

Ulrich Knop

Report on a two-stage controlled study, using heart-rate-variability-measurements (HRV) in respect of the effectiveness of the Airnergy+-Oxygen-Therapy

An innovative method for the retention and restoration of the energy balance

Airnergy+ is a new process of oxygen therapies. Using the air we breathe instead of medical oxygen, as used in all other conventional processes and which, as a result, suffers from problems of dosage.

1. Introduction

In our institute we have over 20 years of experience with oxygen multi-step therapies according to Ardenne and in 1985 in Munich, together with Prof. Dr. hc mult. M.v.Ardenne, we formed a large OMS-Institute (med-O-vit). Later we studied intensively climatic conditions and the biological availability of different types of substrates. We concerned ourselves with the ionisation of air in a room, sea climates / refining plants and also with the ionisation of medical oxygen.

In the process according to Klemm (scientist who developed Airnergy technology) and by a specific procedure, the oxygen content of the air we breathe is activated by means of a Chemo- Luminescence process. Only then is the oxygen content fully available for biological purposes.

Therefore, Airnergy+ would be the only process, where the oxygen content of the air we breathe is optimised where required, that is directly within the cell metabolism.

This would be a therapeutical breakthrough, since the effectiveness of oxygen utilisation, that is its availability from within the blood, is a prime requisite for cellular metabolism. But in order to keep healthy, cellular energy generation is one of its basic requisites.

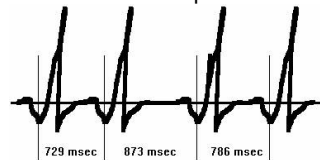


Fig. 1 The HRV depicts the variability of pulse rate spacing (beat to beat). These are clear values to indicate the control widths of the autonomous nervous system. The higher the heart rate variability, the higher the purposeful autonomous control potential.

Airnergy+ is now said to have this realised:

Since normal air is breathed, blood oxygen saturation with healthy lungs should not have changed much. Instead, the basic metabolism should quieten down since it can now operate more effectively – the BMR (Basal Metabolic Rate) should fall. If such an energy gain is applied directly to the organs and if their metabolism could function more effectively, then the HRV should also change, the autonomic nervous system should increase in its control capabilities and the autonomous control potential should widen. This results from the consistent reactivity of nerve tissues – and that means of the autonomous nervous system.

As a result, all organic functions would be controlled more purposefully, would operate more efficiently and would lead to a reduction in wear and ageing of all organs.

2. Heart Rate Variability (HRV) Measurements with the Airnergy+ Therapy.

To investigate such a claim, a two-stage controlled study was conducted by us from the beginning of August to the end of September 2003, using 15, resp. 5 test subjects. For purposes of evaluation we investigated the HRV values (variability width of heart rates).

Heart activity stands in a direct relationship with the autonomous nervous system and is influenced by various mechanisms. These are also the central control by the Hypothalamus, the sympathetic and parasympathetic nervous system and these are again affected by endogenous influences, such as breathing, blood pressure, heart pumping volume, temperature etc. Thereby, the autonomous nervous system is directly referred to heart activity.

Dr. Dr. h.c. Ulrich Knop



Active since 1983 on a freelance basis in bionic and electro-biology studies. The MET is one of his developments and has been his subject in around 100 seminars. For several years he was also lecturer in medium-frequency therapy in the further education of general practitioners. Today he is the research chairman for the M.E.V. Association and concerns himself with several innovative products of different manufacturers.

The biological control process is a finely balanced system. It is able to adjust its bio-cybernetic stabilisation. The biological activity of the body is shown by the adaptability of the organism to compensate quickly for different internal and external influences and in a correct manner. This is determined largely by the efficiency of the autonomous nervous system. Should such a vegetative control potential become disturbed, then biological stress will result – synonymous with functional disorder and illness.

The heart is affected through vegetative fibres directly by the vegetative sections of the central nervous system. Thereby the vegetative control quality can be directly depicted by the heart rate variability. Such variability implies that the pulse rate is basically regular, but follows no strict beat (this would imply rigidity of reaction). Instead, it occurs with a variable spread. Each heart beat differs from the previous one by minute variations in its signal repetition rate (Fig. 1)

The lack or reduction of such variation implies a rigidity or impairment of reaction and is biologically relevant (Figs. 2 and 3)

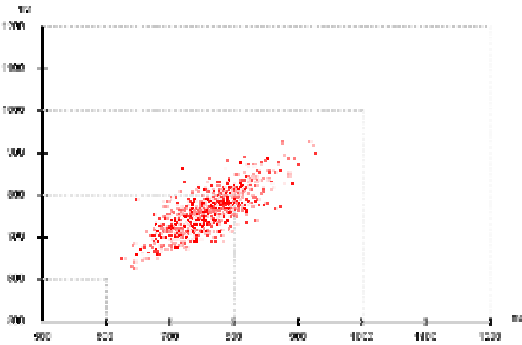


Fig. 2: This depicts an HRV spectrum with narrow spread. It shows an equally relatively limited control width within the autonomous nervous system. The tighter the spread, the greater its pathological importance. An absolute rigidity of reactions results in death.

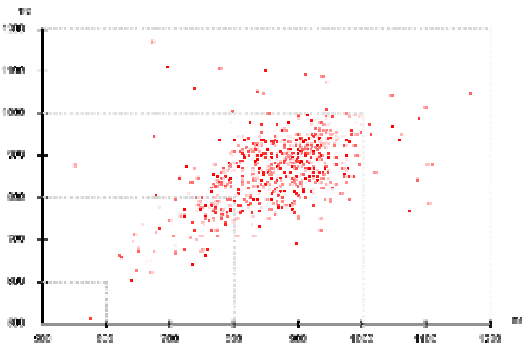


Fig. 3: This depicts a good and well spread HRV spectrum. It also shows a relatively high control width within the autonomous nervous system. The broader the width of the spread, the more this indicates a more purposeful reaction capability of the organism. A wide spread and thereby a high variability indicates health.

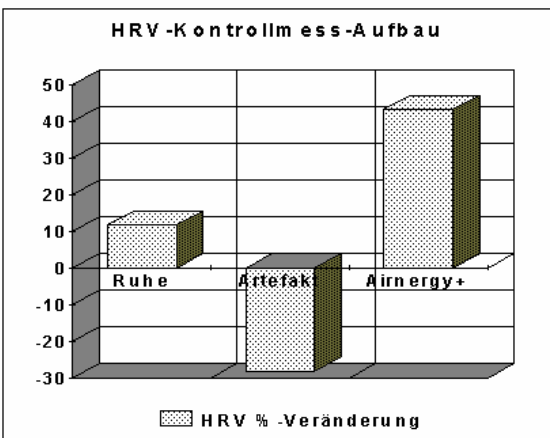


Fig. 4: This bar chart shows the three mean values of the test sequences. The individual results of the test persons after Airnergy+ are the more significant, when viewed together with the rest- and artefact values. The spread width variations of the HRV-measurements of the three sequences speak for themselves.

It should be mentioned here, that HRV measurements cannot be influenced deliberately and these are therefore a very exact and secure instrument to investigate influences on the organism, especially its reactions with and without stress within the autonomous region and to be able to depict these later. This is why we deliberately used HRV measurements to investigate the Airnergy+ System.

3. The actual two-stage and counter-checked study. To investigate this claim, we carried out a two-stage study, using 15, resp. 5 test persons. To assess the results, we used blood oxygen saturation values SpO_2 , BRM values according to Read (function of Basal Metabolic Rate) and HRV values (width variability of heart rates).

To substantiate the claim, we would require seeing variations in these values. The energy gain, because of Airnergy+, would have to be felt immediately in the individual tissues and would have to affect the autonomous control in a positive, relieving manner and it would be required, that all these can be verified by measurement and number.

Our study was set-up accordingly: For the initial examination we selected 15 healthy test persons of both sexes, between 15 and 45 years of age who would be representative for a normal population, neither sporty nor inactive, neither under- nor overweight. From this group we selected 5 test persons, 3 male, and 2 female who were representative for the whole group. The basal metabolic rates (BMR according to Read) were within the tolerant range for all: +4 to -1. Blood oxygen saturation (SpO_2) was normal for all: between 97 and 99%.

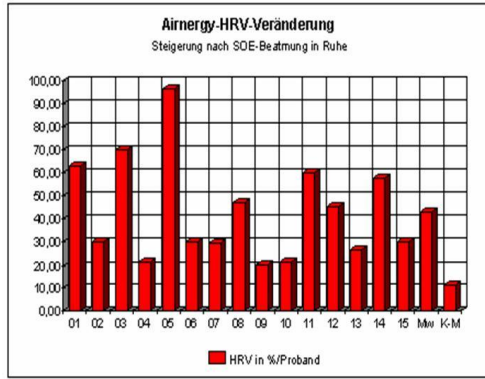
At first the test persons were subjected to a control examination where they passed through the same test sequence, however without Airnergy+ or other therapeutic influences, to enable us to establish a basic rest value, to average this out and to apply this to the calculations of variations. Additionally some artefact tests were conducted whilst undergoing the Airnergy+ therapy. Noisy condition were created, such as by reading aloud, so that we could include stress factors, causing stray readings, and could average out their effect on the HRV (Fig. 4). This resulted in a two-fold calibration of the test model.

Series examinations in the surgery followed, lying down at rest using Airnergy+, and always following the same sequence after a rest period of 15 minutes:

1. 10 min HRV-online measurements at rest with parallel ECG and SpO_2 check, blood pressure and pulse rate measurement.
2. 20 min respiration with Airnergy+ at 100%, also at rest.
3. 10 min HRV-online measurements at rest with parallel ECG and SpO_2 check, blood pressure and pulse rate measurement.

The obtained values were loaded into a statistical evaluation program and analysed. To obtain a numeric basis, we recorded online the heart beat rates and their variability, We then calculated the spread width of the heart beat rate variability and again determined the heart beat rates which we then correlated and related to each individual so as to obtain a relative, comparable value, which also took into account rest periods during the test and application. Absolute figures would not have helped much since we had to include the reaction of the appropriate test person and had to show this as a percentage. Thereby we were able to compare the

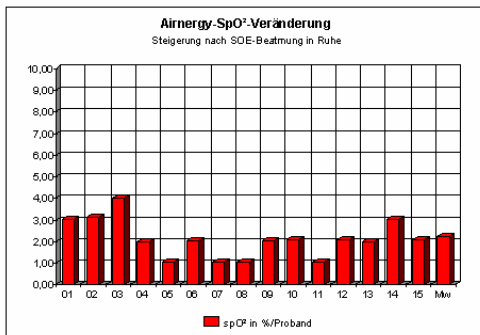
Airnergy – HRV change
Increase after SOE respiration at rest



HRV in % / test person

Fig.5: The bar chart above depicts the percentage improvement of the basal metabolic rate for the 15 test persons (01- 15). It shows individual improvements when referred to the original values and this is thereby an effective projection. The bar marked Mw is the derived mean value. The bar marked K-M is the mean value of the rest control measurements and we know from other measurements, that the value is normally around 11%.

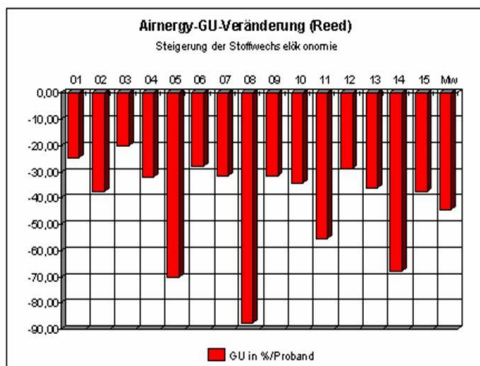
Airnergy SpO² - change
Increase after SOE respiration at rest



SpO² in % / test person

Fig.6: The bar chart above depicts the percentage improvement in oxygen saturation for the 15 test persons (01- 15), showing individual improvements referred to the original values and this is thereby an effective projection. The bar marked Mw is the derived mean value. As expected, changes here were minimal.

Airnergy – BMR change (Read)
Increase in metabolic economy



BMR in % / test person

Fig.7: The bar chart above depicts the percentage improvement in the basal metabolic rate for the 15 test persons (01- 15), showing individual improvements referred to the original values and this is thereby an effective projection. The bar marked Mw is the derived mean value. The partially large reduction in the BMR

values for all test persons is remarkable and indicates a significant improvement in the metabolic economy.

figures for each test person with all others in relation to a relative base.

It allowed us numeric and individual standardisation of the HRV values

We tested 15 persons. For us the results were very surprising (Fig.5)

We had expected improvements of around 20% or 25%, but the statistical analysis gave us figures with an average of 44%. Even if we ignore the normal rest developments in the HRV (on average 11%) then HRV improvements still amounted to more than 34% after Airnergy+ respiration of only 20 minutes. This is highly significant, since, without doubt, it shows that an immediate reaction of the autonomous nervous system has taken place, leading to optimisation and a clear efficiency increase by increasing the control- and spread width of HRV reactions.

As expected, SpO² values changed very little (Fig. 6). Likewise, the BMR – Read values were improved by a significant reduction in the basal metabolic rate (Fig. 7). This speaks clearly for an optimisation in the metabolic processes which can now function more efficiently without stressfully increased rates. It may not be necessary to point out, that a lower BMR reduces cell damage, wear and the aging of tissues.

The result can be summarised as follows:

The study with 15 test persons showed - especially when compared with the control examination - a significant effect of the Airnergy+ application on the autonomous nervous system. The HRV was improved in all cases and on average amounted to about 34% after allowing for the rest values.

Airnergy+ leads objectively to an improved organic energy balance which is also clearly shown by the optimisation of the autonomous control capabilities.

quasi-physiological activation of the air we breathe in an immediate energy rise in the air-depending tissues. This leads to improved reactions and optimisation of the neurological control of all inner organs and this is consistent with a more stable and reactive basic health. Resources are saved, performance reserves are greater, the performance capacity is increased and the aging process of tissues is reduced. This will lead to stabilisation and functional improvement of all organs and organic systems. The healing prognosis shows a lasting improvement and in many cases is able to progress more correctly since, obviously, it is now controlled in an optimum fashion.

4. Results after a series of respirations.

Since we were able to prove immediate benefits, we intended also to show the absolute effect after a series of respirations. For that purpose the 5 test person that had been selected for the initial series of tests were subjected for a further 9 respiration sequences of equal duration and intensity and also at rest. The interval here was 2 respirations per week. Such a selection had no therapeutical basis but was necessary simply for organisational reasons. After completion of the packet of 10 treatments the test persons were asked to present themselves 3 days later and were then subjected to the measurement at rest as described earlier under 3.). However, only the HRV values were recorded, since the BMR values could cast doubts on their validity because it must be assumed, that the daily routines are different.

The HRV values, strictly related to the initial rest-values, also showed in the subsequent investigations remarkable improvements, when compared with their initial levels. On average an improved HRV spread of 19% could be found (compared to the original value basis). Even when

The Airnergy+ treatment obviously acts through a

subtracting the at rest values of 11%, we still retain an objective 8% improvement. The test persons felt better in their general health (5), felt mentally clearer (3) and physically more efficient (4).

5. Discussions

The studies conducted by our institute showed in both parts (immediately and series) significant results. On the basis of the arrangement of the studies we are able to disclose objectively initial results. The effect of the respiration chain, metabolism and the autonomous nervous system can be presented objectively and regularly, this satisfies the purposes of these investigations.

It would be desirable now to obtain also a detailed analysis, which includes placebo variants and a genuine component of 30 long-term respirations. We tend here towards a randomised double-blind study with 10 test persons whereby the placebo and the true Airnergy+ groups would each consist of 5 test persons.

We also intend to include patients suffering from burnout syndromes. Such an extension would be meaningful, since basic and objective values from a healthy group are now available.

Finally, we are of the opinion that a series of 10 respirations is insufficient for stabilisation purposes, a fact which should be quite plausible. Our recommendation would be 30 respirations across 10 weeks at 3 per week.

6. Conclusions

Treatment with Airnergy+ obviously and significantly achieves immediately an improved reaction to the metabolic sequence and, simultaneously an optimisation of the neurological control of all inner organs. Logically, this leads to a more stable basic health with increased reactivity.

Organic assets are being spared, reserves of power are increased and the process of tissue ageing is slowed down. In the end this leads to a stabilisation and improvement of all organs and organic systems that are involved.

We recommend basically, that Airnergy+ should become the basis of treatments for all illnesses, or at least of those that relate to deficiencies in the immune- or metabolic systems. In addition, we believe that this form of treatment is a serious preventative measure that should be used by all at least as a form of health cures.

Address of the author:

Knop-Institute für
medizin. Bionik
Doz. Dr. h.c.
Ulrich Knop, Ph.D
Mainzer Str. 6
D-55578 Wolfsheim
office@medizin-bionik.de