







## ■ Introduction

At this moment in Thailand, there is no exercise program popular than “FocusT25” for anyone who loves the intense weight and cardio workouts. “Focus T25” is produced by beach body and led by world renowned personal trainer Shaun-T. Shaun-T was the program creator of the incredibly popular Insanity program which is a bit longer in duration. “Focus T25” takes around 25 minutes with 2-5 minutes of stretching after 25-minute workout. The word “focus” was used because Shaun T has chosen the most effective exercise combinations that will build and burn a large number of muscles and fat in the quickest time possible within 25 minutes<sup>1</sup>. The exercisers do not stop once the DVD starts up.

However, “Focus T25” has two sides; benefit if we do it right but dangerous if we do it wrong. So I start from summarizing the beneficial physiological effects of “Focus T25” following by precaution and termination of the exercise. This may help exercisers gain full benefit from “Focus T25” with safety.

## ■ Beneficial physiological effects

World Health Organization recommended that vigorous-intensity activities at least 3 days per week; and activities that strengthen muscle and bone at least 3 days per week provides greater health benefit<sup>2</sup>. “Focus T25” is a high-intensity exercise program. It involves high impact moves that engage all areas of exerciser’s core, major muscle groups like quadriceps, calves and hamstrings, trunk and the upper body. Overall, “Focus T25” increases muscular strength, power and endurance, cardiorespiratory endurance, speed, balance and flexibility. In addition, it improves body temperature regulation. Therefore, it could be benefit for health promotion.

In order to have these capacities, our bodies need energy supply. Only one molecule that can immediately provide energy is adenosine triphosphate (ATP). However, the body cannot easily store ATP (and what is stored gets used up within a few seconds), it is necessary to continually synthesize ATP during exercise.

Generally, the two major ways the body converts nutrients to energy are<sup>3,4</sup> (Figure 1): aerobic metabolism (with oxygen) and anaerobic metabolism (without oxygen). Carbohydrate (CHO) is the main nutrient that provides energy during a high-intensity exercise via anaerobic glycolysis or aerobic pathway, while fat can provide energy during a low-intensity exercise for long periods of time via aerobic pathway (Figure 2)<sup>5-9</sup>. Proteins are generally used to maintain and repair body tissues, and are not normally used to power muscle activity. However, Thai healthy sedentary subjects relied more on CHO than fat during all<sup>9</sup> (Figure 3). The greater daily proportional CHO intake in Thai subjects than that in white subjects may be responsible for the greater CHO utilization. Thus, not only the intensity and duration of the exercise determine which method gets used but also the diet.

In addition, “Focus T25” is the program that follows the overload training principle<sup>10</sup>. Anyone who cannot adapt to the program will fail to continue the training because he/she has muscle injury, illness, pain, atrophy, increased cortisol and decreased physical performance<sup>10</sup>. However, anyone who can adapt to the program will gain benefits from the training<sup>11,12</sup>. These include hypertrophy of muscle fiber type I and IIa because it plays important role during the high intensity exercise for nearly 30 minutes<sup>10</sup> (Table 1). This contributes to improve performance (Figure 4). Left ventricle muscle mass and chamber volume are increased. Mitochondria content (Figure 5), size and function, fat utilization during the exercise was increased leading to CHO sparing<sup>13</sup>. Faster duration rates of oxygen diffusion and fuel into muscle. Oxidative enzyme level and efficiency and disposal of metabolic waste were also increased. Cell regulatory mechanism of metabolism was improved. Moreover, the exercise training increases insulin sensitivity<sup>15-18</sup> via 3 possible mechanisms (Figure 6); 1) increased glucose transporter 4 exocytosis from its vesicle 2) decreased glucose transporter 4 endocytosis and 3) increased glucose transporter 4 activity.









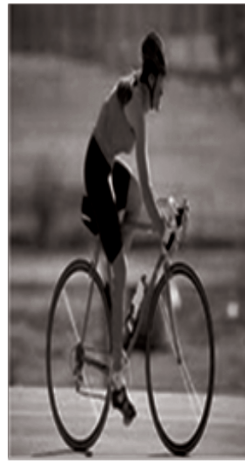
Faster diffusion of oxygen and fuel into muscle

Increased expression of fatigue-resistance of slow twitch muscle fibers

Increased mitochondrial function

Increased cardiac muscle mass

Increased left ventricular dilation and chamber volume



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Increased disposal of metabolic waste

Increased stroke volume

Increase carbohydrate sparing

Increased oxidative enzyme level and efficiency

Improved cell regulatory mechanisms of metabolism

Figure 4 Physiological changes from high-intensity exercise (modified from refs<sup>12,13</sup>)

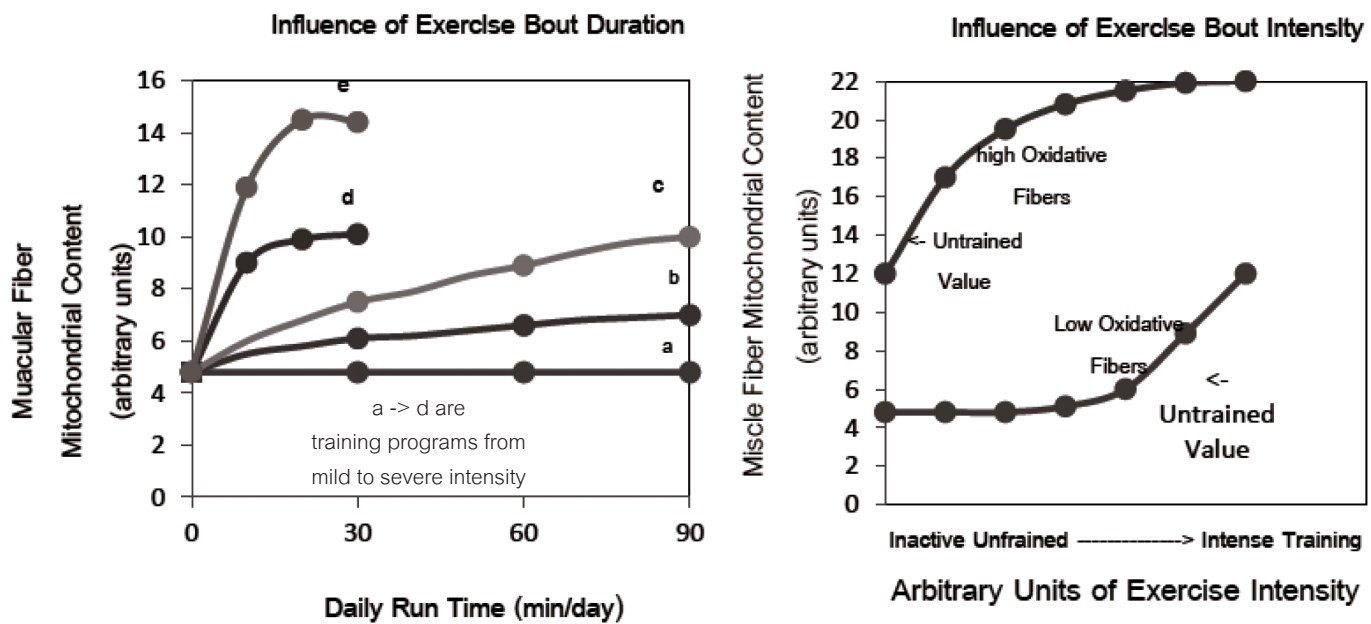


Figure 5 Influences of exercise bout and duration and intensity on muscle fiber content (modified from ref<sup>15</sup>)











