

Submission No. 33
(Inq into Obesity)

21105108 HE



14 May 2008

Committee Secretary
Standing Committee on Health and Ageing
House of Representatives
PO Box 6021
Parliament House
Canberra ACT 2600

RE: Inquiry into Obesity in Australia

**Medically Supervised Weight Loss Programs Achieve Significant and Maintained
Weight Reduction and Health Risk Improvements**

I write to inform the Standing Committee that successful, cost effective, medically supervised clinical programs for the long term treatment of obesity exist in Australia. Moreover, the results of these clinical programs are published in credible medical journals.

By way of introduction I am Neil Holt, CEO of Wesley Weight Management Clinic (WWMC), an Australian organisation that has treated more than 4500 obese adults and adolescents (www.wesweight.com.au). The Medical Director of WWMC is the Cardiologist Dr Geoffrey Holt. Dr Holt is a Senior Partner in the national Cardiology network, Heart Care Partners, and as such, has a 'foot' in both the clinical and preventative health camps.

Background

WWMC is the largest clinical weight loss organisation in Australia, with eight clinics in South East and Central Queensland. As a member of its parent organisation, Wesley Corporate Health, it was recognised as the Telstra Queensland Business of the Year in 2006.

WWMC's programs are evidence based and conducted by a team of registered health professionals. Every one of our clients has a weekly on-on-one appointment with either a Doctor, Dietitian, Exercise Physiologist or Psychologist as part of their weight loss program.

As 50% of obese people have co-morbidities such as high blood pressure, Type II diabetes, cholesterol, depression and osteoarthritis, we manage these conditions during weight loss. We advise our clients' primary health care Doctor of their progress, including any medication reductions and follow-up issues. Our model of clinical care is popular with GPs, in fact GPs are the second highest source of referrals to our Clinic (the highest source being word of mouth).



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Our programs range in duration from three to 12 months, depending on the amount of weight loss required. Programs have both an active weight loss phase and a maintenance phase, where weight losses are consolidated into long term lifestyle changes.

We have an exceptionally good database of the clinical, medical and psychological parameters associated with clients entering and realising their weight loss goals. We also track clients who drop out of their programs and analyse their results, hence we can present our data on either a 'clients completed' or 'intention to treat' mode.

WWMC has collated data on the 4500 clients it has treated. Data for 2200 of these clients was presented at the International Congress of Obesity in Sydney in 2006, demonstrating that our clients lose weight, reduce their body fat, maintain lean tissue (muscle) and significantly improve their cardiovascular risk profile (Framingham Risk Score). These changes are primarily a result of the significant blood pressure reductions that accompany weight loss. In addition, we track medication changes (reduction and / or cessation of medications used for hypertension, Type II diabetes, diuresis and blood pressure) in parallel with weight loss.

Our clients pay for our services. Those with health insurance can only claim a small portion of the allied health component of their program, depending on their level of cover. **The single biggest reason for clients not joining a program is lack of co-payment support from their health fund or Medicare.**

We believe that the Australian healthcare system could obtain a demonstrable cost benefit from obese people participating clinical weight loss programs. We are aware of the Enhanced Primary Care programs that are available to people with chronic medical conditions. However, we believe that the five Medicare rebateable appointments with allied health providers are too restrictive to have any real impact on level of obesity and its associated co-morbidities.

Proposal

We contend that WWMC's model for the treatment of obesity is the most clinically effective and cost efficient program available in Australia, and should form part of a national program to tackle obesity.

In line with the Department of Health and Ageing's view that the rising level of obesity in Australia requires interventions that provide long term benefits, we propose conducting a pilot program with the Department. The aim of this program would be to demonstrate a cost benefit to the Australian Government with clinically-designed weight loss programs for adults and teens suffering from obesity. The cost benefit study would analyse the cost savings produced from participants;

1. Achieving weight losses of 10% - 20% of their commencement weights
2. Reducing their blood pressure
3. Reducing their waist and fat mass
4. Reducing their cholesterol and blood glucose levels
5. Reducing or ceasing the use of PBS medications for obesity related co-morbidities
6. Maintaining weight losses of 10% or more of their commencement weights for up to two years from the commencement date.

The outcome we would like to achieve (on the basis of a demonstrable cost benefit) is that clients attending our Clinic for evidenced-based weight loss programs will have access to Medicare rebates for the medical, dietetic, exercise and psychological services delivered within our programs.

WWMC is well placed to conduct the proposed pilot program. Our clinical records reside on an electronic patient administration database that provides dynamic analysis of each client's weight loss, medical and anthropometric data.

We would be happy to present any data in support of this proposal and would welcome your feedback.

Yours sincerely,



Neil Holt BVSC MBA
Managing Director

cc Dr Geoffrey Holt
Medical Director

Atch. As evidence of the efficacy of our clinical model, we have attached two papers that were presented at the International Congress on Obesity in Sydney in September 2006.

**Non Surgical Weight Loss Programs Can Achieve
Significant and Sustained Weight Reduction**

**Geoffrey W Holt, Natalie Purssey, Nicola Moore,
Neil A Holt and Gregory M Scalia.**

Wesley Weight Management Clinic (WWMC) Brisbane, Australia



**Presented at the 10th International Congress on Obesity
Sydney, Australia, 2006**

Abstract

Introduction. Sustained weight loss is difficult to achieve particularly in middle age women. We report the outcome of medically supervised programs incorporating a meal replacement strategy, specific exercise prescription and weekly professional counseling.

Methods. 2690 individuals have enrolled in WWMC programs with 947 (434 male, 513 female) entering the LifeShape Long program. Completed data for 811 clients is reviewed. A meal replacement, partial meal replacement or meal plan strategy was used for 6 months. The individuals were seen weekly by a multidisciplinary counseling team (doctors, psychologists, dietitians and exercise physiologists). Regular supervised and non-supervised exercise sessions were encouraged at pre-specified heart rates (65% maximum predicted).

Results. The average weight loss at the completion of the 6 months treatment phase was 21.4kg (116.6kg to 95.2 kg, 18.4%). BMI fell from 39.5 to 32.4. The male group (46%) lost 24.3kg (128.3 to 104.0 kg 18.9%). The female group lost 18.7kg (106.8 to 88.1kg, 17.5%). Twelve months after seeking assistance with weight loss and 6 months after the active treatment phase there was no regain in weight in any group; total cohort 95.0kg (95.2 at 6 months), males 104.5 kg (104.0 at 6 months), females 87.5kg (88.1 at 6months).

Conclusion. Comprehensive non surgical weight management programs can achieve dramatic weight loss in treatment seeking individuals weighing more than 105 kgs (BMI 39.5) which is maintained through an emphasis on behavioural therapy.

Background

Wesley Weight Management Clinic is a privately run, medically supervised, dietitian based program providing weight loss services to self funded motivated individuals.

Over the last 7 years, comprehensive programs have been developed with a goal of providing sustained weight loss including:

- **Client acceptable diet modification** with
 - Minimal hunger
 - Minimal unpleasant side effects
 - Medical safety
 - Reasonable cost
- **Lifestyle and dietary education** providing
 - Life skills for sustained long term weight loss
 - Education regarding food types and energy characteristics
 - Strategies for dealing with problem foods and situations
 - Psychometric testing and targeted counselling
- **Exercise physiology** input with a view to
 - Understanding of exercise types and goals
 - Assessment of anaerobic threshold
 - Assessment of RMR (Resting metabolic rate)
 - Exercise program prescription
 - Specific target heart rate
- **Ongoing follow-up** and counselling of all clients
- **Weekly dietitian review**
- **Medical supervision throughout program**



Methods

- In the period from January 1999 to March 2005 all clients attending WWMC for initial consultation for the LifeShape Long program (anticipated weight loss >18kg) had data recorded and analysed.
- Clients who undertook initial review, medical review and elected to enter the program were reviewed on the basis of COMPLETION and INTENTION-TO-TREAT.
- Physical parameters were recorded by the dietician at each weekly review (weight, girth, blood pressure etc)
- Bodystat® bio-impedance measures were performed on multiple occasions to assess Fat Mass and Fat Free Mass
- Initial medical practitioner consultation was undertaken at enrolment and at the end of active weight loss
- Blood pathology for serum chemistry, fasting lipids, thyroid function and liver function test was repeated on several occasions throughout the program - abnormalities were dealt with by the medical officer.
- RMR (Resting Metabolic Rate) was assessed mid-program using Quark b2 ® Pulmonary Gas Exchange.
- Aerobic threshold (AT1) was assessed using low-level treadmill testing and finger-prick lactate testing to guide exercise prescription
- Exercise physiologist supervised heart rate monitored walks and resistance exercise instruction
- Psychologist consultation and follow-up if necessary

Initial Assessment

Life Shape Long – 12 month program

- **Initial client contact**
 - Word of mouth
 - Medical referral
 - Press advertising
 - Testimonials
 - Wesley Corporate Health
- **Initial consultation (Dietitian)**
 - Weight history
 - Client specified goal weight
 - Diet & dieting history
 - Weight, girth and blood pressure
 - Bodystat Impedance measure
- **Medical examination (Doctor)**
 - Medical history/medication review
 - Physical exam
 - Chemistry, lipids and thyroid function
- **Clearance to proceed with program**

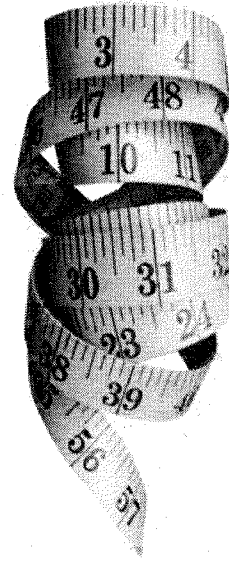


Active Treatment Phase

6 months – weekly visits

Program initiation with Dietitian

- Optifast® 800 Food Supplement
 - 160 calories per serve
 - 5 serves per day
- Total daily intake
 - Protein 70g
 - Carbohydrates 100g
 - Fat 15g
 - Vitamins/minerals
- Supplementary foods
 - Vegetables/Salad
 - Supplementary protein to reach 1g/kg target weight/day (small portion of lean meat)
- 2 litres water/fluids
- No alcohol
- Maximum 4 caffeine products



Active Treatment Phase

6 months – weekly visits

Components of active weight loss phase weekly visits

- Weekly Dietitian visits
 - Weight
 - History
 - Blood pressure
 - Girth measurements
- Body composition measurements
- Psychologist consultation
- Exercise physiologist consultation
 - Supervised heart rate monitored walk
 - Aerobic threshold (AT1) testing
- Exercise program prescription
- Repeat blood tests
 - Chemistry, lipids and LFT's
- Follow-up medical consultation
- Comprehensive program manual

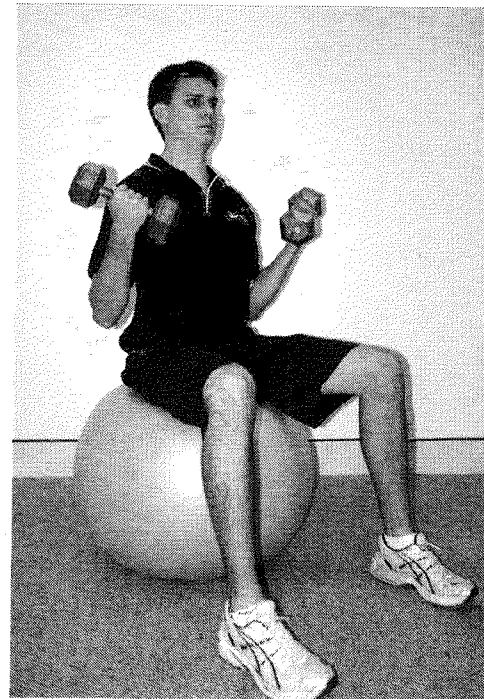


Active Treatment Phase

6 months – weekly visits

Transition Phase where there is progressive removal of meal supplements

- Diet education related to new long term meal plans
 - Reduced carbohydrate
 - Lean meats
 - Vegetables
 - Complex grains (Low GI)
 - Vitamin requirements
- Lifestyle strategies
 - Stress/Time management
 - Work/Life Balance
 - Positive Thought Patterns
- Follow-up medical consultation
 - physical assessment
 - medications review
 - pathology review
 - DASS – Depression Score

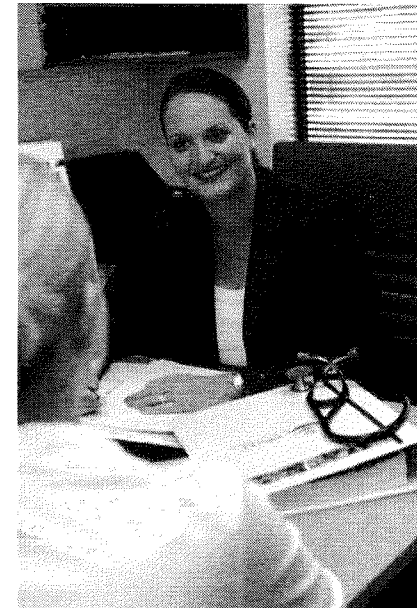


Maintenance Phase

6 months – weekly visits

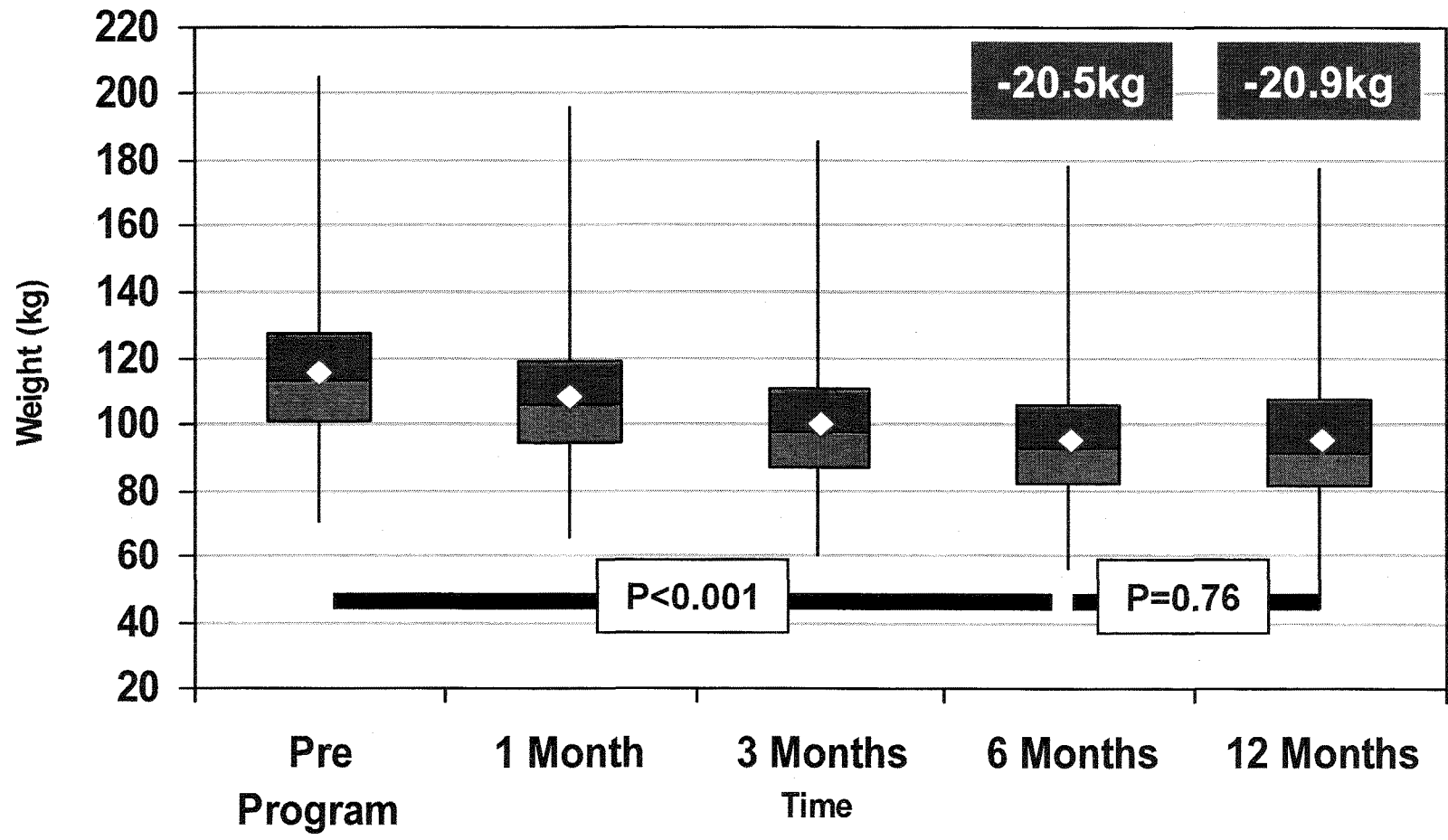
Long term eating plan consolidated in the maintenance phase

- Regular dietitian visits for ongoing weight monitoring
 - Weight and anthropometric measures
- Reinforcement of behaviour change
- Exercise Laboratory Session measuring
 - Resting metabolic rate (RMR) Quark b2 Pulmonary Gas Exchange
 - Blood Lactate to determine Aerobic Threshold (AT1) changes
 - More advanced exercise prescription
- Repeat serum chemistry, lipids and LFT's
- Follow-up medical consultation at exit
- Post program weight maintenance strategies
- Seen as a crucial time for consolidation of
 - new habits and skills
- Set trigger weight for follow up consultation
 - Education regarding available programs for relapse
- Set appointment for further 12 month weight record



COMPLETED

LifeShape Long Weight (kg)

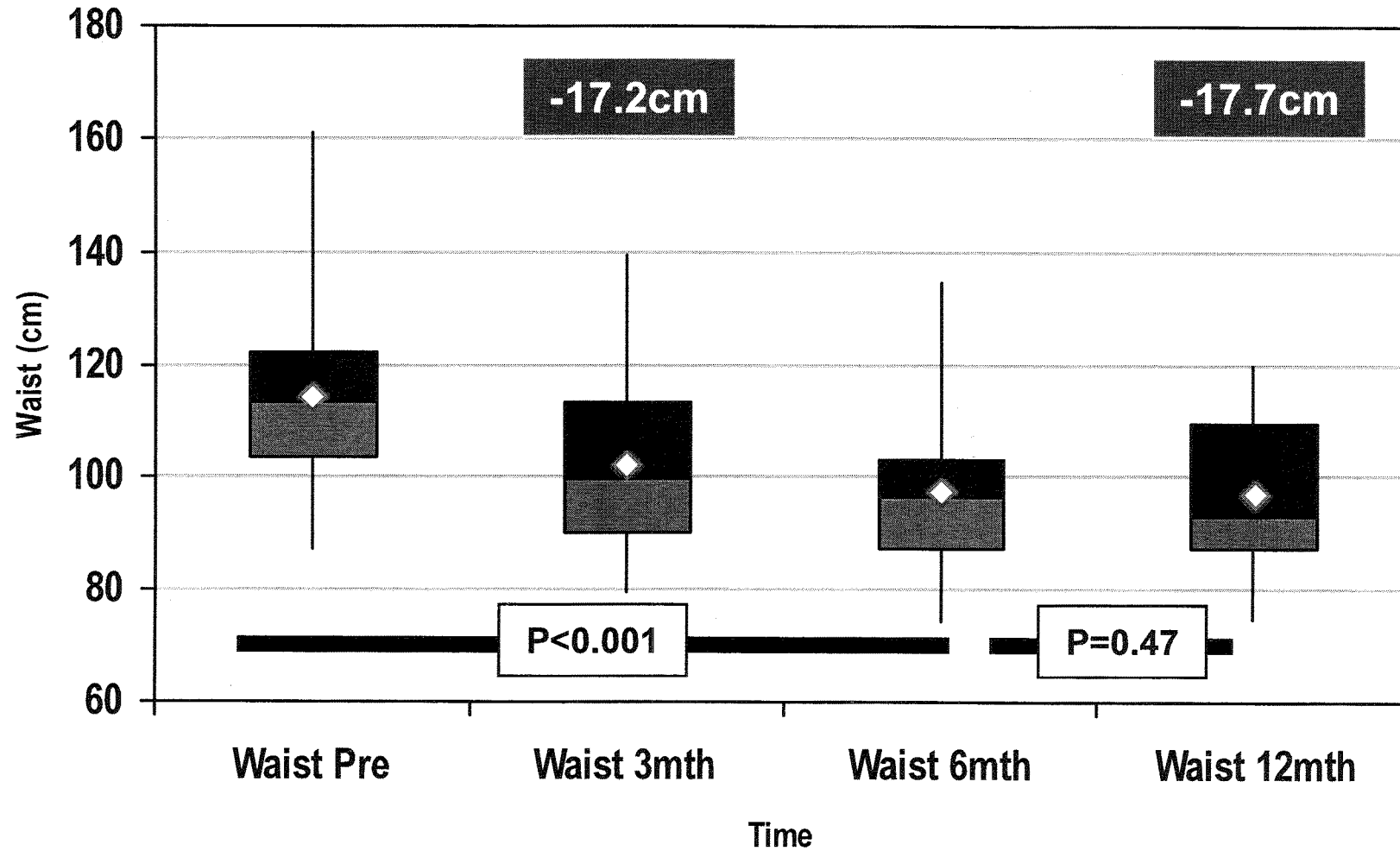


COMPLETED

Weight (kg)	Pre Program	1 Month	3 Months	6 Months	12 Months
Min	71.0	65.9	60.0	56.4	44.9
25th	101.0	94.2	87.6	82.4	81.5
Median	113.7	106.0	98.2	92.8	91.7
75th	127.1	119.1	110.9	106.2	107.6
Max	205.0	196.5	185.7	178.2	177.7
Mean	115.9	108.2	100.7	95.4	95.0
SD	20.9	19.5	18.6	18.5	19.1
Count	811	777	735	610	307

COMPLETED

LifeShape Long Waist (cm)

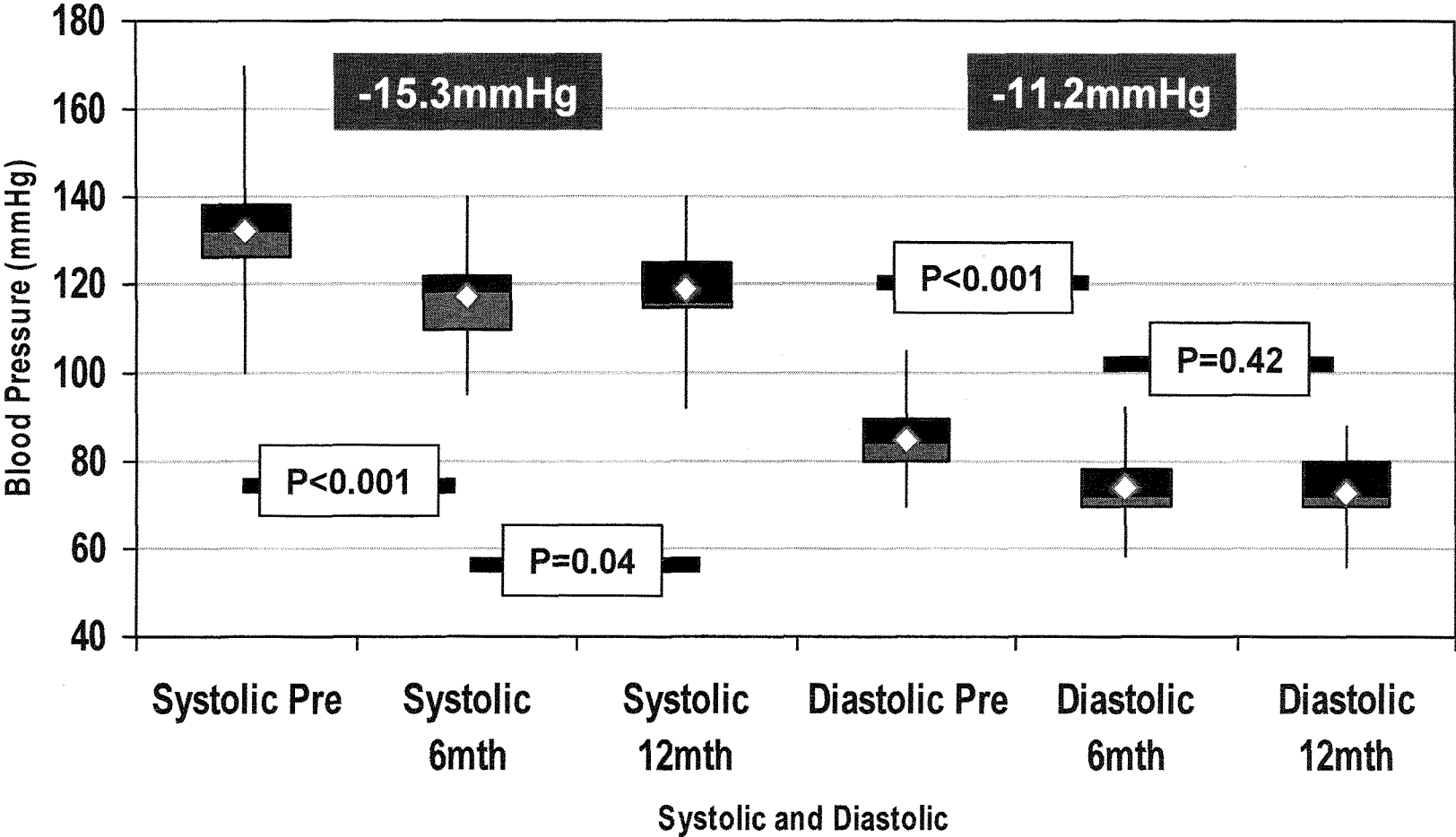


COMPLETED

Waist (cm)	Pre Program	3 Months	6 Months	12 Months
Min	87.0	79.5	74.5	75.0
25th	103.5	89.9	87.0	87.3
Median	113.5	99.7	96.0	93.0
75th	122.2	113.3	103.0	109.8
Max	161.0	139.5	135.0	120.0
Mean	114.2	101.9	97.0	96.5
SD	14.3	13.3	13.2	13.8
Count	810	660	565	187

COMPLETED

LifeShape Long Blood Pressure

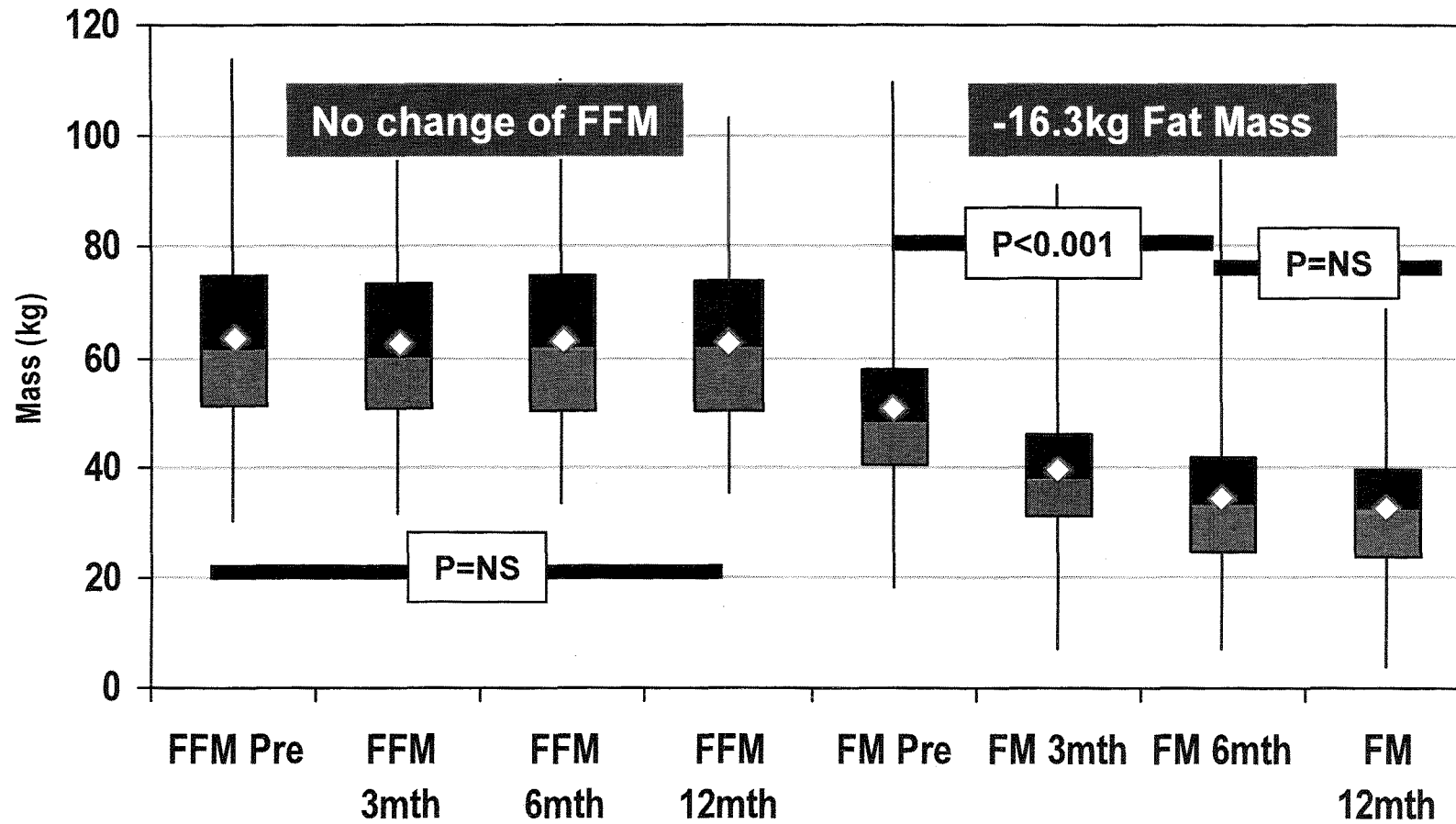


COMPLETED

BP (mmHg)	Systolic Pre	Systolic 6mth	Systolic 12mth	Diastolic Pre	Diastolic 6mth	Diastolic 12mth
Min	100.0	95.0	92.0	70.0	58.0	56.0
25th	126.0	110.0	114.5	80.0	70.0	70.0
Median	132.0	118.0	116.0	84.0	72.0	72.0
75th	138.0	122.0	125.0	90.0	78.0	80.0
Max	170.0	140.0	140.0	105.0	92.0	88.0
Mean	132.1	116.8	118.6	85.0	73.8	73.0
SD	11.1	8.1	13.3	7.1	6.5	9.0
Count	805	586	180	805	586	180

COMPLETED

Fat Free Mass (FFM) and Fat Mass (FM)

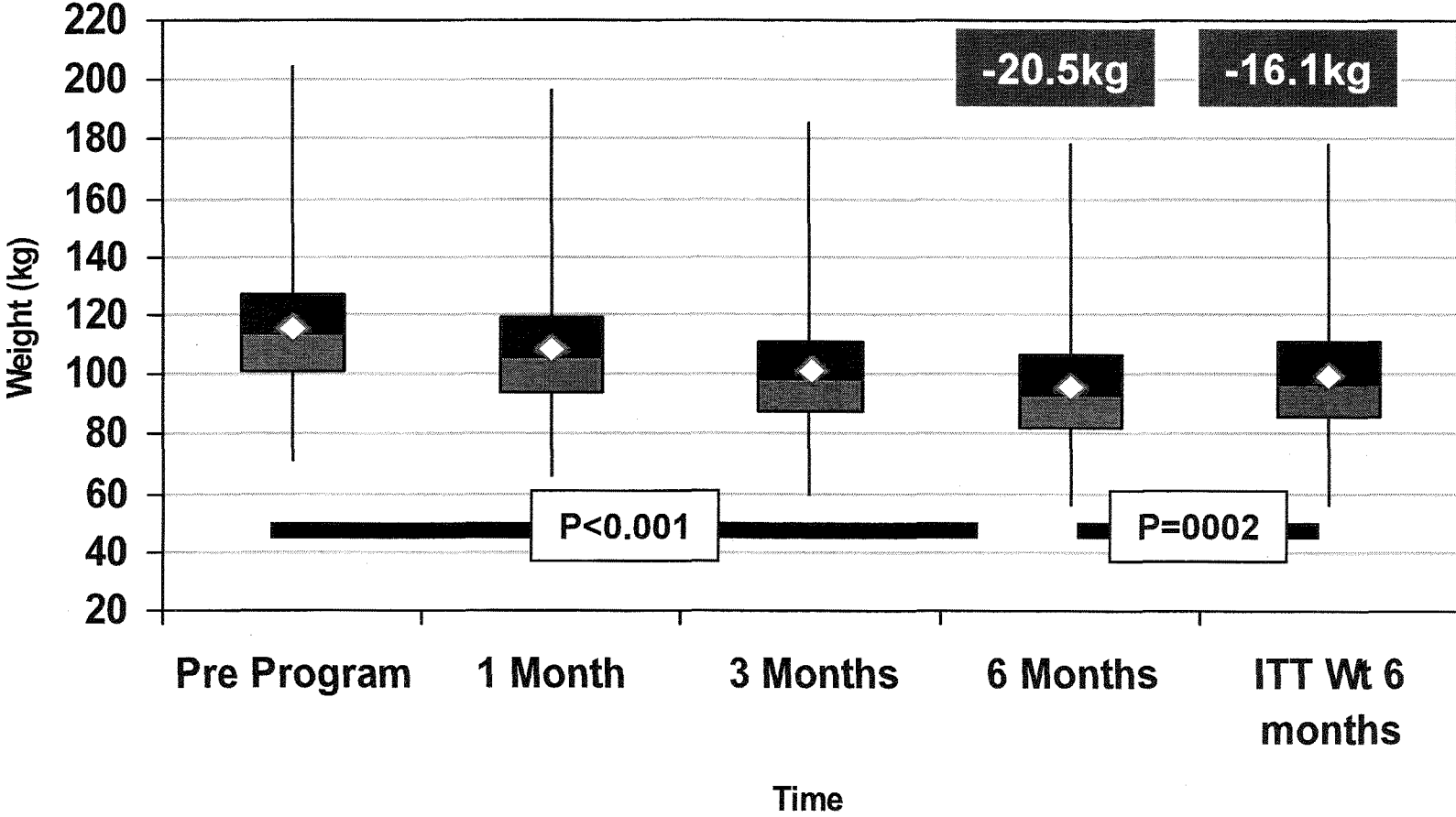


COMPLETED

Mass (kg)	FFM Pre	FFM 3mth	FFM 6mth	FFM 12mth	FM Pre	FM 3mth	FM 6mth	FM 12mth
Min	30.1	31.4	33.6	35.4	18.1	7.2	6.9	4.0
25th	51.2	50.6	50.4	50.4	40.5	31.0	24.6	23.7
Median	61.8	60.4	62.0	61.9	48.6	38.0	33.3	32.6
75th	75.0	73.5	74.8	73.9	57.9	46.0	41.8	39.6
Max	114.1	102.0	109.9	103.0	109.6	90.6	102.7	68.7
Mean	63.7	62.5	62.8	62.5	50.8	39.6	34.5	32.7
SD	15.5	14.2	14.6	14.5	14.7	13.7	14.0	13.5
Count	605	543	418	137	605	543	418	137

INTENTION TO TREAT

LifeShape Long Weight (kg) - Intention to Treat

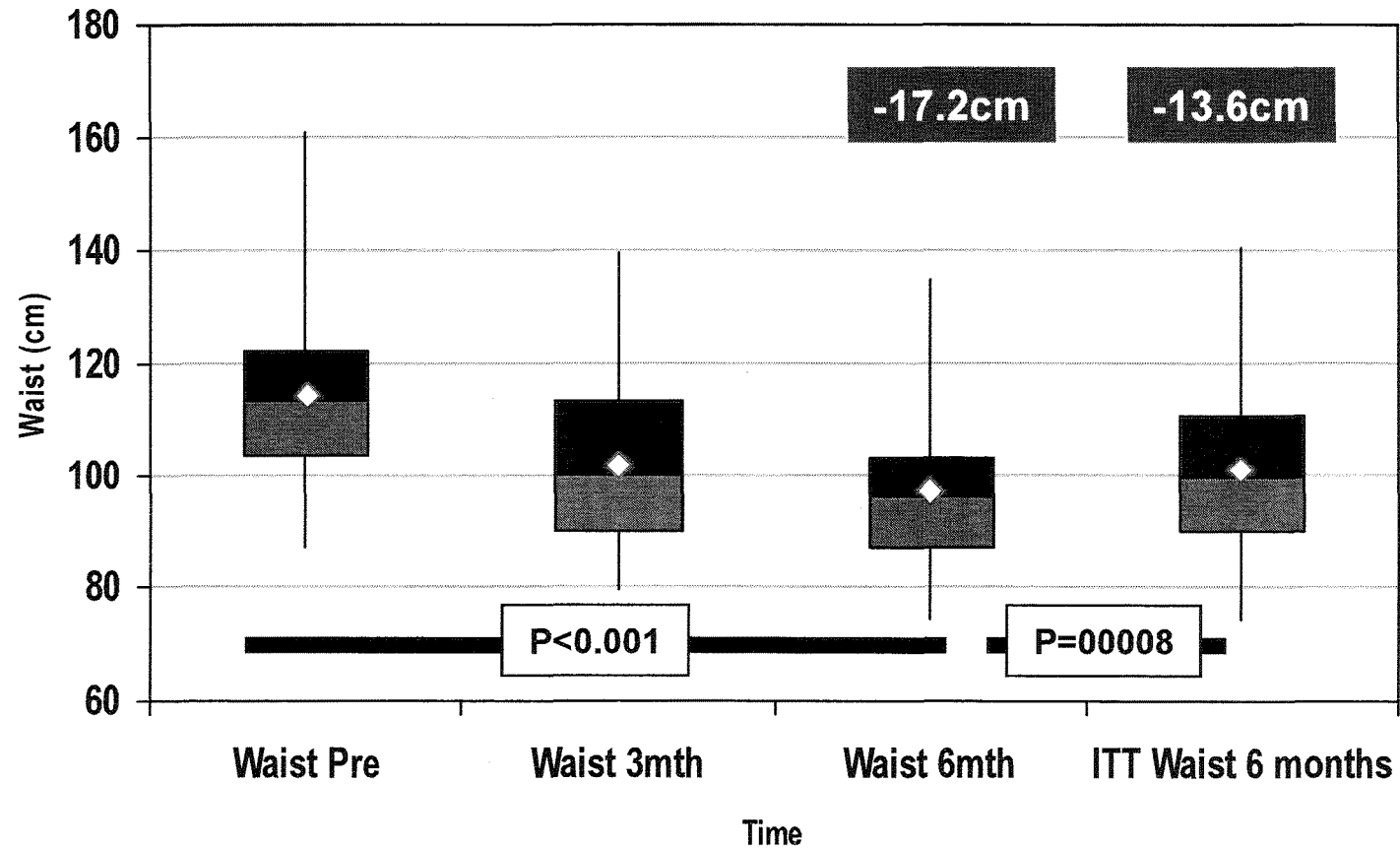


INTENTION TO TREAT

Weight (kg)	Pre Program	1 Month	3 Months	6 Months	ITT 6 months
Min	71.0	65.9	60.0	56.4	56.4
25th	101.0	94.2	87.6	82.4	85.9
Median	113.7	106.0	98.2	92.8	97.0
75th	127.1	119.1	110.9	106.2	110.6
Max	205.0	196.5	185.7	178.2	178.2
Mean	115.9	108.2	100.7	95.4	99.2
SD	20.9	19.5	18.6	18.5	19.1
Count	811	777	735	610	811

INTENTION TO TREAT

LifeShape Long Waist (cm) - Intention to Treat

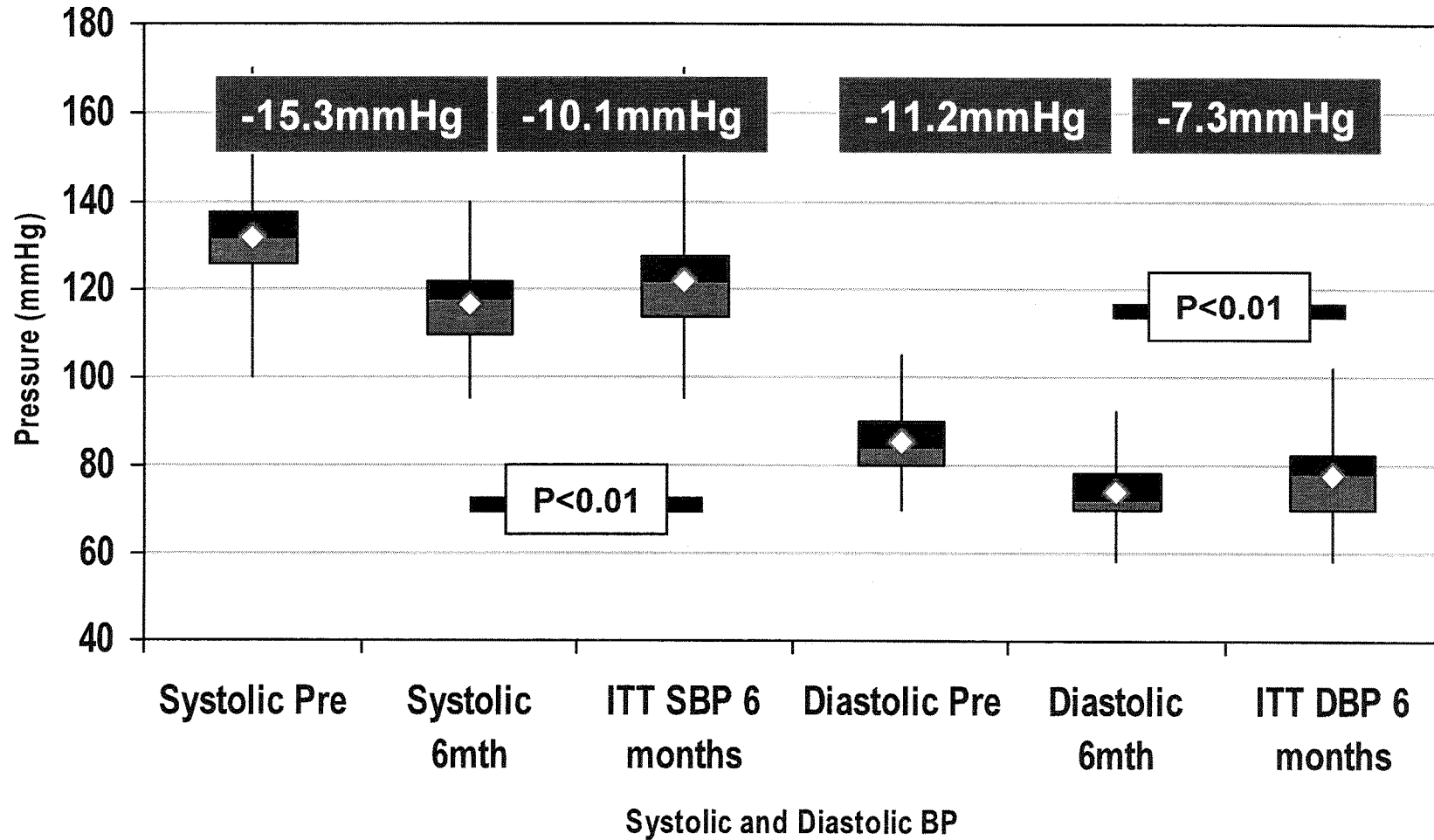


INTENTION TO TREAT

Waist (cm)	Pre	3 month	6 months	ITT 6 months
Min	87.0	79.5	74.5	74.5
25th	103.5	89.9	87.0	90.0
Median	113.5	99.7	96.0	99.5
75th	122.2	113.3	103.0	110.8
Max	161.0	139.5	135.0	140.5
Mean	114.2	101.9	97.0	100.8
SD	14.3	13.3	13.1	14.2
Count	810	660	565	810

INTENTION TO TREAT

LifeShape Long Blood Pressure Intention to Treat

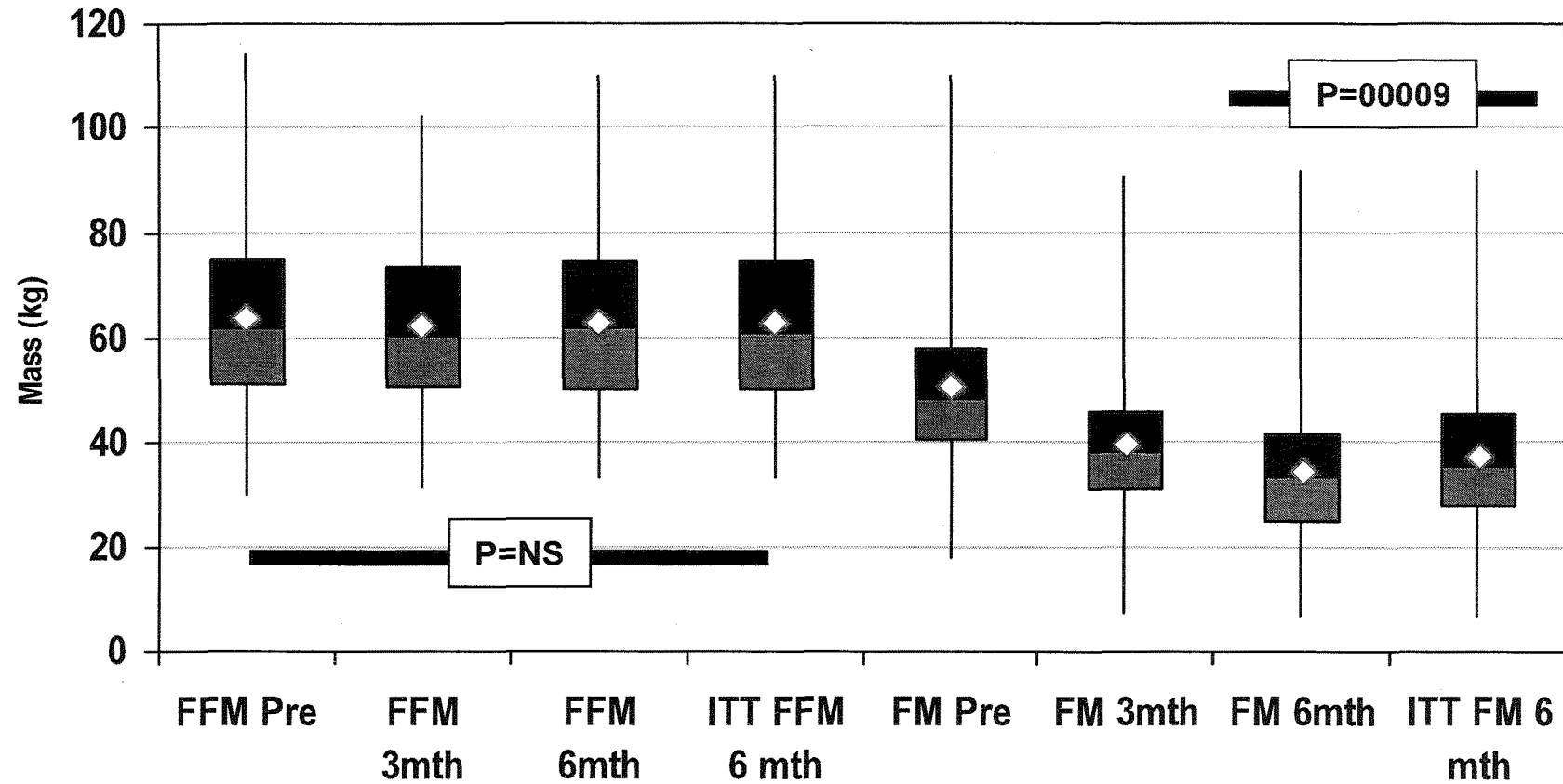


INTENTION TO TREAT

BP (mmHg)	Systolic Pre	Systolic 6mth	ITT SBP 6 months	Diastolic Pre	Diastolic 6 month	ITT DBP 6 months
Min	100.0	95.0	95.0	70.0	58	58.0
25th	126.0	110.0	114.0	80.0	70	70.0
Median	132.0	118.0	122.0	84.0	72	78.0
75th	138.0	122.0	128.0	90.0	78	82.0
Max	170.0	140.0	170.0	105.0	92	102.0
Mean	132.1	116.8	122.0	85.0	73.8	77.7
SD	11.1	8.1	12.0	7.1	6.5	8.9
Count	805	586	805	805	586	805

INTENTION TO TREAT

Fat Free Mass (FFM) and Fat Mass - Intention to Treat



INTENTION TO TREAT

Mass (kg)	Fat Free Mass				Fat Mass			
	Pre	3 months	6 mths	ITT 6 months	Pre	3 months	6 mths	ITT 6 months
Min	30.1	31.4	33.6	33.6	18.1	7.2	6.9	6.9
25th	51.2	50.6	50.4	50.5	40.5	31.0	24.6	27.8
Median	61.8	60.4	62.0	61.2	48.6	38.0	33.3	35.5
75th	75.0	73.5	74.8	74.4	57.9	45.9	41.6	45.5
Max	114.1	102.0	109.9	109.9	109.6	90.6	91.3	91.4
Mean	63.7	62.5	62.8	62.8	50.8	39.5	34.3	37.3
SD	15.5	14.2	14.6	14.6	14.6	13.6	13.6	14.6
Count	605	543	418	605	605	543	418	605

Summary

In this cohort of 811 reviewed participants

- Wt decreased significantly by 20.5 kg (18.4%) from 115.9kg
 - Weight loss was sustained in maintenance period
- Waist girth measurements fell by 17.3cm from 114.2cm
 - Girth reduction was sustained in maintenance period
- Systolic blood pressure fell by 15.3mmHg from 132.1mmHg
- Diastolic blood pressure fell by 11.2mmHg from 85mmHg
- Fat Free mass DID NOT fall through the program
- Fat Mass fell 16.3kg from 50.8kg and was maintained



When reviewed on an Intention-to-Treat basis, with the last documented visit data being used as the final result for each client, the results for the entire group suggested

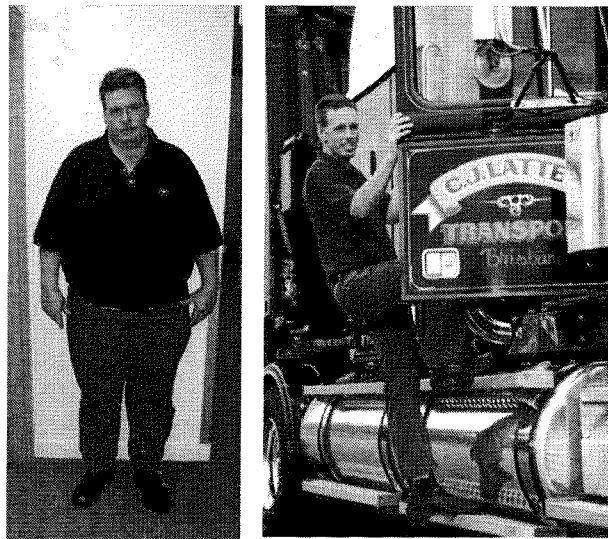
- Wt decreased significantly by 16.1 from 115.9kg
- Waist girth measurements fell by 13.6cm from 114.2cm
- Systolic blood pressure fell by 10.1mmHg from 132.1mmHg
- Diastolic blood pressure fell by 7.3mmHg from 85mmHg
- Fat Free mass DID NOT fall through the program
- Fat Mass fell 13.5kg

Limitations

- Incomplete data set related to obsolete database systems
 - 25% drop-out rate may be an over-estimate
- Fat mass measured by bio-impedance not DEXA
- Long term follow-up only to 1 year
 - Limited numbers
 - Later follow-up pending

Conclusion

- Comprehensive non surgical weight management programs can achieve dramatic weight loss in treatment seeking individuals weighing more than 105 kg (BMI 39.5) which is maintained through an emphasis on behavioral therapy.
- Intention-to-Treat shows that even when the clients who did not complete the program are factored in, substantial improvements in all parameters are seen across the group.
- This data supports the ongoing use of this multidisciplinary weight loss program in patients who are motivated to improve their weight, quality and potentially quantity of life.



**Non Surgical Comprehensive Weight Management
Programs Yield Sustained Weight Loss and
Significantly Reduced Cardiovascular Risk in 2234
Treatment Seeking Individuals**

**Geoffrey W Holt, Natalie Purssey, Nicola Moore,
Neil Holt and Gregory M Scalia.**

Wesley Weight Management Clinic (WWMC) Brisbane, Australia



www.weshealth.com.au

Presented at the 10th International Congress on Obesity
Sydney, Australia, 2006

Abstract

Introduction. Cardiovascular risk rises dramatically with increasing weight, contributing to escalating health costs. Sustained weight loss has been difficult to achieve with non surgical strategies.

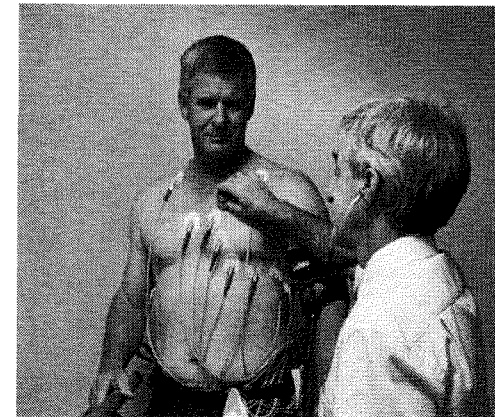
Methods. We report the results of medically supervised treatment programs incorporating a meal replacement strategy, low level exercise (65% maximum predicted HR) and weekly professional counseling (doctors, psychologists, dietitians, exercise physiologists). 2195 individuals have enrolled in WWMC treatment programs with 1248 completing 3 months (Group 1) and 947 completing 6 months (Group 2) active meal replacement.

Results. Group 1 average initial weight was 94.6kg. After the active treatment phase (meal replacement) weight fell 11.5kg (12%), BMI fell 3.8 (12%), waist circumference decreased by 11.7cm (11%), systolic BP decreased 13.6 mmHg (10%), diastolic BP decreased 8.9 mmHg (11%), cholesterol decreased 0.7mmol/L (12%), HDL was unchanged, blood glucose decreased 0.3mmol/L (5%), triglycerides fell 0.5mmol/L (26%). Group 2 average initial weight was 116.6kg. After the active treatment phase (meal replacement) weight fell 21.4kg (18%), BMI fell 7.1 (18%), waist circumference decreased by 17.4cm (15%), systolic BP decreased 15.5mmHg (11%), diastolic BP decreased 10.5mmHg (12%), cholesterol decreased 0.4mmol/L (7%), HDL increased 0.3mmol/L (20%), blood glucose decreased 0.4mmol/L (7%), triglycerides fell 0.5mmol/L (27%). These changes were maintained in Group 1 at 6 months and Group 2 at 12 months.

Conclusion. Comprehensive non surgical weight management programs achieve sustained weight loss with a marked reduction in cardiovascular risk. Results are maintained via an emphasis on behavioral therapy.

Background

- **Wesley Weight Management Clinic** is a privately run, medically supervised, dietitian based program providing weight loss services to self funded motivated individuals
- Over the last 7 years, comprehensive programs have been developed with a goal of providing sustained weight loss including:
 - **Client acceptable diet modification** with
 - Minimal hunger
 - Minimal unpleasant side effects
 - Medical safety
 - Reasonable cost
 - **Lifestyle and dietary education** providing
 - Life skills for sustained long term weight loss
 - Education regarding food types and energy characteristics
 - Strategies for dealing with problem foods and situations
 - Psychometric testing and targeted counselling
 - **Exercise physiology** input with a view to
 - Understanding of exercise types and goals
 - Assessment of anaerobic threshold
 - Assessment of RMR (Resting metabolic rate)
 - Exercise program prescription
 - Specific target heart rate
 - **Ongoing follow-up** and counselling of all clients
 - **Weekly dietitian review**
 - **Medical supervision throughout program**



Methods

- In the period from 1999 to 1st July, 2005, 2238 clients attending WWMC for initial consultation for the LifeShape Long and LifeShape Short programs had data recorded and analysed.
- Clients who undertook initial review and underwent initial General Practitioner consultation were enrolled and are reviewed here.
- Blood test pathology for serum chemistry, full blood count, fasting lipids and liver and thyroid function tests was repeated on several occasions throughout the program
 - Abnormalities were dealt with by the medical officer.
- Cardiovascular risk was calculated using the Framingham population based risk algorithm

A	Gender (female=1, male=0)		
B	Age (years)		
C	SBP (mmHg) the average of two systolic blood pressures is used		
D	Smoking (no=0, yes=1);		
E/F	Total cholesterol/HDL ratio (ideally fasting but not mandatory)		
G	Diabetes (type 1, 2 or type unknown=1, no=0)		
H	ECG LVH (yes=1, no=0) note this is not used in New Zealand risk prediction tables		
I	18.8144		
J	-1.2146*(A)		
K	-1.8443*LN(B)	T	-0.3362*(H)
L	Blank	U	Blank
M	0.3668*LN(B)*(A)	V	0.6536
N	Blank	W	-0.2402
O	-1.4032*LN(C)	X	SUM(I:T)
P	-0.3899*(D)	Y	EXP(V + (W * X))
Q	-0.539*LN(E / F)	Z	Time (years) (Set at 5 years)
R	-0.3036*(G)		
S	-0.1697*(G)*(A)		

$$\text{Probability of CVD} = 1 - \text{EXP}(-\text{EXP}((\text{LN}(Z) - (X)) / (Y)))$$

Initial Assessment

- Initial client contact
 - Word of mouth
 - Medical referral
 - Press advertising
 - Testimonials
 - Wesley Corporate Health
- Initial consultation (Dietitian)
 - Weight history
 - Client specified goal weight
 - Diet & dieting history
 - Weight, girth and blood pressure
 - Bodystat Impedance measure
- Medical examination (Doctor)
 - Medical history/medication review
 - Physical exam
 - Chemistry, lipids and thyroid function
- Clearance to proceed with program



Active Treatment Phase

First Half of Program – Weekly Visits

Program initiation with Dietitian

- Optifast® 800 Food Supplement
 - 160 calories per serve
 - 5 serves per day

- Total daily intake
 - Protein 70g
 - Carbohydrates 100g
 - Fat 15g
 - Vitamins/minerals

- Supplementary foods
 - Vegetables/Salad
 - Supplementary protein to reach 1mg/kg/day (small portion lean meat)

- 2 litres water/fluids

- No alcohol

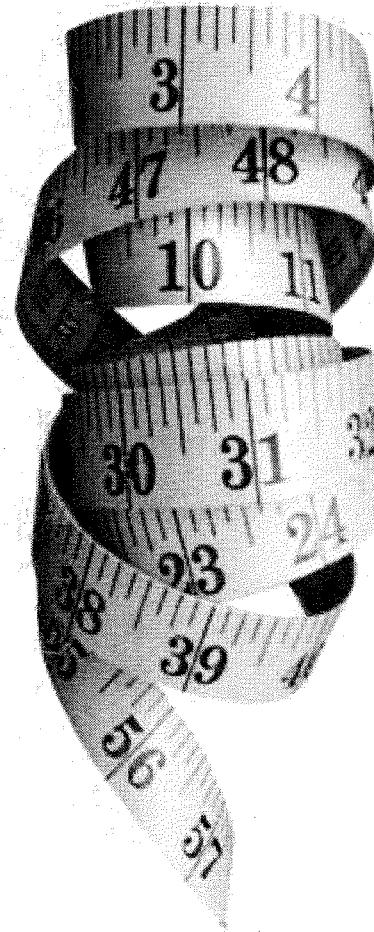
- Maximum 4 caffeine products



Active Treatment Phase

First Half of Program – Weekly Visits

- Weekly Dietitian visits
 - Weight
 - History
 - Blood pressure
 - Girth measurements
- Body composition measurements
- Psychologist consultation
- Exercise physiologist consultation
 - Supervised heart rate monitored walk
 - Aerobic threshold (AT1) testing
- Exercise program prescription
- Repeat blood tests
 - Serum chemistry, lipids and LFT
- Follow-up medical consultation
- Comprehensive program manual

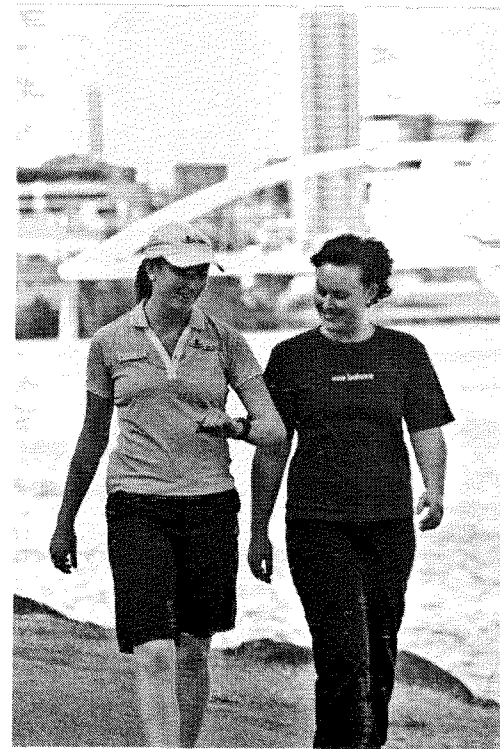


Active Treatment Phase

First Half of Program – Weekly Visits

Transition Phase for progressive removal of supplements

- Diet education
 - Reduced carbohydrate
 - Lean meats
 - Vegetables
 - Complex grains (Low GI)
 - Vitamin requirements
- Lifestyle strategies
 - Stress/Time management
 - Work/Life balance
 - Positive thought patterns
- Follow-up medical consultation
 - physical assessment
 - medications review
 - pathology review
 - DASS – Depression Score

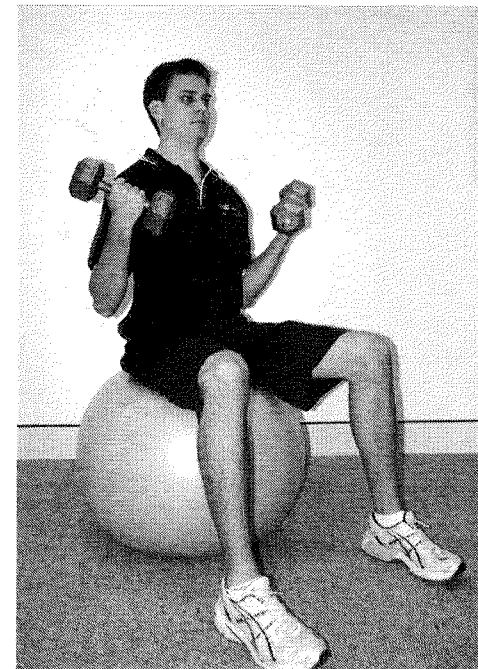


Maintenance Phase

Second half of program – Weekly Visits

Establishment and consolidation of long term eating plan

- Regular dietitian visits for ongoing weight monitoring
 - Weight and anthropometric measures
- Reinforcement of behaviour change
- Exercise Laboratory Session measuring
 - Resting metabolic rate (RMR) Quark b2 Pulmonary Gas Exchange
 - Blood Lactate to determine Aerobic Threshold (AT1) changes
 - More advanced exercise prescription
- Repeat serum chemistry, lipid and LFTs
- Follow-up medical consultation at exit
- Post program weight maintenance strategies
- Seen as a crucial time for consolidation of new habits and skills.
- Set trigger weight for follow up consultation
 - Education regarding available programs for relapse
- Set appointment for further 12 month weight record



Results

LifeShape Long (12 month program)

	All	Male	Female						
Total Count	962	438	521						
Age (Mean)	41.6	42.4	40.9						
	Initial			6 Months			12 Months		
	All	Male	Female	All	Male	Female	All	Male	Female
Count	962	438	521	793	368	424	616	291	325
Weight (kg)	116.7	128.3	106.8	101.5	111.6	93.8	95.3	104.0	88.1
BMI (kg/m ²)	39.6	40.1	39.1	34.2	34.3	34.1	32.4	32.5	32.3
Waist (cm)	119.6	127.6	112.8	14.3	14.3	14.2	17.4	20.0	15.1
WHR	0.9	1.0	0.9	0.9	1.0	0.8	0.9	0.9	0.8
Systolic BP (mmHg)	135.4	139.9	131.6	121.7	124.8	118.7	119.9	122.7	117.3
Diastolic BP (mmHg)	87.8	90.6	85.4	79.4	80.6	78.3	77.3	78.3	76.4
Total Chol (mmol/l)	5.5	5.5	5.4	4.8	4.7	4.9	5.0	4.8	5.3
HDL (mmol/l)	1.3	1.2	1.4	1.3	1.2	1.4	1.6	1.6	1.5
LDL (mmol/l)	3.6	3.7	3.5	2.9	2.9	2.9	3.1	3.2	3.1
Fasting Blood sugar (mmol/l)	5.9	6.1	5.7	5.6	5.6	5.6	5.5	5.6	5.4
TG (mmol/l)	1.7	2.0	1.4	1.2	1.2	1.1	1.2	1.2	1.3

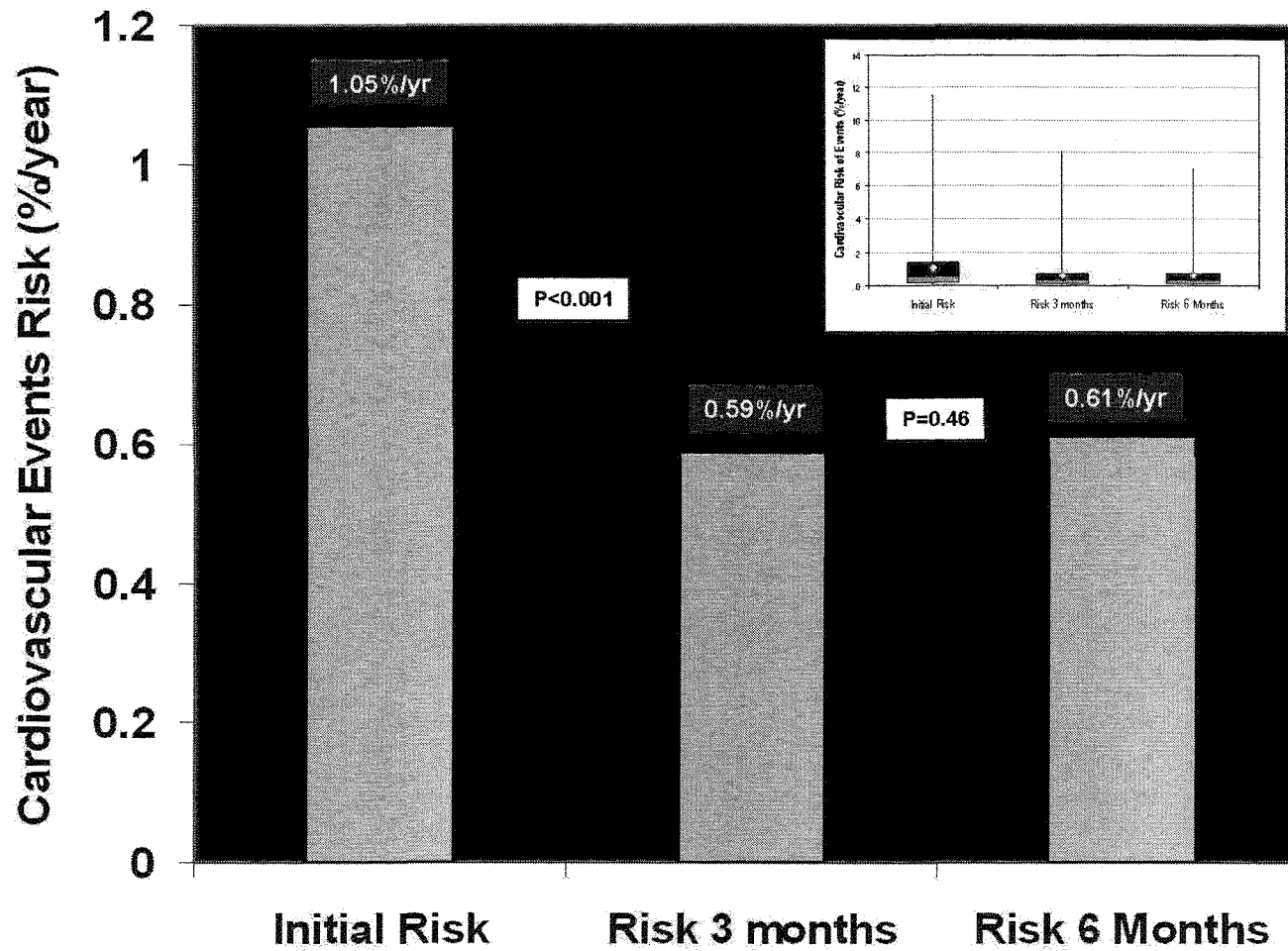
Results

LifeShape Short (6 month program)

	All	Male	Female						
Total Count	1276	587	687						
Age (Mean)	43.7	44.5	43.0						
	Initial			3 Months			6 Months		
	All	Male	Female	All	Male	Female	All	Male	Female
Count	1276	587	687	1011	480	530	576	293	283
Weight (kg)	94.6	106.0	84.8	83.1	92.6	75.0	81.3	91.1	73.2
BMI (kg/m ²)	32.2	33.4	31.1	28.4	29.1	27.7	28.0	28.5	27.4
Waist (cm)	104.4	113.5	96.5	92.7	99.9	86.5	90.4	98.2	84.7
WHR	0.9	1.0	0.8	0.9	0.9	0.8	1.3	1.7	0.8
Systolic BP (mmHg)	130.2	135.4	125.6	116.4	120.2	112.9	117.4	120.9	113.7
Diastolic BP (mmHg)	85.0	87.5	82.8	76.9	79.8	74.4	75.0	76.8	73.1
Total Chol (mmol/l)	5.5	5.6	5.5	4.7	4.7	4.8	5.7	6.4	5.0
HDL (mmol/l)	1.4	1.3	1.6	1.4	1.3	1.4	1.5	1.4	1.6
LDL (mmol/l)	3.6	3.7	3.5	3.0	3.0	2.9	3.1	3.2	3.0
Fasting Blood sugar (mmol/l)	5.7	6.0	5.4	5.4	5.6	5.2	5.4	5.6	5.3
TG (mmol/l)	1.7	2.0	1.4	1.2	1.3	1.1	1.0	1.1	1.0

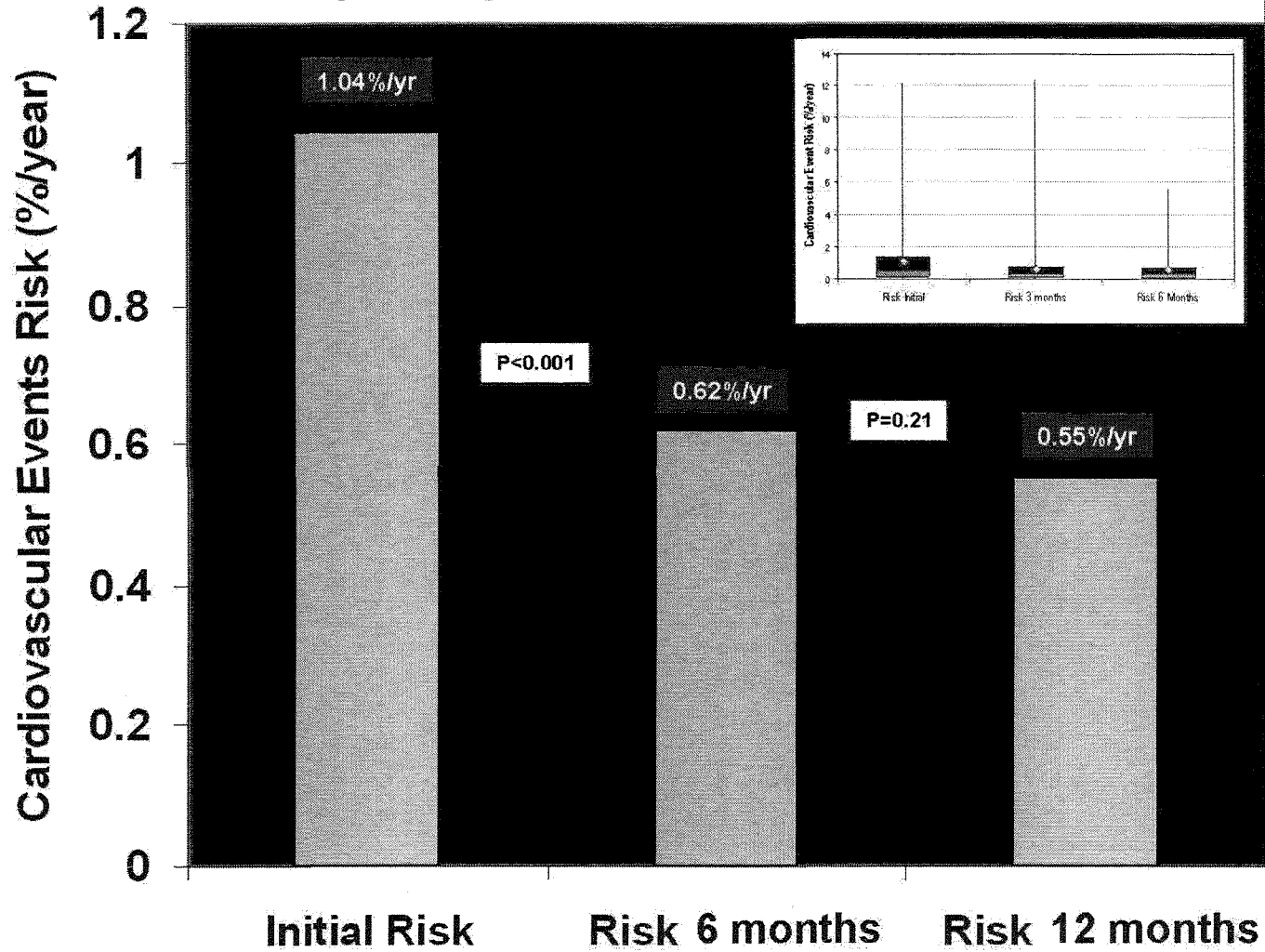
Results

LifeShape Short - 5 Year Cardiovascular Risk



Results

LifeShape Long - 5 Year Cardiovascular Risk



Summary

- In this review of the 2238 clients participating in the 6 month LifeShape Short and the 12 month LifeShape Long programs, there were significant improvements in all cardiovascular risk factors assessed.
- In LifeShape Short Program
 - Weight decreased by 11.5kg from 94.6kg
 - Systolic BP fell 13.8mmHg from 130.2mmHg
 - Total Cholesterol fell from 5.5mmol/l to 4.7mmol/l
 - HDL was constant at 1.4mmol/l
 - Blood sugar fell from 5.7 to 5.4mmol/l
 - Calculated Framingham Cardiovascular Risk of Events per 5 years fell 44% from 1.05% to 0.59%
- In LifeShape Long Program
 - Weight decreased by 21.4kg from 116.7kg
 - Systolic BP fell 13.7mmHg from 135.4mmHg
 - Total Cholesterol fell from 5.5mmol/l to 4.8mmol/l
 - HDL was constant at 1.3mmol/l
 - Blood sugar fell from 5.9 to 5.6mmol/l
 - Calculated Framingham Cardiovascular Risk of Events per 5 years fell 40% from 1.04% to 0.62%
- Limitations
 - Incomplete data set related to obsolete database system
 - 18-21% drop-out rate may be an over-estimate
 - Long term follow-up only to 1 year - later follow-up pending

Conclusion

- Comprehensive non surgical weight management programs can achieve dramatic weight loss in treatment seeking individuals with associated substantial and clinically significant improvement in multiple cardiovascular risk factors.
- Relative Risk Reduction of Framingham 5 year Cardiovascular Event Risk of 40-44% in both the LifeShape Short and LifeShape Long programs has been achieved.
- This data supports the ongoing use of this multidisciplinary weight loss program in patients who are motivated to improve their weight, quality and potentially quantity of life.

