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3/07

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Reprint

Special Release "SALUTO Study"

„Influence on endurance levels of an Airnergy application prior to exertion "

Influence on endurance levels of an Airnergy application prior to exertion

In conjunction with the German Handball Federation (DHB) and other cooperation partners including the Heart and Diabetes Centre in Bad Oeynhausen, North-Rhine Westphalia, SALUTO has developed a preventive care plan that is unique in Europe. It was first made public in May 2006. This involved looking for ways to improve the performance and regeneration capabilities of the players.

Dr. Elmar Wienecke, is a sports scientist who obtained his doctorate from the Deutsche Sporthochschule [German Sports College] in Cologne, where he worked under Prof. Hollmann and Prof. Liesen, perhaps the best-known sports medicine specialists in Germany. He is co-founder and Director of the SALUTO Competence Centre for Health and Fitness in Halle, Westphalia. Wienecke looks after both performance athletes and hobby sports enthusiasts, working with them on individual training programmes and optimal rehabilitation regimes.

Purely by chance it was around this time that I first learnt about Airnergy technology. I found the idea of using it to optimise the way oxygen was used extremely interesting. It meant that by breathing Airnergy the body could use the energy potential in respiratory air without increasing oxygen concentration and without adding any foreign substances.

To clarify: In an Airnergy device normal ambient air is fed through catalysts whereby the oxygen contained in the air is changed by means of a chemoluminescence process similar to photosynthesis. It is stimulated into a higher energy state known as the singlet state. Immediately after the reaction it returns to its original triplet state. During this process measurable energy is emitted which combines with water molecules. It is this energy-rich air which the user inhales as it flows out of the device.

It was with great interest and a good deal of scepticism that I then conducted a test on myself.

In a preliminary test, 60 minutes before my morning run I inhaled air using the new Airnergy respiratory technology for 21 minutes. One day later I ran the same stretch at the same speed, the same temperature and same wind speed. A comparison of my pulse rates using the Team Sport System developed by Polar confirmed my own impression that it seemed much easier to exert myself when I used Airnergy beforehand.

It can be noted that of the heart rate measurements taken when using Airnergy respiratory technology prior to training, 42.1% of the measurements were recorded between 130 and 140, 9.7% lay between 140 and 150 and 1.3% were higher than 160. If you compare these values with running without using Airnergy before training it is clear that the heart rates are significantly higher. 32.9% of the measured heart rates were between 140 and 150 while 44.5% were between 150 and 160.

The results were clearly so positive that we developed a small trial project based on my own tests.

7 women took part in this pilot study with an average age of 32.1 ± 4.2 years and 8 men with an average age of 34.5 ± 3.7 years. The BMI (body mass index – ratio of body weight divided by height^2) was 21.4 ± 2.04 with the women and 25.2 ± 0.96 with the men. Any increase in white blood corpuscles (leucocytes) as a result of infection had to be

PILOT STUDY

Number of test subjects
A total of 15 amateur athletes (maximum 3 hours jogging per week)

Venue
SALUTO laboratory and air-conditioned examination room (with temperature constant at 22°C)

Objective
Implementation of treadmill ergometry (metabolic analysis and heart rate reading) with and without using Airnergy before exertion.

Length of test stages
3 minutes – a total of 5 stages of exertion

Placebo/verum device
The test subjects were unaware which Airnergy respiratory device contained the inactive catalysts which only produced a placebo effect.

Important note
It was a requirement that test subjects should have experience of running on treadmills so that we could rule out coordination factors which might influence running behaviour and therefore lactate production

ruled out since this can influence heart rate.

Based on our experiences of the preliminary tests we decided against using spiroergometry (measurement of respiratory quotients) as this would have required a special breathing mask to be worn. Our test subjects reported that they felt very constricted when using the breathing mask and it caused some of them to hyperventilate. The breathing mask would therefore have been counterproductive for our test arrangements.

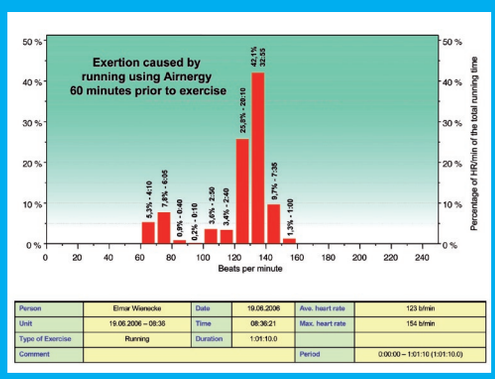
Between the two tests there was a break of one day and the test subjects complied with our request not to exert themselves 1 day before the test. By using air conditioning we were able to guarantee a constant room temperature of 22 °C. This is a very important criterion, particularly for the heart rate measurements taken at the different stages of exertion.

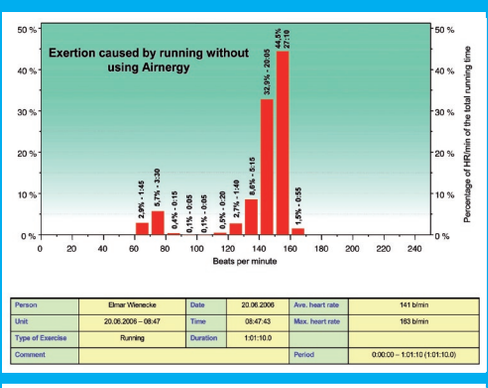
None of the test subjects knew whether they were using a placebo or verum device when using Airnergy 60 minutes prior to the treadmill ergometry.

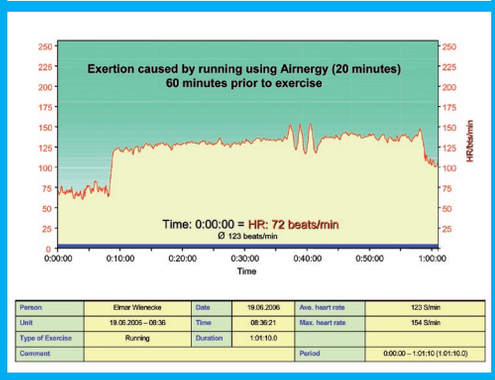
Anthropometric data of the test subjects prior to the test (n=15)

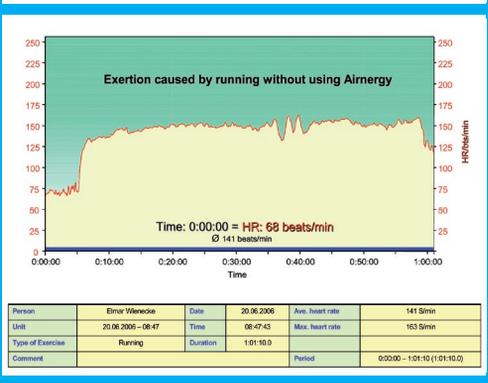
	Women (n=7)	Men (n=8)
Age (years)	32,1 ± 4,2	34,5 ± 3,7
Height (cm)	1,69 ± 0,13	1,82 ± 0,05
Weight (kg)	61,3 ± 2,3	83,4 ± 1,9
BMI	21,4 ± 2,04	25,2 ± 0,96

75% of respired oxygen contained in the air is expired without being utilised. Airnergy helps the organism to better utilise the oxygen contained in the inhaled air, supports therefore the training and helps to reach successes more rapidly. Airnergy is breathed through slight nasal cannulas.

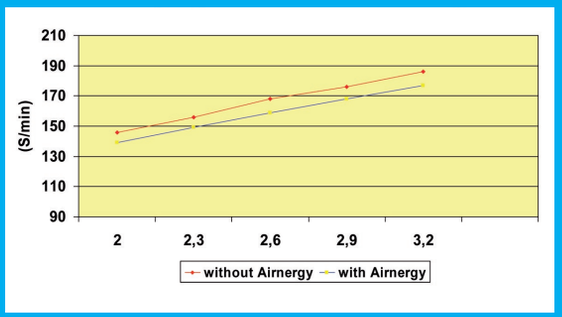




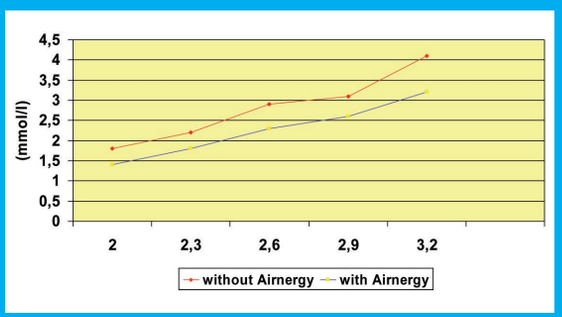




Results



Heart rate
Treadmill ergometry with and without Airnergy (n=15)
Used at least 60 minutes before physical exertion



Lactate concentration (mmol/l)
Treadmill ergometry with and without Airnergy (n = 15)
Used at least 60 minutes before physical exertion

V (ms)	wo. A.	wo.A.	w.A.	w.A.	Δ	Δ
	HR beats/min	LA mmol/l	HR beats/min	LA mmol/l	HR in % wo.A.–w.A.	LA in % wo.A.–w.A.
2,0	145,7 ± 7,33	1,8 ±0,31	139,4 ±6,95	1,4 ±0,35	4,34* ±0,67	20,89*** ±7,56
2,3	156,4 ±9,05	2,2 ±0,47	149,4 ±8,43	1,8 ±0,41	4,46*** ±0,99	19,46*** ±4,23
2,6	167,7 ±8,03	2,9 ±0,66	158,8 ±7,83	2,3 ±0,52	5,29*** ±1,31	20,6*** ±3,69
2,9	176,7 ± 8,03	4,1 ±1,13	167,8 ±8,64	3,2 ±1,08	5,07*** ±1,37	20,8*** ±8,03
3,2	186,3 ±9,22	5,7 ±1,13	176,5 ±9,55	4,63 ±9,55	5,2*** ±1,51	19,1*** ±3,84

Total result (n = 15)
V = Speed measured at the different stages of exertion
HR = Heart rate
LA = Lactate
Δ = Difference in lactate values in percentage terms (Values without Airnergy were deducted from values with Airnergy)
*** = Statistical significance (* = significant,*** = highly significant)**

Discussion and summary

The starting point for this pilot study was the author's own very positive impression that using Airnergy technology 60 minutes prior to training led to an improvement in performance during training. For this reason we investigated the effects of inhaling "activated air" before physical exercise. We wanted to prove whether there were any effects suggesting possible economy in metabolism.

For this reason we studied 15 test subjects who practised sport a maximum of 3 hours a week. All test subjects had extensive experience in using treadmills which meant that it was possible to rule out coordination factors having any influence on the metabolic parameters. Air conditioned rooms were used to keep the room temperature at a constant 22°C. The test subjects did not train on the day prior to the tests. The participants in the study were unaware of whether they were using a placebo or verum device.

Economical metabolism is indicated through reduced blood lactate values and lower heart rates at the different stages of exertion. With the aid of Team System by Polar we drew the individual curve charts for the test subjects.

We were able to identify highly significant ($p < 0.001$) reductions in the blood lactate and heart rate values when using Airnergy respiratory technology. We identified lower blood lactate values of up to 20.8 ± 4.68% at the different stages of exertion. The recorded heart rates show reductions of up to a maximum of 5.29 ± 1.81%. This result also confirms the participants' own impressions, describing a significant improvement in their performance after using the verum device. The individual aerobic-anaerobic threshold after Simon (as the parameter for measuring endurance levels) was 2.9 m/s for test subjects using the placebo device before the treadmill test and 3.1 m/s for those using the verum device.

These practical results show the remarkably positive effects of using Airnergy respiratory technology before exercise. Our experience shows that this should be used at least 1 to 2 hours prior to physical exercise.

We backed up these results further with a second study, this time with 16 test subjects who used Airnergy under otherwise identical conditions before cycle ergometry. In this case too we found highly significant ($p < 0.001$) reductions in blood lactate and heart rate values when using Airnergy respiratory technology. We identified low blood lactate values of up to 17.4% at the different stages of exertion. The heart rates recorded show reductions of up to a maximum of 7.1 ± 1.42%. This result also confirms the participants' own impressions, describing a significant improvement in their performance after using the verum device. The individual aerobic-anaerobic threshold was 105 ± 5.9 watts for test subjects using the placebo device before cycle ergometry and 130 ± 6.1 watts for those using the verum device.

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