

Press release

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Basic information

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Department of: Public Health

Main supervisor: Professor Torben Sigsgaard

Title of dissertation: "Acute health effects of fine and ultrafine particles in indoor air - Human exposure studies among vulnerable population subgroups"

Date for defence: 10th of December 2021 at (time of day): 15:15 Place: Samfundsmedicinsk auditorie (Room 101, Building 1262) + Zoom --> contact Vibeke H. Gutzke (vhgu@ph.au.dk) for link.

Press release (Danish)

Akutte helbredseffekter af fine og ultrafine partikler i indendørs luft - eksponeringsstudier blandt personer med lungesygdom.

Eftersom vi opholder os op mod 90% af vores tid inden døre, har vores indeklima stor betydning for vores helbred og velvære. Partikler er en af de største indendørs forureningskilder. Stigende evidens peger på, at partikelforurening kan føre til uønskede helbredseffekter som fx irritation og betændelsestilstande samt hjerte- og lungesygdomme heriblandt kræft. Madlavning, brændende stearinlys og elektroniske cigaretter (e-cigaretter) afgiver høje koncentrationer af fine og ultrafine partikler, som kan trænge dybt ned i luftvejene og herfra videre over i blodbanen. Forekomsten af personer der ryger e-cigaretter er stigende og det samme gælder sandsynligheden for at blive udsat for passiv e-damp. Personer med lungesygdomme er mere sårbare over for luftforurening sammenlignet med baggrundsbefolkningen grundet deres kroniske betændelsestilstand i luftvejene. Formålet med indeværende Ph.d.-projekt var at undersøge de akutte helbredseffekter af korttidseksponering for henholdsvis stegeos, brændende stearinlys og passiv damp fra e-cigaretter blandt personer med lungesygdom. I to forskellige randomiserede kontrollerede dobbeltblindede eksponeringsstudier blev i) individer med KOL udsat for passiv damp fra e-cigaretter og ii) unge astmatikere udsat for hhv. stegeos hhv. emissioner fra brændende stearinlys. Både før, under og efter eksponeringerne blev deres helbred undersøgt. Resultaterne er en del af et nyt ph.d.-projekt fra Aarhus Universitet, Health. Projektet er gennemført af Karin Rosenkilde Laursen.

Forsvaret af ph.d.-projektet er offentligt og finder sted den 10/12 kl. 15:15 i Samfundsmedicinsk auditorium (Bygning 1262), Aarhus Universitet, Bartholins Allé 4, 8000 Aarhus C. Titlen på projektet er "Akutte helbredseffekter af fine og ultrafine partikler i indendørs luft - humane eksponeringsstudier blandt personer med lungesygdom".

For yderligere oplysninger kontakt Ph.d.-studerende Karin Rosenkilde Laursen, e-mail: krl@ph.au.dk.

Bedømmelsesudvalg:

Professor Thomas Vorup-Jensen, DMSc, PhD (formand for og moderator af forsvaret).
Institut for Biomedicin, Aarhus Universitet, Danmark.

Professor Barbara Hoffmann, MD, PhD, MPH, Institute for Occupational, Social and Environmental Medicine, Heinrich Heine Universitet i Düsseldorf, Tyskland.

Lektor Suzaynn Schick, PhD.

Department of Medicine, University of California, San Francisco (UCSF), USA.

Press release (English)

Acute health effects of fine and ultrafine particles in indoor air
– Human exposure studies among vulnerable population subgroups

As we spend up to 90% of our time indoors, our health and well-being are affected by our indoor climate. Growing evidence suggest that particle pollution is associated with a variety of adverse health effects ranging from inflammation to cardiopulmonary disease including cancer. Cooking, burning candles and electronic cigarettes (e-cigarettes) emit high amounts of fine and ultrafine particles.

Ultrafine particles are so small in size, that they can penetrate into the deepest regions of the lungs, potentially translocate into the blood stream, from where they can access vital organs such as the heart and brain. At present millions of people are using e-cigarettes worldwide and exposure to the aerosol has become a serious public health concern. Furthermore, people with respiratory disease are known to be more susceptible to particulate air pollution than the background population due to chronic inflammation in the respiratory tract.

The aim of the present PhD study was to examine acute health effects from short-term exposure to cooking, candles and aerosol from e-cigarettes, respectively, among people with respiratory disease. In two different randomized controlled double-blinded exposure studies individuals with i) COPD were exposed to aerosol from e-cigarettes and ii) young individuals with mild asthma were exposed to cooking and burning candles on separate occasions. Their health were examined before, during and after the exposures.

The results of the two studies are a part of a new PhD-project from Aarhus University, Health. The project was carried out by Karin Rosenkilde Laursen, who is defending her dissertation on December 10th.

The defence is public and takes place on 10th of December at 15:15 in Samfundsmedicinsk Auditorie, Aarhus University, Bartholins Allé 4, 8000 Aarhus C. The title of the project is "Acute health effects of fine and ultrafine particles in indoor air

– Human exposure studies among vulnerable population subgroups".

For more information, please contact PhD student Karin Rosenkilde Laursen, email: krl@ph.au.dk.

Assessment committee:

Professor Thomas Vorup-Jensen, DMSc, PhD (chairman and moderator of the defence).
Department of Biomedicine, Aarhus University, Denmark.

Professor Barbara Hoffmann, MD, PhD, MPH, Institute for Occupational, Social and Environmental Medicine, Heinrich Heine University of Düsseldorf, Germany.

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