

## Physical Activity and Sport Competitions Under Severe Air Pollution Conditions

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**Study/Objective:** This study aims to understand the relationships between physical activity and air pollution, and recommend standards for canceling or postponing outdoor physical activities and sport competitions during severe air pollution events.

**Background:** Exposure to ambient air pollution may cause health problems and can lead to development of pulmonary diseases (such as COPD and asthma), cardiovascular diseases and even diabetes. Physical activity under air pollution conditions can cause a higher exposure to pollutants and therefore, may cause damage to individuals, especially to young children, but even to professional athletes. Guidelines for developing recommended intervention during severe air pollution conditions are required.

**Methods:** We searched for studies and publications (published between February 2002 and March 2016) that focused on the association between ambient air pollution and different levels of physical activity. We looked for studies regarding athletes, the public population, children and older adults. Based on our findings, we developed recommended threshold levels.

**Results:** Physical activity under conditions of air pollution may cause short-term and long-term health damage to the public and specifically to athletes. It decreases lung function, may increase the immune system activity and may diminish exercise performance. However, specific thresholds for cancelling outdoor sports events were not developed. We therefore suggest the following threshold values, per age group:

**Conclusion:** It is recommended both for the public and athletes, to completely avoid any physical activity under severe air pollution conditions, including professional and semi-professional sport competitions. In this paper we suggest recommended air pollution levels for avoiding physical activity and standards for cancelling professional and semi-professional games accordingly.

Age Group	Suggested PM <sub>2.5</sub> threshold value for canceling adult outdoor sport activities
Adults	1300 µg/m <sup>3</sup> per 24 hours
Older youth (ages 16-18)	1300 µg/m <sup>3</sup> per 24 hours
Younger youth (ages 14-16)	650 µg/m <sup>3</sup> per 24 hours
Children (ages below 14)	300 µg/m <sup>3</sup> per 24 hours

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## Rapid Urbanization is Linked to Flood Lethality in the Small Island Developing States (SIDS): A Modeling Study

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**Study/Objective:** We sought to investigate the risk factors for flood lethality in the SIDS in the last 30 years (1985–2014).

**Background:** The low-lying Small Island Developing States (SIDS) are at a constant risk of floods. They are also acutely affected by climate change, in particular from rising sea levels, temperature, and rainfall increases, which further increase flood risk. Yet, no quantitative studies have addressed how development and urbanization, upstream distal factors, are linked to mortality from floods.

**Methods:** In this ecological study, flood lethality was defined by any flood deaths versus no deaths. Plausible risk factors for flood lethality were explored using a literature search. World Bank Development Indicators were used as proxies for the risk factors and EMDAT data for disaster-related variables. A multivariate analysis was conducted using logistic regression with a quasi-binomial distribution, removal of multicollinear variables, and backward elimination. Robustness was checked through a subset analysis on data from last decade, excluding Haiti.

**Results:** Significant positive associations were found among flood lethality, urban population (odds ratio [OR] 1.023; 95% CI 1.007–1.040), and urban population growth (OR, 1.225; 95% CI 1.024–1.476). The effect of urban population growth was 10 times that of the total urban population (coefficients 0.202 and 0.023, respectively). Robustness checks revealed similar coefficients and directions of associations.

**Conclusion:** More urbanization and rapid urbanization in particular were connected to a higher likelihood of lethal floods in the SIDS. Future studies should investigate poor and unplanned urbanization as mediators of these associations. Our study provides initial evidence on the collateral human impacts of current human development strategies in the SIDS accumulated during the last three decades.

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## The One Health Approach for Communicating Risk with a Community during the Crisis of the Rift Valley Fever Outbreak in East Africa

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**Study/Objective:** In the present study, we aimed to identify the risk factors practiced by local communities where Rift Valley Fever (RVF) outbreaks occur, and characterize the source of information that shaped the awareness during the 2007 RVF outbreak crisis.

**Background:** Rift Valley fever virus (RVFV) causes outbreaks in Africa and the Arabian Peninsula with catastrophic consequences. It results in severe disease in humans with high case fatality, as well