



An Overview on the Efficacy of a Residential Wellness Course & 'Wellness@Work' Programme

Introduction

Physical Dimensions was established in 1999 with the primary aim of designing and delivering sustainable residential wellness courses. With the implementation of modern training techniques, and with programmes based on the principles of health and nutritional science, our courses are designed to address the growing problems associated with sedentary lifestyles, poor nutritional choices and other conditions, including emotional and psychological issues linked to stressful modern day living.

The residential element of the courses afforded the training team the chance to monitor the clients in a controlled environment over a set number of days, and the opportunity to offer a holistic programme covering all aspects of exercise and nutrition. Reinforced with a strong educational element, our courses aim to dispel many of the mixed messages which are prevalent in the media today, and that tend to confuse and de-motivate those seeking to improve their lifestyle; and which ultimately compounds the issues of hypertension and obesity and leads to an increase in cases of stress and anxiety, Type II diabetes, CHD and other associated conditions.

To supplement our residential wellness courses, Physical Dimensions offer a unique ‘Wellness@Work’ package. Designed to promote exercise and nutrition adherence and to reinforce goal attainment targets, the ‘Wellness@Work’ programme is a follow-up scheme for clients that have attended the residential courses. The ‘Wellness@Work’ programme offers a graduated series of supervised exercise sessions, educational seminars and nutritional consultations in the workplace, as well as access to ongoing advice and support from the Physical Dimensions training team.

Such corporate wellness schemes are designed specifically to improve the overall wellbeing of the employees through encouraging adherence to exercise and sound nutritional practices; thus increasing productivity rates among the workforce by decreasing the rates of sickness and absenteeism.

Course Overview

Health Assessments:

The residential ‘wellness course’ programmes are both physically and psychologically demanding, but extremely rewarding. With safety and the welfare of the client at the forefront of everything we do, every client undergoes a health assessment prior to commencing the programme. The health assessments are conducted in confidence and include:

Blood pressure readings

Body fat % analysis

Hydration level analysis (electro-bio impedance)

Weight

Height

BMI

Girth measurements

Cholesterol*

*not compulsory

Each participant is screened individually, thus providing a good opportunity for the training team to consult with the clients in a confidential setting, and to discuss any underlying health issues or fears or worries they may have about the course that they have embarked on. The same sequence of assessments are repeated on the final day after successful completion of the course.

Following the health assessments, the clients are issued with personalised heart rate monitors (polar™). Elements of data taken from the assessments are used to determine heart rate training zones (HRTZ) and these are used throughout the duration of the programme. From this point onwards, every heart beat, Kcal and % of fat expelled is recorded, along with max heart rate achieved, average heart rate throughout the day and total exercise time in their individualised training zone.

Fitness Assessment:

The fitness assessments form an important part of the course appraisal process, and like the health assessments they take place on the first and final day of the course programme. Being simple in form the assessments require the clients to perform callisthenic exercises with maximal effort for a fixed period of time to assess their local muscle endurance properties (LME). The group also perform an aerobic based exercise which requires them to cover a set distance in the fastest possible time. The findings of these aerobic assessments are used to estimate the individual's VO_2max (ml/kg/min^{-1}) and to adjust their HRTZ. The LME assessments give the training team a better understanding of the group's general level of strength and power and recovery rates. An overview of average improvements in these assessments can be seen in the appendices.

Physiology:

The data is downloaded from the HRMs each day, and this provides detailed information into how the clients are responding physically and psychologically to the exertions placed upon them. Although the programme of work is largely predetermined and decided upon prior to the commencement of the course, a certain amount of flexibility is set into it that allows for adjustment of intensity, duration and recovery periods.

The programme itself is designed to work the aerobic and anaerobic energy systems, and to strengthen and balance the muscular-skeletal frame. The very nature of the course makes it both physically and psychologically demanding. Using circuit based training techniques, hikes and orienteering activities, boxing and martial arts training methods and adventure based activities such as kayaking, mountain biking, rock climbing and abseiling, we are able to deliver a varied and innovative programme that encourages effort and full participation and one that generates significant and sustainable results. An overview of the anticipated outcomes can be seen in Table 2 in the appendices.

Psychology:

Without exception, the quest to lead a sustainably healthier lifestyle is determined by strength of mind rather than of body, and for that reason the psychological elements of the programme are fundamental to its success. Group formation and group dynamics ultimately dictate how the groups perform and they

determine how the training team deliver the programme. Groups in a residential setting, irrespective of their make-up, take approximately 72 hours to graduate from the initial formation stage where the clients first come together, to the cohesion stage where they start performing for each other within their group. To accelerate this process the training team artificially engineer the group formation process through the use of a specific and innovative delivery style. Optimum group performance only occurs once the group have reached this final phase of group cohesion.

To intensify the psychological elements of the course further, some activities are conducted in the very early hours of the morning (*1am-3am). Although care is taken not to raise anxiety levels too high (see diagram 1 in appendices), physical work when disorientated and sleep deprived bring out the true characteristics of the individual clients, and also strengthen the bond and improve the performance of the group. Night hikes also present the trainers with the opportunity to demonstrate the theory of ‘proprioception’. These exercises help the clients through periods of acute tiredness and apathy during the participation of intense physical activity and stressful situations.

*A full and comprehensive risk assessment of the route was conducted prior to embarking.

Nutrition:

As you may expect, nutrition plays a fundamental role in our courses. We try to make this element of the course as educational and as practical as time allows, including detailed demonstrations and workshops with our resident course chef. Among the areas covered include:

The 3 W's: **W**hat should I eat, **W**hy do I need it, and **W**hen do I eat it

Why restricting Kcals too much is detrimental to health and sustainable weight loss

Regulation of blood sugar levels

Eating on the go – tips for those with hectic lifestyles

Dispelling the many mixed media messages that just lead to confusion and apathy

Prior to arriving on the course, participants are asked to complete 7-day food diaries which are sent out during the booking process. These are analysed using a nutritional software package, and comprehensive bespoke reports are written for each of the clients on the findings. Because of the importance Physical

Dimensions place on the understanding of nutrition, each client receives a detailed consultation at some time during the course to explain the findings of the analysis and to set out full recommendations and future nutrition plans.

Though the food we provide throughout the week is very healthy, balanced and tasty, all of the meals are designed to be easy to prepare. They are also designed to be functional and to provide the client with the energy and nutrients required to complete the increasing workloads placed upon them.

Findings

Health Assessments:

The overall general health and fitness conditioning of the clients upon arriving onto the wellness courses are, not surprisingly relatively poor. All of the variables measured during the fitness assessment processes are compared against an accredited 'table of norms'. Measurements taken during the health assessments are compared to norm guidelines from the NHLBI (National Heart, Lung and Blood Institute). Table 1 summarises some of the key findings.

The improvements seen in these variables over such short periods of time gives a clear indication of the condition they are in on arrival to the course. However, it is likely that some of the pre-course blood pressure measurements are inflated and could be attributed to the journey to the course venue and anxiety about the course itself. Blood pressure measurements are taken each day for those classified in Stages 1 and 2. Throughout the courses there also appears to be a direct correlation with hypertension and dehydration, and as we endeavour to improve the clients hydration levels through the week the blood pressure readings tend to reduce at a steady rate.

It is also not surprising that a significant percentage of those attending our wellness courses are classified as obese or overweight. The training team put far more emphasis on body fat % measurements rather than BMI classifications, and we emphasise this point to all the clients throughout the duration of the different courses. Many variables contribute to an increase in body mass after a sustained period of exercise is undertaken. Although these increases are largely insignificant over the course of one week, variables such as lean tissue, bone density, blood volume and hydration levels can increase significantly

over the 6-month duration of our additional wellness@work programme. For that reason we set our clients body fat percentage and girth measurement targets rather than BMI targets.

NHLBI Guidelines			Pre Course		Post Course		Adaptations + =Positive / - Negative	
Blood Pressure	Systolic	Diastolic	Male	Female	Male	Female	Male	Female
Normal	≤120	≤80	4%	7%	39%	27%	+35%	+20%
Pre-hypertension	120-139	80-89	5%	13%	27%	24%	+22%	+11%
Stage 1	140-159	90-99	53%	38%	31%	47%	+22%	+9%
Stage 2	≥160	≥100	38%	42%	3%	2%	+35%	+40%
Hydration Levels %			Male	Female	Male	Female		
Normal	40-60%		8%	7%	87%	93%	+79%	+86%
Poor	24-39%		19%	36%	13%	7%	+6%	+29%
Severe	15-25%		73%	57%	0%	0%	+73%	+57%
BMI	Category		Male	Female	Male	Female		
≤18.5	Underweight		0%	0%	0%	0%	/	/
18.5-24.9	Normal		7%	3%	17%	24%	+10%	+21%
25-29.9	Overweight		52%	30%	49%	23%	+3%	+7%
≥ 30	Obese		41%	67%	34%	53%	+7%	+14%
Table 1: Breakdown summary of key variables (*Sample size 87)								

Cholesterol testing is also made available and actively encouraged for the clients enrolling on the wellness@work programmes. However, because accurate results can only be attained after a period of fasting; which is not conducive prior to embarking on a physically challenging programme; cholesterol testing is not offered during the residential portion of the course.

Fitness Assessments:

The fitness assessments are conducted purely to assess levels of aerobic and anaerobic fitness, and to provide the training team with base measurements of which we are able to gauge improvements and to measure their responses to the new work capacities experienced. The majority of the course is non-competitive. It is stressed continuously that they are not competing against each other but instead are encouraged to put maximum effort into everything they do. The couple of activities that do have an element of competition in them are conducted in smaller groups and not on an individual basis. A summary of pre and post-course fitness measurements can be seen in the appendices.

The overall improvements over the course of one week are testament to the effort the groups put in and the way they embrace the course. It also demonstrates that everyone, irrespective of their levels of fitness or health status has the ability to improve significantly when they apply themselves to a programme of work. Overcoming the psychological barriers poses the biggest task for the training team. The human body is incredibly resilient but unfortunately most of those attending the courses have very little confidence in their abilities. One of the most rewarding parts of the course for the training team is when the groups finally start believing in themselves and gain confidence in the tasks that they've been given. It is this increase in the belief and confidence that they can complete these tasks that manifest into performance improvement, rather than physiological adaptations per se. Training effects; the stage where the physiological, anatomical, psychological and endocrinal systems begin to work in synergy together, generally take 10-12 weeks to materialise. This period is referred to as 'the hook'. Research and our experiences show that if individuals reach the training effects stage, their chances of achieving their health and fitness goals and maintaining exercise adherence and healthy eating patterns in a sustainable manner is significantly enhanced.

The residential wellness course provides a plethora of valuable information and this is used during the planning stages of the 'wellness@work' programme. Indeed, the residential course provides the foundations to the 'wellness@work' programme. Taken together, these programmes offer an effective, rewarding and educational based programme that addresses the many barriers that impede the desires and efforts of leading a healthier lifestyle.




















































The principles and the ethos that underlay the Physical Dimensions philosophy are set, but our programmes are bespoke and adaptable to address various health and fitness conditions. The benefits of

having a strong, healthy and confident workforce have been well documented for many years. Physical Dimensions have demonstrated that their exercise and nutritional science based programmes, and their innovative delivery styles can deliver sustained weight loss, sustained improvements in mental health and improvements in the overall health status of its clients. Such programmes are ideal for corporations without a present employer welfare programme, or are equally effective in complimenting and working within the parameters of any existing welfare package. The programme outlined above has delivered optimum results for employees from which organisations such as British Airways, The European Parliament and the Bloomberg Institute are but a few; but it can also be adapted so that the residential segment, or the workplace segment can be taken independent of each other.

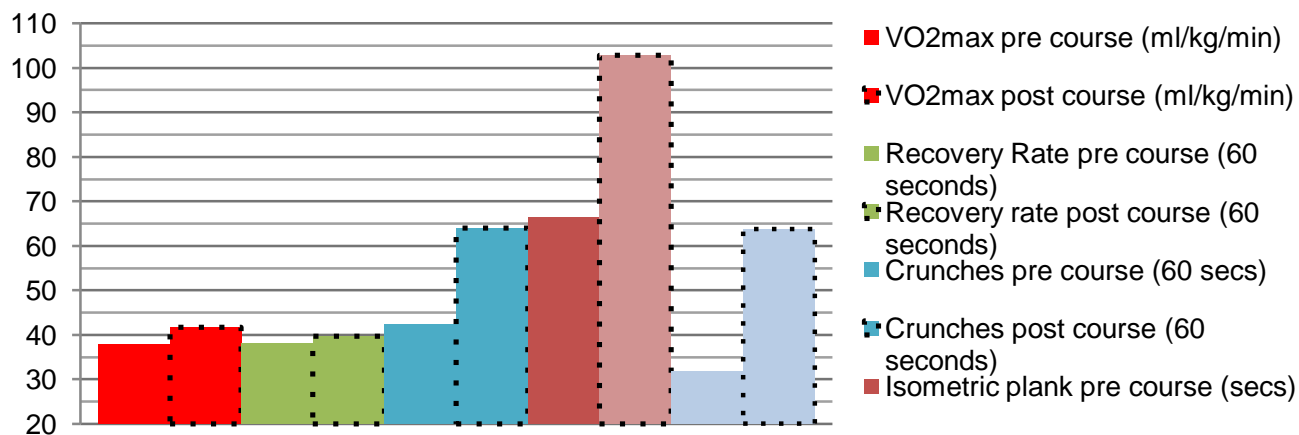
Appendices

- (P8) Table 2: Training effects and anticipated outcomes of programme
- (P9) Table 3: Site map of ‘Wellness Programme’
- (P10) Chart 1: Pre and post course performance and fitness outcomes
- (P11) Chart 2: Pre and post course key variables
- (P12) Graph 1: Pre and post course body fat % measurements and % change
- (P13) Diagram 1: ‘Inverted U’ model

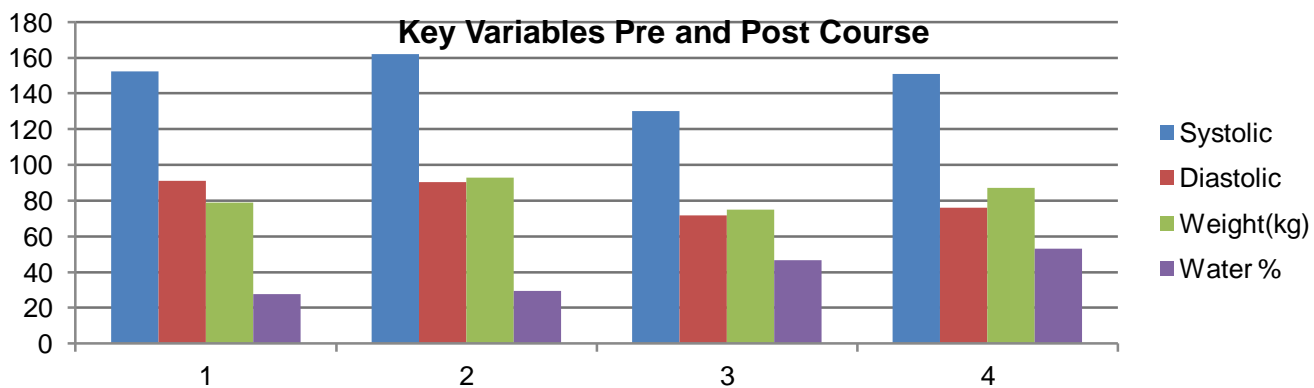
Training Effects and Anticipated Health Outcomes of Appropriate Regular Activity & Balanced Nutrition

 Increase / Improvement Maintenance / Regulation		 Decrease		
Physiological/ anatomical	Physiological/ anatomical	Psychological /Emotional	Occupational, nutritional and other health outcomes	
 VO ₂ max	 Endurance	 Self-esteem		Incidence of sickness
 Capillary network	 BMR	 Confidence		Incidence of absenteeism
 Stroke volume	 Posture	 Tolerance		Productivity
 'Q'	 Connective tissue strength	 Assertiveness		Lucidity/clarity of thought
 Total blood volume	 Recovery rate	 Mental strength		Overall wellbeing
 Erythrocytes	 Total body fat %	 Fortitude		Risk of CHD
 Lean tissue	 Blood pressure	 Self-belief		Risk of Type II diabetes
 Strength	 Girth measurements	 Anxiety levels		Risk of some cancers
 Power	 Fat weight	 Stress levels		Blood lipid profile
 Flexibility (ROM)	 Resting heart rate	 Apathy		Blood sugar levels
 Bone density (anatomical)	 Muscle symmetry	 Lethargy		Kcal balance
 Tidal volume	 Lean tissue/fat mass ratio	 Incidence of depression		Hydration levels

Pre & Post Course Fitness Results



Key Variables Pre and Post Course



Graph 1: Body Fat % Measurements

