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## **Long-term health effects of the Eyjafjallajökull volcanic eruption: A prospective cohort study in 2010 and 2013**

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The spring 2010 eruption of Icelandic volcano Eyjafjallajökull exposed the nearby-population to fine volcanic ash which persisted in the environment for years after the eruption. The objective of this study was to examine the long-term development of physical and mental health following exposure to a volcanic eruption in a population-based prospective cohort study. Questionnaire data about self-reported health and experience of the eruption was collected at two time points, late in the years 2010 and 2013. Participants were adults residing close to the Eyjafjallajökull volcano (N=1096), as well as a non-exposed sample (n=475). The main outcome measures were within-individual variations between 2010 and 2013 and comparison between exposed and non-exposed participants regarding physical symptoms in the previous year (chronic), in the previous month (recent), and psychological distress (GHQ-12), perceived stress (PSS-4) and PTSD -symptoms (PC-PTSD) which was analyzed in a matched-pairs design. **RESULTS:** Within the exposed group, certain symptoms had increased two- to fourfold in 2013 compared with 2010, e.g. morning phlegm during winter, skin rash/eczema. Risk of back pain and insomnia, as well as the use of medication for asthma had also increased. PTSD symptoms had subsided to one third in 2013 whereas the prevalence of psychological distress and perceived stress remained similar. In 2013, higher prevalence of various respiratory symptoms was observed in the exposed group than the non-exposed control group, such as wheezing without a cold and phlegm which was twice as prevalent. Some symptoms depended on the exposure level, e.g. nocturnal chest tightness where medium exposed were at threefold risk, and high exposed at 3.4 fold risk. In conclusion, our findings indicate that people exposed to a volcanic eruption, exhibit increased risk of somatic and psychological symptoms 3-4 years after the eruption. This project was funded by the NordForsk Centre of Excellence NORDRESS.