Alpiner Klimawandel und Auswirkungen auf die Gesundheit: Potentielle Benefits oder Risiken?

Alpine Climate Changes and Effects on Health: Potential Benefits or Risks?

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Climate change as chance for the alpine health tourism?

Possibly YES,

- a) lower temperatures in the Alps
- b) benefits of the Alpine climate for patients/guests with allergic/asthmatic diseases





Climatic change and its impact on health tourism?!

- Increase in morbidity/mortality due to extreme summer heat
- Health tourism focusing on exercise programs (hiking, biking etc.) will be questionable during summer time at low altitudes
- Relaxation at the poolside/seaside/lakes cover the risk of heat related problems mainly in persons with worsened thermoregulatory adaptation (children, older generation)
- Lower temperatures in summer in the Alps
 - Medical and commercial argument for Alpine health promotion
 - Better recreational sleep during night time
 - Hiking, biking, nordic walking: more health benefits in a balanced climate





Climate Change – Effects on Health Tourism

Summer Vacation in the Alps

Lower Temperatures = Health Argue = Marketing Benefit = Brand Development



Alpine Climate and Allergic/Atopic Diseases

- Climate Chance induces a rapid increase in allergic/atopic patients!
- Austria 2007: **11%** of the ground surface is covered with allergy-inducing plants
- Austria 2100: up to 80% could be covered

Ambrosia artemisiifolia



Calculated Number of possible Alpine Tourists:



of all Europeans

More than 100 Million persons



Alpine Climate (Moderate Altitude; 1500 m – 2500 m)

- Reduction of ambient oxygen partial pressure
- Reduction of ambient humidity (1/3 in 1.500 m as compared to sea level)
- Reduction of air pollution
- Lower average annual temperatures
- Higher UV-exposure
- Reduction of several allergens



MOST FREQUENT CAUSES OF ALLERGIES



Alpine climate is beneficial for guests with atopic/allergic diseases

 Pronounced reduction of allergens (gras/tree pollens, mite allergens, mildews) and air pollution at alpine altitudes above 1.500 m









BIRCH POLLEN ALDER POLLEN





GRASS POLLEN





HOUSE DUST MITES: > 1.500 m dramatic reduction in occurence, since they have difficulties to reproduce





Mildew allergens and Alps



> 1.500 m only 1/5 as compared to sea level







Mildew-Exposure at two different altitudes in Tyrol 600 m vs. 1500 m



Messung der Lebendkeimzahl. Die Untersuchung erfolgte in zwei aufeinanderfolgenden Jahren jeweils Ende Juni Anfang Juli.



Alpine Climate and Benefits for Patients with Allergic Diseases







Drzimalla und Borelli, JB 2000 ÖGAHM



Anzahl der Krankheitsschübe nach der HGKT Neurodermitis Beobachtungszeitraum: 01/95-06/97 Prozent 70,0 60,0 50,0 40,0 30,0 20,0 10,0 0,0 OI 1 012 013 n = 2737 n = 2674n = 2105 unverändert weniger mehr

Drzimalla und Borelli, JB 2000 ÖGAHM



Asthma and Alpine Climate Piacentini et al., Clin. Exp. Allerg. 28: 561 (1998)

3 months sojourn of children (8-13 yrs.) with allergic asthma (house dust mites) at 1756 m improved asthma symptoms and bronchial hyperreactivity significantly.





Asthma and Alpine Climate

Grootendorst et al., Clin Exp. Allerg. 31: 400 (2001)

Design: 10 weeks sojourn at 1560 m (Davos, Swiss Alps) of adolescent persons suffering from severe allergic asthma (despite high dosage of corticosteroids); comparison with a control group remaining at low altitude

<u>Results:</u>

Improvements of lung function, lung hyperreactivity, lung inflammation and inflammatory markers in the moderate altitude group.

Improvement in quality of live questionnaires mainly in the moderate altitude group.

Conclusions:

A several weeks lasting exposure to moderate altitude improves chronic asthma in young people under maximum pharmacological therapy



Asthma and Alpine Climate

Huss-Marp et al., J. Allerg. Clin. Immunol. 120; 471 (2007)

Design: 311 young asthmatic patients (mean 10 yrs) were staying 4-6 weeks at 1200 m (Bayuvarian Alps)

- **Results**: Exhaled nitric oxides as marker for bronchial inflammation was significantly reduced in all children (allergic and non-allergic asthma)
- **Conclusions**: Alpine climate has beneficial effects on the pulmonary system in asthma patients independent of allergen exposure.



Allergy and Asthma in Modern Society: A Scientific Approach

Should Asthma Management Include Sojourns at High Altitude?

Schultze-Werninghaus G

Crameri R (ed): Allergy and Asthma in Modern Society: A Scientific Approach. Chem Immunol Allergy. Basel, Karger, 2006, vol 91, pp 16-29 (DOI: 10.1159/000090227)

Article (PDF 109 KB) Free Preview Medline Abstract (ID 16354946)

Abstract:

Sojourns in the high mountains have been recommended by specialists for patients with asthma since many decades. An inquiry among physicians of the 'Davoser Ärzteverein' revealed as early as 1906 that 133/143 patients with bronchial asthma had no or only few asthma attacks during their stay in Davos, and that 81% had a persistent improvement of their disease. These early observations about effects of the alpine climate were, of course, reported at a time, when the spectrum of pharmacotherapy was very limited. However, these observations were consistent and were therefore regarded as proof for the therapeutic value of sojourns under alpine conditions in bronchial asthma. In recent years, however, the indication for asthma treatment in high mountains is increasingly questioned, in particular by health insurance systems. Therefore it is the aim of this contribution to summarize the available data about the effects of a stay of asthmatic patients at 1,500-1,800m above sea level. It is concluded that the available evidence suggests a significant beneficial effect of high altitude in bronchial asthma, in particular in steroid-dependent patients.



Komplexe Hochgebirgs-Klima-Therapie für Kinder und Jugendliche mit Neurodermitis constitutionalis atopica

H. Gühring

Klinik für Dermatologie und Allergie Davos-Alexanderhausklinik - Davos/Schweiz (Ärztlicher Direktor: Prof. Dr. med. Dr. phil. S. Borelli)

Kurzfassung

Die Neurodermitis constitutionalis atopica ist eine multifaktoriell bedingte Krankheit mit sehr breit gefächerten ätiopathogenetischen Faktoren. Eine Standard-Therapie gibt es folglich nicht. Bei Kindern und Jugendlichen hat sich uns ein im wesentlichen auf 5 Säulen ruhendes Behandlungskonzept bewährt. Grundlegend ist die dermatologisch-allergologische. Basisbehandlung. Daneben sind aber Hochgebirgsklima und Physiotherapie sowie kindergärnerische und schulische Mitbetreuung als wesentliche Behandlungsfaktoren integriert. Diese komplexe Therapie ist Voraussetzung für ein optimales Behandlungsergebnis bei Kindern und Jugendlichen.

Neurodermitis constitutionalis atopica. Externe-, Hochgebirgsklima- und Psycho-Therapie.

Integrated High Mountain Climate Treatment for Children and Adolescents with Atopic Dermatitis

Neurodermitis constitutionalis atopica is a multifactor conditioned disease with a very wide range of actiopathogenetic factors. A standard therapy does not exist. For children and young adults we have come to terms with a treatment concept, that consists in essence of 5 elements. Our basis is the dermatological and allergical treatment plan. We added and integrated factors of high mountain climate, psychotherapy as well as teaching- and children-garden-activities. This complex therapy is condition for optimal results in treating children and young adults.

Neurodermitis constitutionalis atopica, external-, high montain climate- and psychotherapy.



Positive effects of alpine climate on allergic patients: Summary

- Reduction of asthma symptoms within a few hours and maintenance for weeks/months
- Improvement of individuals wellbeing
- Improvement of lung function, reduction of bronchial inflammation and inflammatory markers
- Reduction of anti-allergic therapy (e.g. cortisone)
- Hiking in the Alps: Positive feedback on wellbeing and self confidence
- Improvement of some allergic/atopik skin diseases



Development Potential of Health Tourism until 2020

	Changes 2007/2020
Health Care Vacation	+48%
Anti Aging Vacation	+72%
Medical Wellnes Vacation	+111%
Passive Wellness Vacation	+84%
Beauty Vacation	+88%
TOTAL	+82%

Health awareness will increase, also due to the demographic development

- Aging population grows
- 20-49 year old will decrease at about 15% (5,2 Mio)
- "Young Old" will increase: 50-59 year old + 25% (2,7 Mio)

Source: Tirol Werbung, 2010



Approach to an evidence-based health tourism: Link between research and economy

- To structure the scientific facts in a transparent manner for the public
- To offer the results/experiences to medical doctors/medical stuff in order to advice their patients/clients
- To offer the results/experiences for the benefit of health care providers

• We need brands® based on research!!



Alpine health tourism for customers with allergic diseases?



- Yes, but we need a brand
- Yes, but we need alpine regions which are motivated and convinced to develop such a brand
- Yes, but we need qualified stuff (coaches, physicians, chefs etc.)
- Yes, but we need an excellent marketing strategy
- Yes, but we need a program based on research
- Yes,



Gesunde Reize Höhenluft und Höhensonne



Entfernt vom eiteln Tand der mühsamen Geschäfte, Wohnt hier die Seelenruh, und flieht der Städte Rauch.

Albrecht von Haller: *Die Alpen* (17. Strophe) Vignette von David Herrliberger aus der Ausgabe von 1773



Thank you



