industry, yet 94% perceived that **Heartmoves** had the potential to grow. Future promotion of programs such as **Heartmoves** to the fitness industry may need to emphasise the financial viability and potential of programs for special populations, where increased volume and higher retention rates, combined with use of centres at non peak times may offset the lower per person margins. **Heartmoves** programs can be offered during 'down-times' in fitness centres (ie 10.00am-4.00pm), which enables an attractive pricing structure.

The **Heartmoves** program attracted a total of 137 health professionals to the workshops. The majority of GPs did provide a reactive referral when prompted by their patient's request, however, only a small proportion of **Heartmoves** participants were proactively referred to the program by a health professional. Difficulty in engaging GPs in physical activity promotion has been encountered in numerous other programs. Further strategies, aside from CME workshops and script pads, need to be evaluated in their ability to link GPs to the fitness industry, and physical activity promotion in general. Targeted resource development for GPs particularly in relation to risk management, eligibility criteria and incorporation into Enhanced Primary Care Planning could be considered to increase physical activity referrals to **Heartmoves**.

While there is still considerable opportunity to increase the proactive referral of participants to **Heartmoves**, the program was able to strengthen the communication between the health sector and fitness industry. Of the 80% who indicated any cardiovascular risk factors on the PEAf, and who were advised to seek a medical clearance to exercise, 35% visited their GP and received a written referral/medical clearance to **Heartmoves**.

The **Heartmoves** program was able to attract local media attention, with 15 newspaper and three television items. The most common source of finding out about the **Heartmoves** program reported by participants was through family and friends (37%), however a wide array of sources was reported. Six percent of those responding to one specific newspaper article by contacting a telephone line went on to attend a **Heartmoves** programs. It is therefore difficult to establish the most effective means of promotion for **Heartmoves** in the community. However, a multi-component strategy ensuring wide coverage is probably the most appropriate.

4.2 CVD risk factors among fitness centre clients

The second objective of the **Heartmoves** project was to determine the intervention's effectiveness in increasing the proportion of fitness centre clients with CVD risk factors by 5%. The results of the fitness centre clients' survey indicate that the characteristics and cardiovascular profile of fitness centre participants at follow-up were not significantly different from baseline.

These results, however, need to be considered in light of potential methodological limitations. Firstly, the time period of data collection from the launch of the **Heartmoves** intervention to the follow-up measures (six months) may have been insufficient to enable sufficient growth of **Heartmoves** throughout the industry. Secondly, the design strategy of randomly selecting one day of the week for surveying participants in each fitness centre may have been too insensitive. As only 3% (n=49) of the fitness centre clients in the follow-up sample reported that they had participated in a **Heartmoves** class, the 'random one day/week' nature of the data collection protocol may not have corresponded with the days on which **Heartmoves** programs were being conducted in the fitness centres.

However, the results could also be interpreted to suggest that few **Heartmoves** participants attended the fitness centre unless it was for the specific purpose of attending a **Heartmoves** class, and that **Heartmoves**

classes were not available on every day of the week. Varied strategies (including increased low intensity program choices) may be required to encourage special populations, such as those with CVD risk factors, to participate in wider fitness centre activities.

4.3 Low to moderate intensity exercise classes offered by fitness centres

The third objective of **Heartmoves** was to determine the intervention's effectiveness in increasing the proportion of low to moderate intensity exercise classes offered by fitness centres in the Hunter region from baseline to follow-up. After the **Heartmoves** intervention, a significantly higher proportion of fitness centres offered lower intensity programs. It should be noted that 64% of centres offering **Heartmoves** classes is a considerable achievement considering the competition from the Active Over 50's program. The Active Over 50's program may have been perceived from an industry perspective as easier to implement due to less extensive training requirements and free training courses for leaders, fewer requirements for record-keeping, and quality-assurance.

The number of individual **Heartmoves** classes offered increased during the intervention period, whereas the number of participating Centres peaked during the middle of the intervention and then dropped slightly. This drop (two centres) however, resulted from the Quality Assurance Audit that revealed that the **Heartmoves** brand had been applied to existing 'gentle' exercise classes, without appropriate change to the structure and intensity levels of the programs. The number of enrolments in the **Heartmoves** program also increased during the intervention. This would suggest that strategies to promote the **Heartmoves** program should aim to increase not only the number of participating centres, but also the number of individual classes offered by each centre.

