

## Physiological Analysis of a novel aerobic training instrument

### Introduction

As we enter a new fitness era, new products are being developed for the aerobic enthusiasts. The Fit-Zone™ is an athletic training program designed to improve motor skills, reactive training, aerobic conditioning, muscular strength and endurance, flexibility and body composition. The program involves moving inside a square frame, with the option of performing upper torso body conditioning movements, dependent on ability and fitness level of participants. Similar aerobic training principles are already in use, with the most notable example being the Reebok Step. The Fit-Zone aims to provide an effective alternative to the Reebok Step. However as the program is only recently developed, its potential benefits in cardiovascular training have not been assessed.

### Aim and Objectives

The aim of this study was to measure heart rate increase as well as the amount of calories burnt during a typical cardiovascular group exercise programme using the Fit-Zone.

### Methodology

The data was collected in a private sports centre in Aberdeen. The schedule of classes and duration consisted of 3 classes a week. Up to 10 participants were measured per session. The 54 volunteers were males and females, aged 24-68, existing members of a gym and used to exercising for up to 30-60 minutes of continuous activity. Measurements of heart rate and energy expenditure were carried out using The Polar TeamSystem monitor (Polar Electro UK Ltd, Warwick). Energy expenditure was calculated from the ratio of oxygen uptake to walking velocity and expressed in millilitres of oxygen per kilogram body weight per meter travelled. Non-parametric statistical analysis of the results was carried out using Wilcoxon test at 95% significance level. There were 4 components to the programme. The Dynamic Zone, (warming up the body and familiarising participants with the equipment), The Energy Zone (gradually increasing the cardiovascular activity), the Agility Zone (Main athletic workout) and the Tone Zone (cooling down and stretching).

### Results

Table 1 shows the calories burned and percentage of heart rate increase after each program. Wilcoxon test showed that there was no significant difference between the calories burnt after 45 minutes of activity with the Fit Zone (FZ), the Body Attack (BA) and 55 minutes activity with the Step ( $p > 0.05$ ).

*Table 1: Average and standard deviation of calories burnt and Heart Rate activity*

Description	FZ 45 mins	BA 45 mins	Step 55 mins
Overall Calories Burned	281±71	303±69	289±59
Avg % HR increase for duration of activity	74%±11	77%±12	70%±10

### Discussion - Conclusions

The 45-minute Fit Zone programme was found to be an alternative fitness program to 45-minute Body Attack and 55-minute Reebok Step, with respect to calories burnt and heart rate. It is anticipated that a 55-minute program using FitZone could produce a higher number of burnt calories compared to the Reebok Step, but this would require further research. Further research will also be required to include the biomechanics of undertaking The Fit Zone™ Group Exercise programme compared to similar existent programmes.