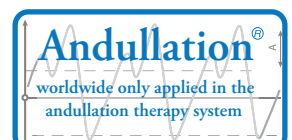




> Research Andullation Therapy
Influence on Seasickness

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The Influence of Andullation on Travel- and Seasickness

> Description of the Problem

Sea sickness and travel sickness (kinetosis) refers to all the reactions of the human organism to unusual movements and accelerations, such as for example on ships. Sea or travel sickness can affect anyone. In approximately 90% of cases these symptoms disappears after two or three days. Frequently, simply tips can help to prevent kinetosis. The use of medications for the prevention of kinetosis is controversial, partly because of their sometimes inherent side effects.

Sea and travel sickness affects thousands of people and tourists, and therefore have already been extensively investigated. The precise mechanism in which they take effect is still unknown. The phenomenon probably has something to do with (1) conflicting information which is transferred from the eyes and the organs of balance to the brain, (2) the manner in which the brain interprets this information, (3) an increased sensitivity of the organs of balance, (4) unfavourable phenomena such as anxiety, contents of the stomach, consumption of alcohol, smoking, lack of sleep, physical symptoms (heat, cold, flu, menstruation).

In order to investigate the physiological processes connected with sea and travel sickness, the Hershey Medi-cal Center in Pennsylvania, USA, possesses simulators which can cause sea sickness. The research workers also evaluate whether the unpleasant symptoms of sea sickness can also be reduced using acupuncture or acupressure methods.

> Investigation into the Effect of Mechanical Vibrations

The pharmaceutical industry makes very great efforts in order to obtain the travel sickness market by means of different medications. However, as time goes by, there is an increasing wish and requirement to attack the symptoms and complaints arising from sea and travel sickness preferably by means of a targeted preparative therapy.

These treatments include methods which stimulate the body's sensory system in a specific manner. In fact, pain, pressure and position sensors in the skin are desensitized through short-term stimulation. Intensive investigation provide the efficiency of vibrations to effect these sensors. These high-frequency vibrations can be applied to the whole of the human body, either in a standing or a lying position. At frequencies of more than 25 hertz the body's own sensors are overloaded with an immense stimulation density through which they are desensitized and through which a direct resistance is generated against other things such as pain.

Some experiments, carried out on male volunteers showed that a preceding andullation -therapy was able to strongly suppress the symptoms and complaints from sea and travel sickness by generating a resistance against the still unknown mechanisms which cause kinetosis. There was therefore an urgent requirement to carry out a thorough evaluation of these effects.

> Methodology for the present study

86 healthy male students acted as test volunteers for this study. They were divided at random into 3 groups. Group 1 was the control group. These test persons were not subjected to any mechanical body vibrations and were therefore not desensitized. Group 2 was desensitized every day for 15 minutes in a standing position for a period of ten days, using the heavy Human Mobility apparatus. Group 3 underwent a 15-minute andullation therapy per day for a period of 10 days in a lying position on the hhp medical massage mattress. All the test persons were both at the beginning at the end of this 10-day test period placed in a simulator room/drum in order to create the symptoms of sea sickness. Each individual completed an evaluation form before and after the 10- day test period.

The evaluation of the data was carried out using a visual analogue scale, which converted the subjective reactions of fatigue, weakness, sickness, dizziness and nausea into a number between 0 (entirely well) to 10 (very bad). Physiological parameters, such as heartbeat, blood pressure, coordination ability and skin temperature were measured by a medical assistant and checked by a doctor.

All the results after the 10-days desensitization phase were stored in a database by an independent person, who did not know about the results at the beginning of the test. The statistical direct interference comparison of the three groups was carried out using a variance analysis for the different values which were calculated before and after the test.

> Results

The control group (Group 1) who did not undergo any desensitization during the 10 days showed high values for average heartbeat and blood pressure when the symptoms of sea sickness were generated. On the other hand, the physiological parameters for the groups 2 and 3, which were both treated with vibrating massage, showed strong improvements. The marked increase in heartbeat and blood pressure which occurred during the inducement of sea sickness were visibly less pronounced. The average heartbeat went down to 19.3 and 18.7 beats per minute respectively for group 2 and group 3 (Fig. 1.). The same applied to the increase in blood pressure (Fig. 2.) which, after desensitization went down by 42.7% and 39.8%. whereas in the case of the control group, no difference arose in coordination ability, both the other desensitized groups did in fact show quite clear improvements of 24.7% and 23.8% respectively for groups 2 and 3. The results for the subjective impressions, such as fatigue, weakness, sickness, dizziness and nausea were also significantly less pronounced in the groups who had been treated with vibration. The andulation therapy with infrared waves in combination with the mechanical vibrations in a lying position (group 3) is more effective than vibration massage in a standing position (Fig. 4).

Figure 1: Illustration of the changes in average heartbeat after a 10-day desensitization phase with vibration massage.

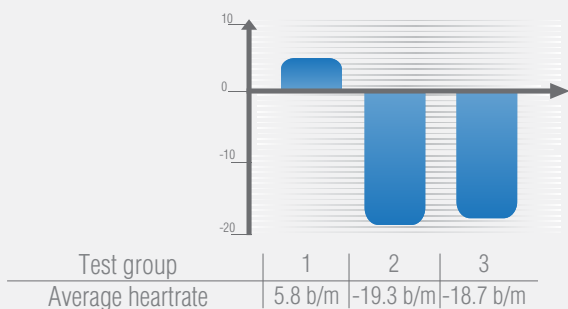


Figure 2: Illustration of changes in average blood pressure values after a 10-day desensitization phase with vibration massage.

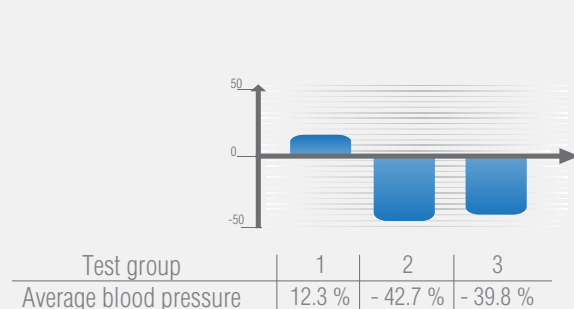


Figure 3: Illustration of changes of values achieved for the coordination test after a 10-day desensitization phase with vibration.

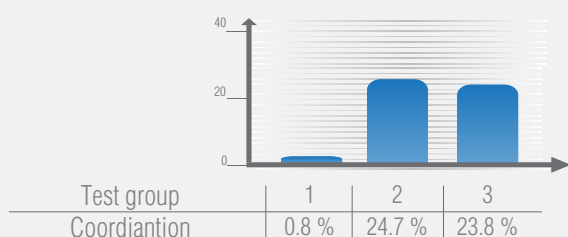
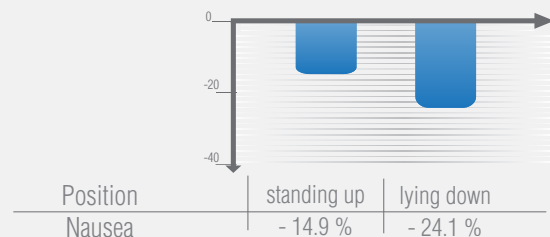


Figure 4: Reduction of nausea after different vibration treatments.

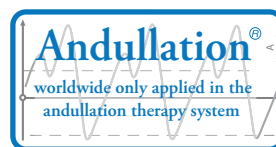


> Summary and Conclusions

A preventive treatment for sea sickness via desensitization with vibration massage (group 2 and 3) has a very positive influence on heartbeat, blood pressure and coordination ability. Both in a lying and in standing position, both massage methods show the same particularly favourable influence on these tested physiological parameters. In order to desensitize oneself against the symptoms of kinetosis, a preventive application of these treatment methods is significant. Andullation therapy is indeed more useful in preventing sickness.

These results support a direct application of the hhp medical massage mattress for the prevention of sea sickness. Since travel sickness has the same underlying mechanisms and the same complaints, it follows logically that andullation therapy can produce the same results.

The foldable hhp medical massage mattress also offers many more practical advantages than the heavy Human Mobility apparatus since its size is less suitable for the home or on board a boat.



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