VENT'ANNI DI FORESTOTERAPIA NELLE ALPI CARNICHE E GIULIE

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Cos’è la Forestoterapia

- E’ il miglioramento delle condizioni delle persone quando stanno in un ambiente senza inquinanti e pieno di vegetazione

- I principali studi sono stati eseguiti in Giappone

Cosa dicono gli studi medici

- Dimostrato un beneficio a livello psicologico, psichiatrico, sulla pressione, diabete, tumori

- Pochi studi sulle patologie allergiche e respiratorie

I benefici delle sostanze aromatiche

- **Terpeni:** prodotti soprattutto da conifere, sono i componenti principali delle resine e degli oli essenziali che conferiscono a ogni fiore o pianta un caratteristico odore o aroma

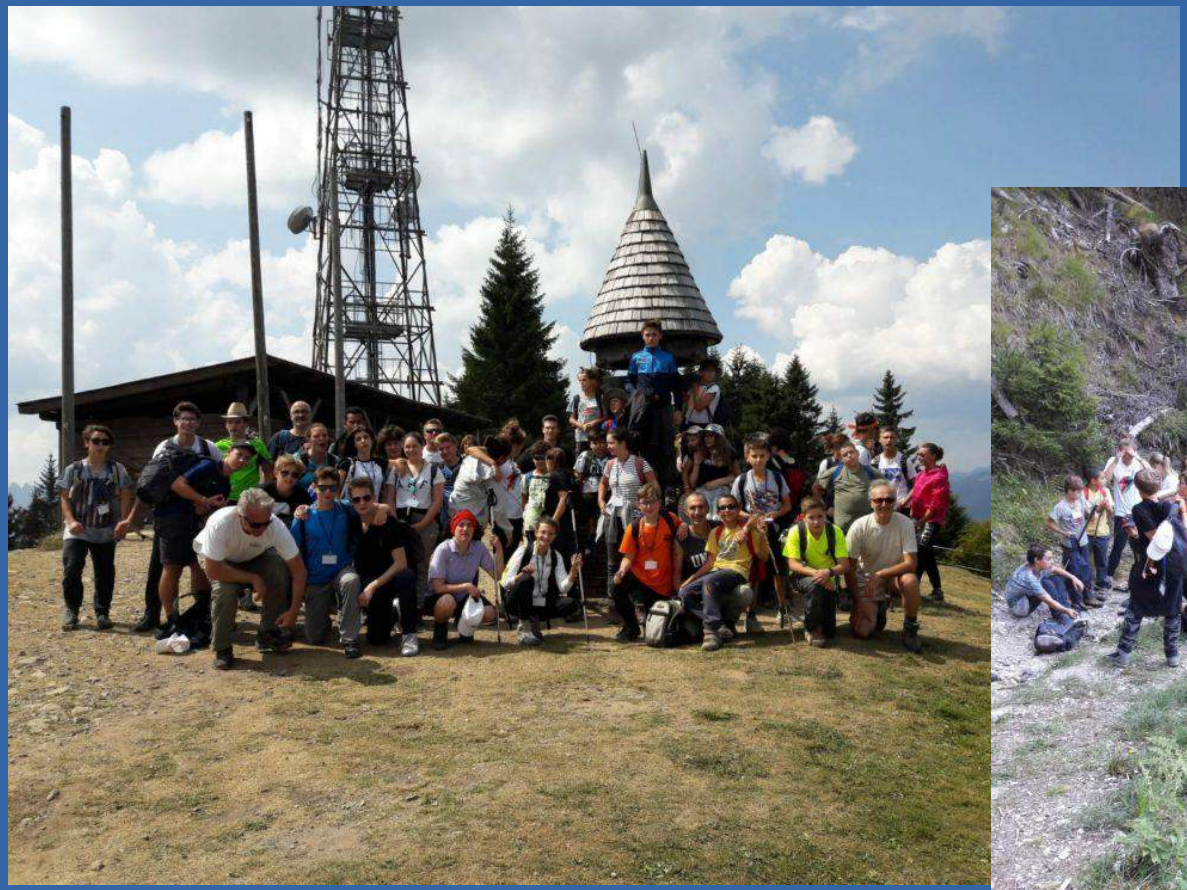
- **Derivati del tannino**

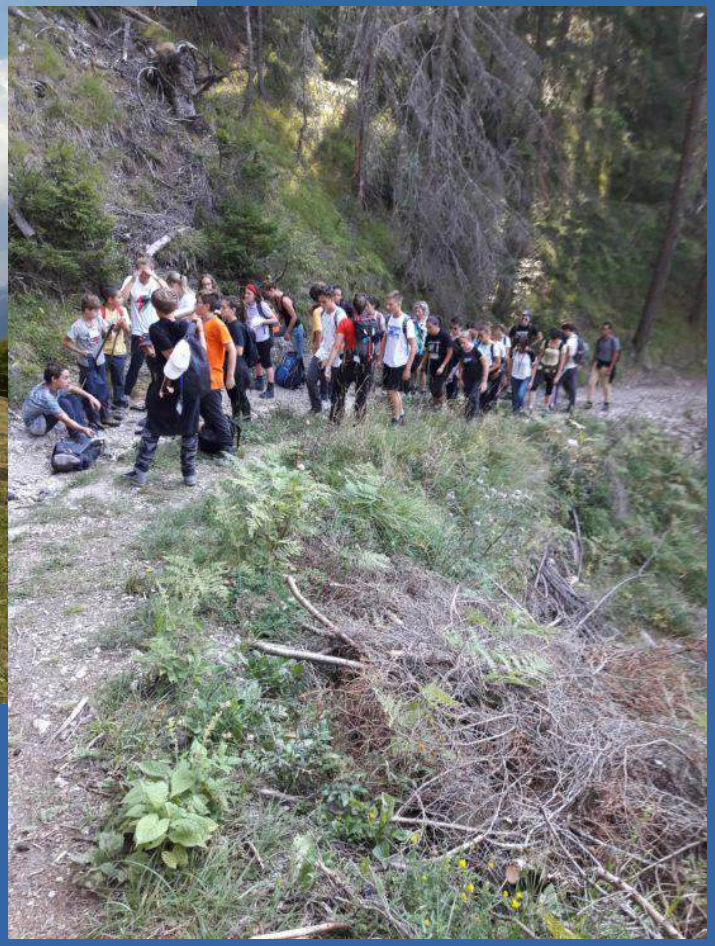
LE PREMESSE

- Dal 2002 al 2011 a Sauris
- Dal 2012 a tuttora a Fusine

Sauris/Zahre

Fusine/Bela Peč/Weissenfels





Forestoterapia nelle Valli del Natisone/Nediške Doline

La rilevazione delle essenze arboree

Visite mediche

Visite mediche

Controllo di peso e altezza

Visite mediche

Il controllo della temperatura del respiro

Visite mediche

Il controllo dell'ossido nitrico esalato

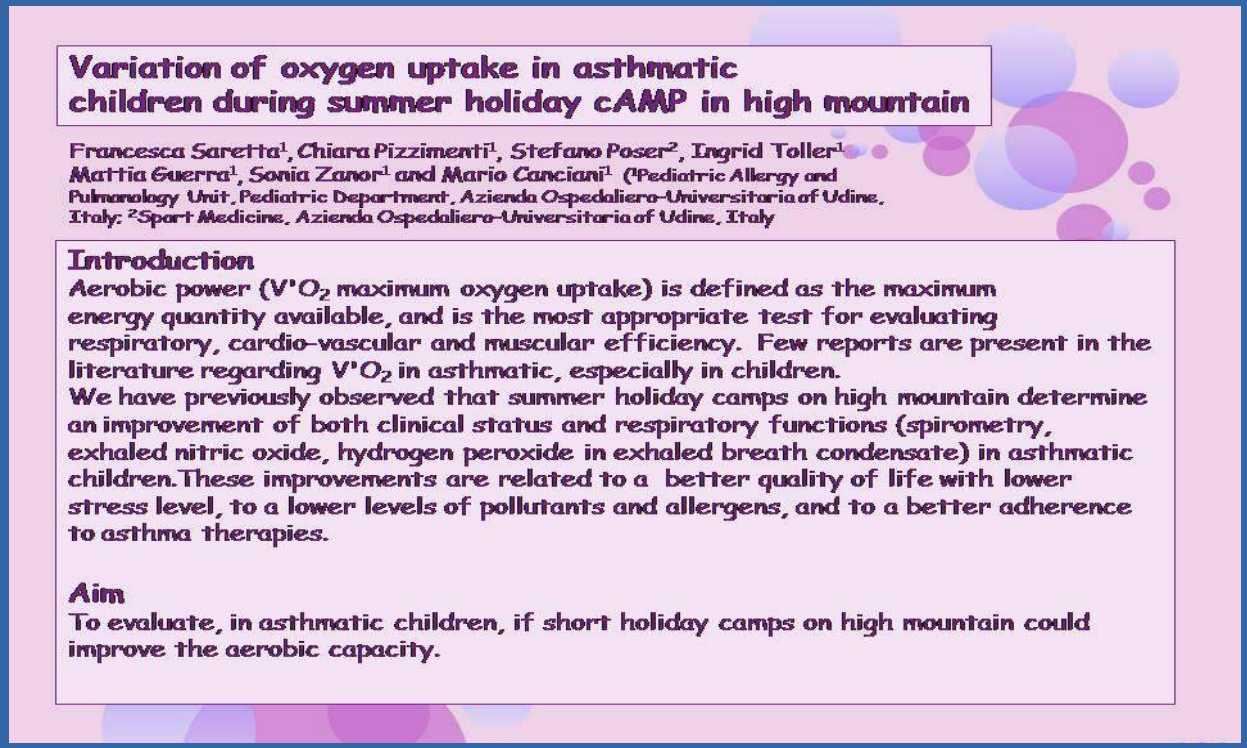
Visite mediche

Spirometria con incentivatore per bambini

Visite mediche

Misurazione dei rumori respiratori con wheezometer

Le pubblicazioni internazionali



Variation of oxygen uptake in asthmatic children during summer holiday cAMP in high mountain

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Introduction

Aerobic power ($V'O_2$ maximum oxygen uptake) is defined as the maximum energy quantity available, and is the most appropriate test for evaluating respiratory, cardio-vascular and muscular efficiency. Few reports are present in the literature regarding $V'O_2$ in asthmatic, especially in children.

We have previously observed that summer holiday camps on high mountain determine an improvement of both clinical status and respiratory functions (spirometry, exhaled nitric oxide, hydrogen peroxide in exhaled breath condensate) in asthmatic children.These improvements are related to a better quality of life with lower stress level, to a lower levels of pollutants and allergens, and to a better adherence to asthma therapies.

Aim

To evaluate, in asthmatic children, if short holiday camps on high mountain could improve the aerobic capacity.

Le pubblicazioni internazionali

Comparison between hydrogen peroxide and spirometry in airways inflammation of asthmatic children

Presenting author : Francesca SARETTA

Authors : F. Saretta (Udine, Italy) , M. Mauro (Udine, Italy), A. Gimmillaro (Udine, Italy), M. Corradi (Parma, Italy), M. Canciani (Udine, Italy)

We tried to compare two different methods of airways evaluation, Hydrogen Peroxide concentration in exhaled breath condensate and simple spirometry. We performed these two exams in a paediatric asthmatic population at the beginning and at the end of a one week vacation on high mountain.

Background

Analysis of hydrogen peroxide (H_2O_2) in exhaled breath condensate (EBC) it's a new tool which could be used to assess inflammation and oxidative stress in the airways. Simple spirometry remains the most available and easy method to evaluate respiratory function.

Aim

We tried to compare H_2O_2 and spirometry in stable asthmatic children during a summer holiday camp on high mountain, at the beginning and end of 1 week vacation.

Methods

19 allergic children (mean age 11.9 yrs, 4 F and 15 M), with stable asthma (GINA 1-3) were evaluated. 2 were taking inhaled steroids (all GINA 2/3) and 7 montelukast. During holiday 3 children had very mild exacerbation of asthma (only 1 needed steroids). EBC was collected using a new portable TURBO-DECCS condenser; samples were stored at -70 C up to 8 weeks and analyzed with fluorimetric

Nasal Nitric Oxide and nasal smear in atopic children

Superiority of hydrogen peroxide to exhaled nitric oxide as a marker of bronchial inflammation in asthmatic children

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We tried to compare two different markers of airways inflammation, Hydrongen peroxide concentration in exhaled breath condensate and exhaled nitric oxide. We measured these two markers in a paediatric asthmatic population at the beginning and at the end of a one week vacation on high mountain.

Background

Exhaled breath condensate (EBC) it's a novel method used to assess lung inflammation and, through analysis of hydrogen peroxide (H_2O_2), to evaluate oxidative stress in the airways. Exhaled nitric oxide (eNO) is a non invasive marker of bronchial flogosis, too.

Aim

We tried to compare H_2O_2 and eNO variations in stable asthmatic children during a summer holiday camp on high mountain, at the beginning and the end of 7 days vacation.

Le pubblicazioni internazionali

Nitric oxide and holiday camps on high altitude.

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AIMS: Several studies have demonstrated the relationship between climate and allergy. It is now established that high altitude decreases numbers of mites for indoor humidity and improves the clinical course of allergic disease.

METHODS: 30 school-age children (21 males, 9 female, mean age 10 years) with allergic symptoms (asthma and rhinitis) were evaluated before and after one week of mountain holiday (1400 mt above s.l.) with regards on their clinical course (frequency of asthma/rhinitis attack), drugs therapy, spirometric and nitric oxide (NO) functions.

RESULTS: Only 5 children (16.6%) presented asthma attacks (mean 1.6 attacks) during vacation whereas all other children were free of asthma and rhinitic attacks. All spirometric values resulted increased at the end of holiday, with **FEV_1** from 101.5% to 102.4% (p=0.758 ns), **FVC** from 101% to 104.5% (p=0.275 ns), **FEF_{25-75}** from 99.3% to 96.6% (p=0.405 ns).

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EFFECTS OF A 1-WEEK STAY IN THE MOUNTAINS ON 20-M SHUTTLE RUN TEST PERFORMANCE IN CHILDREN WITH ASTHMA

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The effect of asthma on cardiorespiratory endurance (CRE) in children

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Background

A beneficial effect of climate therapy at moderate and high altitudes on asthma symptoms has been suggested[1,2]. The impact of asthma on aerobic fitness in children is controversial as some studies showed a negative influence[3], whereas others did not[4]. In this study we investigated the effect of a one week stay at moderate altitude (900 m) in the Alps on exercise induced bronchoconstriction (EIB) and cardiorespiratory endurance (CRE) in a group of asthmatic children participating to a summer asthma camp.

Methods

Asthmatic children from an urban area (Udine, north-east of Italy) performed spirometry (Spirolab, MIR, IT) before and 10 minutes after a 20-m shuttle run test (20mSRT) on the 1st and 7th day of the asthma camp. The 20mSRT is a field test widely used to measure aerobic fitness by predicting maximum oxygen uptake (VO2max) and performance. The child runs between two lines set 20 m apart at a

Sex	Age in years	Exercise induced FEV1 decrease % day 1	20mSRT result quartile day 1	Exercise induced FEV1 decrease % day 7	20mSRT result quartile day 7
M	12,5	8	5° - 25°	1	50° - 75°
F	11,3	**28**	5° - 25°	**11**	25° - 50°
M	13,5	3	25° - 50°	2	75° - 95°
M	8,8	**12**	<5°	**20**	50° - 75°
M	12,3	**34**	5° - 25°	**10**	50° - 75°
M	13,5	2	5° - 25°	-7	5° - 25°
M	11,6	3	75° - 95°	-2	25° - 50°
M	16,3	**11**	5° - 25°	-1	5° - 25°
M	12,8	9	50° - 75°	-1	75° - 95°
F	12,0	**13**	5° - 25°	0	5° - 25°
F	11,3	**29**	5° - 25°	**17**	25° - 50°
M	8,8	6	25° - 50°	-2	25° - 50°
M	7,4	**10**	50° - 75°	4	75° - 95°
F	8,1	**12**	<5°	**32**	5° - 25°
F	12,3	-5	5° - 25°	4	75° - 95°
F	14,5	3	75° - 95°	1	75° - 95°
M	9,0	**46**	5° - 25°	**37**	25° - 50°
F	11,1	**18**	50° - 75°	**35**	50° - 75°
M	12,4	**34**	50° - 75°	0	75° - 95°

L'effetto dell'asma sulla resistenza cardiorespiratoria nel bambino

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XXI Congresso Nazionale SIMRI
Napoli, 12-14 Ottobre 2017

UNIVERSITÀ DEGLI STUDI DI UDINE

Introduzione

Dati recenti hanno dimostrato l'effetto benefico della terapia climatica a moderata ed elevata altitudine sui sintomi dell'asma.[1,2] L'impatto dell'asma sulla resistenza aerobica nei bambini appare controverso in quanto mentre alcuni studi evidenziano un'influenza negativa[3] in altri questo legame viene negato.[4] Nel seguente lavoro abbiamo indagato l'effetto della permanenza di una settimana ad altitudine moderata (900 m) sulle Alpi, sulla broncocostrizione indotta dall'esercizio (BIE) e sulla resistenza cardiorespiratoria (RCR), in un gruppo di bambini partecipanti ad un campus per asmatici.

Metodi

Un gruppo di bambini asmatici proveniente da un'area urbana (Udine) ha eseguito spirometrie (Spirolab, MIR, IT) prima e 10 minuti dopo il 20-m shuttle run test (20mSRT) al 1° e 7° giorno di soggiorno. Il 20mSRT è un test sul campo ampiamente utilizzato per misurare la fitness aerobica. Il bambino corre tra due punti fissi distanti 20 metri ad una velocità stabilita da un segnale preregistrato, ad

Sesso	Età in anni	Riduzione % del FEV1 indotta da esercizio giorno 1	20mSRT quartili al giorno 1	Riduzione % del FEV1 indotta da esercizio giorno 7	20mSRT quartili al giorno 7
M	12,5	8	5° - 25°	1	50° - 75°
F	11,3	**28**	5° - 25°	**11**	25° - 50°
M	13,5	3	25° - 50°	2	75° - 95°
M	8,8	**12**	<5°	**20**	50° - 75°
M	12,3	**34**	5° - 25°	**10**	50° - 75°
M	13,5	2	5° - 25°	-7	5° - 25°
M	11,6	3	75° - 95°	-2	25° - 50°
M	16,3	**11**	5° - 25°	-1	5° - 25°
M	12,8	9	50° - 75°	-1	75° - 95°
F	12,0	**13**	5° - 25°	0	5° - 25°
F	11,3	**29**	5° - 25°	**17**	25° - 50°
M	8,8	6	25° - 50°	-2	25° - 50°
M	7,4	**10**	50° - 75°	4	75° - 95°
F	8,1	**12**	<5°	**32**	5° - 25°
F	12,3	-5	5° - 25°	4	75° - 95°
F	14,5	3	75° - 95°	1	75° - 95°
M	9,0	**46**	5° - 25°	**37**	25° - 50°
F	11,1	**18**	50° - 75°	**35**	50° - 75°
M	12,4	**34**	50° - 75°	0	75° - 95°

Progetto ALPI-Fusine sulla rivista internazionale Atmosphere

Progetto ALPI-Fusine sulla rivista internazionale Atmosphere

atmosphere

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Research Article

The effects of climate therapy on cardiorespiratory fitness and exercise-induced bronchoconstriction in children with asthma

Carlo De Pieri[1]*, Michele Arigliani[1], Maria Pia Francescato[2], Maurizio Droli[3], Michael Vidoni[1], Ilaria Liguoro[1], Maria Elena Ferrari[1], Paola Cogo[1], Mario Canciano Canciani[1]

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Abstract: We investigated whether a 1-week stay in the mountains may have a positive impact on Exercise Induced Bronchoconstriction (EIB) and cardiorespiratory endurance in asthmatic children from an urban area. Spirometry was performed before and 10 minutes after a 20-meters shuttle run test (20mSRT) on the first and seventh day of a summer asthma camp in the Italian Alps at 900 m of altitude. Spirometry z-scores were derived from the Global Lung Initiative 2012 prediction equations, and percentiles of the 20mSRT performance were assigned according to De Miguel-Etayo's and Tomkinson's predictive equations. A FEV_1 decrease ≥10% after the exercise was defined as EIB. Particulate matter pollution was monitored during the camp and in the urban area of provenience. Twenty-four subjects (age range 7-16 years) were included. Frequency of EIB decreased from 58% (14/24) at day-1 to 33% (8/24) at the end of the camp ($p=0.08$). Most subjects with a 20mSRT in the lowest quartile at day 1 had EIB (9/11). The proportion of children with a 20mSRT <25° percentile decreased from 45% (11/24) at day-1 to 16% (4/24) at day-7 ($p=0.02$). CONCLUSION: One-week climate therapy in the mountains improved both bronchial hyperreactivity and cardiorespiratory endurance in our cohort of asthmatic children.

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ORIGINAL ARTICLE

Interchangeability between two breath-by-breath O_2 uptake calculation algorithms in asthmatic and healthy volunteers

Maria Pia Francescato[1] · Mario Canciani[2] · Valentina Cettolo[1]

Received: 19 November 2019 / Accepted: 9 April 2020

Abstract

Introduction The interchangeability analysis has been recently proposed to objectively assess whether a newly developed measurement tool can substitute the older ones; this analysis assumes that the measures yielded by the compared tools should differ less than a maximum acceptable value. We aimed to assess the interchangeability rate (IR) of the breath-by-breath O_2 uptake data calculated with the "Independent breath" (IND) and the "Expiration-only" (EXP) algorithms.

Methods Oxygen, carbon dioxide fractions, and ventilatory flow were recorded continuously over 26 min in 18 asthmatic and 20 well-matched healthy volunteers at rest, during cycling, and recovery; oxygen uptake ($V'O_2$) was calculated with the two algorithms under comparison. Coefficients of variation (CVs) of all the steady-state condition were modeled as a function of the average $V'O_2$ values and IR was calculated accordingly.

Results CVs were significantly greater in the asthmatic volunteers ($F = 5.97$, $p < 0.05$), being lower for IND compared to EXP ($F > 7.04$, $p < 0.02$). CVs decreased as a function of the reciprocal of the square root of the average $V'O_2$. The IR, calculated on the basis of this relationship, was not significantly different in the two groups of volunteers ($F = 0.77$, $p = 0.385$); taking as reference method the IND, or EXP algorithms, the IR values were significantly different ($F = 58.6$, $p < 0.001$), amounting to $97.4 \pm 2.2\%$ or to $98.2 \pm 1.7\%$, respectively.

Conclusion The relative noise of $V'O_2$ was greater in the asthmatic volunteers compared to the healthy ones and was lower for IND compared to EXP. The interchangeability analysis suggested that IND might be a better substitute for EXP than the opposite.

Keywords Moderate intensity exercise · Standardized residuals · Normal distribution · Probability density function

Risultati

ATTACCHI D'ASMA	**Calo del 50%**
ASMA DA SFORZO	**Calo dell'80%**
SPIROMETRIA	**MMF migliorato nel 40%, invariato nel 50%, peggiorato nel 10%**
OSSIDO NITRICO ESALATO	**Migliorato nel 40%, invariato nel 40%, peggiorato nel 20%**
TEMPERATURA RESPIRO	**Calo del 30%, invariato nel 60%, peggiorato nel 10%**

Conclusioni

- Da questa esperienza, seppur limitata a 6 giorni, c'è stato un miglioramento anche se non in tutti i parametri, com'era ragionevole aspettarsi
- E' probabile che con una permanenza più prolungata, di due settimane, si abbiano risultati più significativi.