

Available online at www.sciencedirect.com

## **ScienceDirect**

journal homepage: www.elsevier.com/locate/rmed



# Asthma prevalence in Olympic summer athletes and the general population: An analysis of three European countries



Jacob Burns <sup>a</sup>, Catherine Mason <sup>a</sup>, Natalie Mueller <sup>a,b,c,d,\*</sup>, Johan Ohlander <sup>a</sup>, Jan-Paul Zock <sup>b,c,d,e</sup>, Franchek Drobnic <sup>f</sup>, Bernd Wolfarth <sup>g</sup>, Joachim Heinrich <sup>h</sup>, Ernst Omenaas <sup>i</sup>, Trine Stensrud <sup>j</sup>, Dennis Nowak <sup>a</sup>, Katja Radon <sup>a</sup> on behalf of the GA2LEN-Olympic Study-Team<sup>b</sup> the European Community Respiratory Health Survey

<sup>a</sup> Institute and Outpatient Clinic for Occupational, Social and Environmental Medicine, University Hospital Munich (LMU), Ziemssenstrasse 1, Munich, Germany

<sup>b</sup> Centre for Research in Environmental Epidemiology (CREAL), C/ Doctor Aiguader 88, Barcelona, Spain <sup>c</sup> Universitat Pompeu Fabra (UPF), Placa de la Mercè 10-12, Barcelona, Spain

<sup>d</sup> CIBER Epidemiología y Salud Pública (CIBERESP), Melchor Fernández Almagro, 3-5, Madrid, Spain

<sup>e</sup> Netherlands Institute for Health Services Research (NIVEL), Otterstraat 118-124, Utrecht,

The Netherlands

<sup>f</sup> Medical Services FC Barcelona and Sport Physiology, GIRSANE CAR, Av. Alcalde Barnils 3-5, Sant Cugat del Vallès, Spain

<sup>g</sup> Preventive and Rehabilitative Sports Medicine, Technical University Munich (TUM), Georg-Brauchle-Ring 56-58, Munich, Germany

<sup>h</sup> Institute of Epidemiology I, Helmholtz Zentrum München, Ingolstädter Landstr. 1, Neuherberg, Germany

<sup>i</sup> Centre for Clinical Research, Haukeland University Hospital, Jonas Liesvei 65, Bergen, Norway <sup>j</sup> Norwegian School of Sport Sciences (NIH), Mailbox 4014, Ulleval Stadion, Oslo, Norway

Received 15 January 2015; accepted 3 May 2015 Available online 14 May 2015

Abbreviations: AQUA, Allergy Questionnaire for Athletes; ECRHS, European Community Respiratory Health Survey; GA<sup>2</sup>LEN, Global Allergy and Asthma European Network; WADA, World Anti-Doping Committee.

\* Corresponding author. Parc de Recerca Biomèdica de Barcelona (PRBB), Centre for Research in Environmental Epidemiology (CREAL),

C/ Doctor Aiguader 88, 08003 Barcelona, Spain. Tel.: +34 932147314. *E-mail address:* nmueller@creal.cat (N. Mueller).

KEYWORDS Athletics; Endurance; Epidemiology; Exercise; Respiratory	<ul> <li>Summary</li> <li>Background: Some studies have shown a higher prevalence of asthma in elite athletes as compared to the general population. It is inconclusive to what extent certain sport categories are especially affected. The present study offered a unique opportunity to assess these differences in asthma prevalence in the general population and elite summer athletes from a wide range of sport disciplines across various geographical areas.</li> <li>Methods: Cross-sectional data for 1568 general population participants from the European Community Respiratory Health Survey II and 546 elite athletes from the Global Allergy and Asthma European Network Olympic study from three European countries were analyzed. Using logistic regression, the asthma risks associated with athlete sport practice, endurance level and aquatic sport practice, respectively, were investigated.</li> <li>Results: Athletes in the highest endurance category had increased risk of doctor-diagnosed asthma (OR 3.5; 95% CI 1.7–7.5), asthma symptoms (OR 3.0; CI 1.5–6.0) and asthma symptoms or medication use (OR 3.5; CI 1.8–6.7) compared to the general population. Aquatic athletes were at increased risk of doctor-diagnosed asthma (OR 2.0; CI 1.1–3.9), asthma symptoms (OR 2.6; CI 1.3–5.0) and asthma symptoms or medication use (OR 2.3; CI 1.2–4.4) when compared to individuals not involved in aquatic sports. Regarding the entire athlete population, no increase in asthma was found when compared to the general population.</li> <li>Conclusions: Practice of very high endurance and aquatic sports may be associated with increased asthma risks. Athlete participation as such showed no association with asthma risk.</li> <li>© 2015 Elsevier Ltd. All rights reserved.</li> </ul>
---	---

### Introduction

Asthma is a chronic disorder affecting up to 300 million people worldwide [1]. Prevalence and incidence have increased over the past decades [2,3]. This is a serious public health concern, especially as the risk factors for asthma are not fully understood. Some studies suggest that asthma may be more prevalent in elite athletes than in the general population with up to 10% affected, making it the most common chronic disorder affecting this professional group [4,5], though the evidence so far is limited. Asthma is not only a serious health risk for elite athletes, but additionally its detrimental effects are magnified since asthma can drastically interfere with athletic performance [6].

Within the group of elite athletes, the prevalence of asthma may differ by sport discipline [6,7]. Athletes who participate in endurance sports seem to be at an increased risk for asthma than other athletes, possibly due to the vigorous activity and regularly repeated higher ventilation rates over prolonged periods of time associated with their discipline [7,8]. Swimmers might also be at high risk, as previous studies have suggested that pool athletes are predisposed to airway dysfunctions, including asthma, due to their exposure to irritants such as chlorine and derived by-products in the pool environment [9,10]. This international cross-sectional study offered a unique opportunity to assess differences in asthma prevalence between the European general population and European summer athletes from a wide range of sport disciplines across various geographical areas. Furthermore, differences in asthma risk among athletes participating in sports of various endurance levels as well as aquatic sports were compared to the general population.

### Methods

#### Study design

Two independent cross-sectional studies were conducted to assess the prevalence of asthma and respiratory disorders; the first among the general population from Norway, Germany and Spain and the second among the European summer Olympic athletes representing these 3 countries.

#### Study participants

#### General population

Data for the general population (n = 1568) were available through the European Community Respiratory Health Survey (ECRHS) II, conducted in the early 2000s (response 65.3% of those having participated in ECRHS I). The aim of ECRHS was to assess the prevalence, incidence, determinants and management of asthma in the adult population in various European countries. ECRHS was approved by local ethics committees and their methods have been published in detail elsewhere [11].

For the present analysis data were used of Norwegian (1 center), German (2 centers) and Spanish (5 centers) participants of less than 45 years of age, who formed part of the random sample of ECRHS II in 2002. From the ECRHS II questionnaire, we extracted data regarding asthma, exercise frequency and smoking habits.

#### Elite athletes

Data for the elite athletes (n = 546; response 65.2%) were available from a study on participants of the 2008 Beijing Olympics, conducted within the framework of the Global

Download English Version:

# https://daneshyari.com/en/article/6241520

Download Persian Version:

https://daneshyari.com/article/6241520

Daneshyari.com