

Research on the effectiveness vacuum and infrared fatty acid utilization rate using Vacu Activ BodyShape from Vacu Activ.





Introduction

Universal slimming term, namely reduction of adipose tissue is a complex process, which aims to provide increased utilization of fatty acids contained in the fat cells 'adipocytes', or synthesizing cells that accumulate fat in the form of triglycerides. The complexity of this process lies in the fact that the body fat is supplementary material which is collected in an increased supply of nutrients in relation to the demand, and lost in the context of a reduced supply of nutrients (the demand) that may be incurred by the additional physical activity enhancing energy expenditure and increasing energy demand. This entails the launch of compensation mechanisms for energy shortages, as the use of supplementary material. However, for there to be such compensation must meet the following conditions:

1. Caloric needs must take over the supply of nutrients.
2. The body must have the right conditions to start the process glucose neogenesis using lipolysis. These conditions are mainly slow down the utilization of sugars (glucose) and lack of blocking lipolysis - excessive acidity (lactate), activation of hormonal factors that stimulate lipolysis and others.
3. The correct course of lipolysis, which is the process consists of two stages:
 - Stage breakdown of triglycerides into glycerol and fatty acids, this step is stimulated for example by hormonal factors, exercise, etc. and allows you to exit fat cells (in the form of fatty acids).
 - Stage burning fatty acids, which have left the storage cells. Burning it is to obtain energy for use in biological processes and is aggravated for example through increased physical activity.

The fulfillment of these conditions is able to compensate for the deficit of energy from fat, and fat reduction.





Vacu Activ BodyShape

Vacu Activ machine is special equipment dedicated to physical activity used in the reduction of body fat. This device is based on the following main mechanisms:

1. Physical activity undertaken on a treadmill (test was used treadmill with adjustable feed speed and angle of inclination), and information from the manufacturer is the ability to use other forms of activity such as: CykloErgometr.
2. Vacuum (regulated), whose main function is to move the blood and lymph to the surface of the skin, and thus easier exchange of metabolites from cellular and intercellular space. In theory, a more efficient escape of lactate from the cell into the bloodstream, which should reduce its effect on the inhibition of lipolysis in adipocytes.
3. Heat (IR radiation, regulated), the main biological effect is to produce heat in the tissue, which makes it easier to vasodilatation, and also facilitates the exchange of tissue, which facilitates "lactate flow" during exercise and provides a better supply of oxygen, which also should provide the possibility of a longer use of fat as fuel to the effort of increasing intensity.





Machine and test

For research was used:

Machine:

- Vacu Activ BodyShape from Vacu Activ Company – delivered by Vacu Activ service.
- Analizator spirometryczny CPET MetaMax 3B

Test included:

- Standard procedure for determining the rate of utilization of fat FatMax made using equipment CPET MetaMax 3B
- Standard procedure for the exercise test to refuse the use of equipment CPET MetaMax 3B





Test

The object of the study was a group of people numbering six people.

Group 1 - Two people with a similar their fitness level (female 26 years, weight 56.6 kg, height 164cm and male 27 years, weight 75.7 kg, height 182 cm)

Group 2 - Two people with the same level trained athletes (male 25 years, weight 54.1 kg, height 164 cm, and a man 22 years, weight 65.6 kg, height 173 cm)

Group 3 - Two people with the same level trained athletes (male 26 years, weight 60 kg, height 161 cm, and a man 32 years, weight 76.3 kg, height 176 cm)

Respondents took exercise twice, test consisting of running as a progressive exercise protocol: 4, 6, 8,10, 12 km. The interval between two teeth vacuum lasted two hours. Players performed on each leaf effort intensity for 3 minutes, then the level of effort has been enlarged.

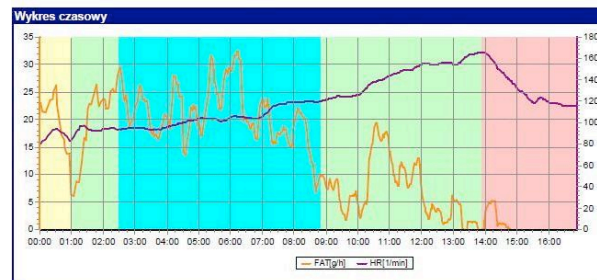
Below are the results of the study ergo spirometrie, which was performed during both exercise tests. The results represent the mean curve of fat burning in the same time interval with a length of 5 minutes, 40 seconds.

Centrum Diagnostyki Sportowej Diagnostix

Maksymalna szybkość spalania tłuszczów



ID:		Waga:	76,3 kg	Lean Body Weight:	-
Wiek:	32 years	Wzrost:	176 cm	BSA:	1,94m ²
Płeć:	mężczyzna	Lekarz:		BMI:	25kg/m ²
Data:	2012-01-10,	Protokół obciążenia:	test 4 - 18 km 3 minuty prezentacja		
Czas badania:	0:16:53	Operator:	Administrator		
Urządzenie CPET: MegaMax 38 Ergometr: Simulated Treadmill		Warunki atmosferyczne Temperatura: 20,1 °C Ciśnienie: 993 mbar			



Parametr	Jednostka	Wartość
Maksymalne spalanie tłuszczów:	g/h	21
Przedział uśredniania	s	379

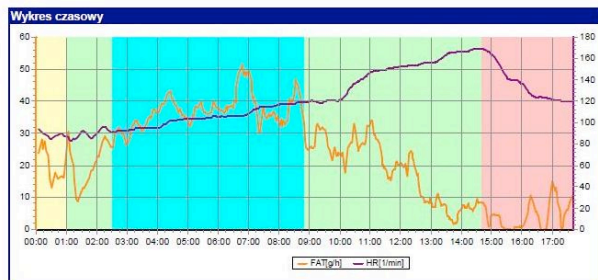
Parametr	Jednostka	Wartość
FAT	g/h	21
HR	1/min	106
v	km/h	6,22
G	%	1,0
EFF	%	22,6
Czas	h:mm:ss	0:05:40

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Maksymalna szybkość spalania tłuszczów



ID:		Waga:	76,3 kg	Lean Body Weight:	-
Wiek:	32 years	Wzrost:	176 cm	BSA:	1,94m ²
Płeć:	mężczyzna	Lekarz:		BMI:	25kg/m ²
Data:	2012-01-10,	Protokół obciążenia:	test 4 - 18 km 3 minuty prezentacja		
Czas badania:	0:17:41	Operator:	Administrator		
Urządzenie CPET: MegaMax 38 Ergometr: Simulated Treadmill		Warunki atmosferyczne Temperatura: 20,2 °C Ciśnienie: 994 mbar			



Parametr	Jednostka	Wartość
Maksymalne spalanie tłuszczów:	g/h	37
Przedział uśredniania	s	377

Parametr	Jednostka	Wartość
FAT	g/h	37
HR	1/min	106
v	km/h	6,19
G	%	1,0
EFF	%	23,1
Czas	h:mm:ss	0:05:39

The first results (results on the left), which was carried out on **treadmill**, showed average fat burning level **21 grams / hour**.

A second study (results on the right), which were carried out in **Vacu Activ vacuum capsule BodyShape**, showed average fat burning level **37 grams / hour**.





Conclusions

During the test, the capsule vacuum Vacu Activ average efficiency of fat burning in the group 1 proved to be **17 grams / hour higher than** during exercise on a standard treadmill . In group 2, the average efficiency of fat burning turned out to be **15 grams / hour more** than during a standard treadmill exercise in group 3 fat burning efficiency turned out to be **16 grams / hour more** than during exercise on a standard treadmill. Thus, the test showed that **average fuel consumption of fat during exercise on the equipment Vacu Activ was about 76% higher than during exercise on a standard treadmill.**





Suggestions

An important suggestion is to increase the individualization programs used in connection with sex. Men organism while load is too low and while the load is too strong women showed a decrease in the efficiency of exercise. This was due to incorrect fitting exercise program to a specific gender. Establishing exercise program should use information about level of fitness experience. The same program for novice and advanced user is different stimulus – for one it will be too strong and for second too weak. In both cases it won't give beneficial effects.

To sum up - the correct device settings customization will be a key element to achieve significant growth trends.

