



## Health Effects of Particulate Matter in Indoor Air on Middle-aged and Elderly Residents of Copenhagen

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### PROJECT:

➤ **Description**

➤ **Progress**



Objectives



Indoor air quality in homes

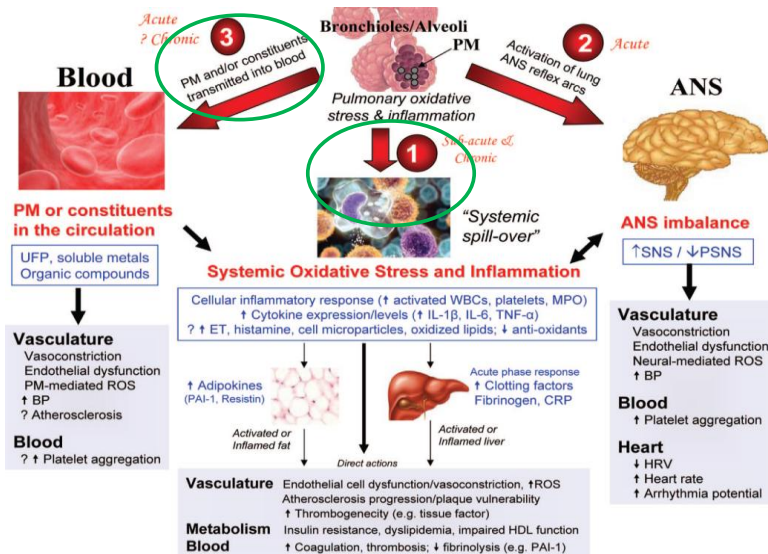


Biomarkers:

- Inflammation
- Oxidative stress
- Lung function
- Vascular function



Suggested mechanisms of the cardiovascular effect of particles mediated by oxidative stress and inflammation



Brook R.D et al., 2010, AHA, 121(21)



# Measurements



1. Lung function

2. Vascular function

3. Blood sampling

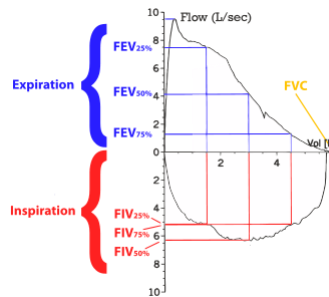
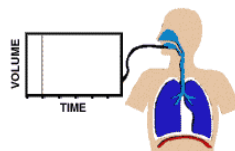


## 1. Lung function

- measurement of maximal flow-volume curve (FVC, FEV1, etc) using a spirometer.



<http://www.nlhep.org/spirom1.html>

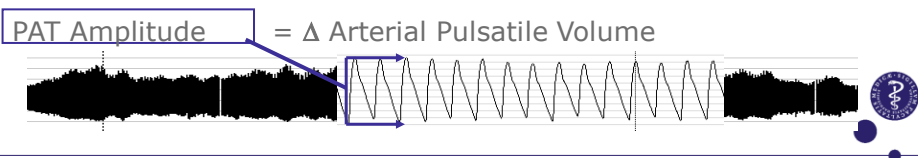


<http://en.wikipedia.org/wiki/Spirometry>

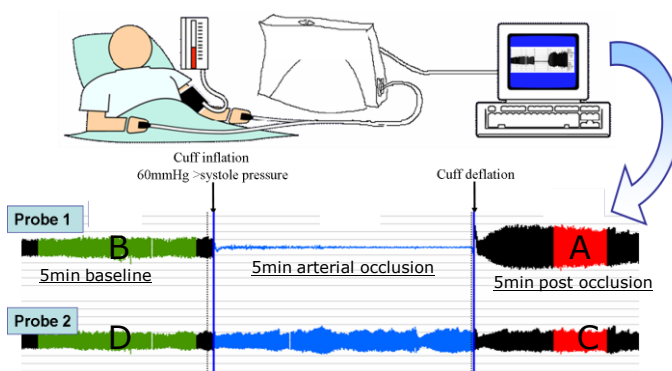


2. Endothelial function

- measured with Endo-PAT2000: Peripheral Arterial Tone (PAT):
  - changes in arterial pulsatile blood volume

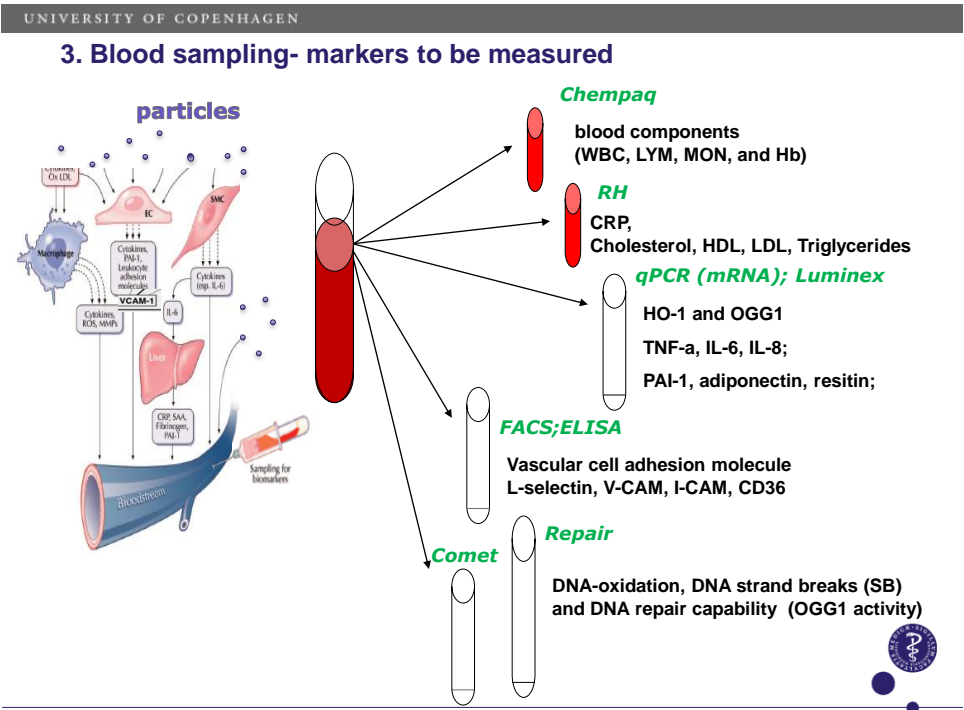


2. Endothelial function: EndoPAT



Endothelial function score(ES) Reaktiv hyperæmi-index (RHI) =  $\frac{A}{B} / \frac{C}{D}$





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## My Project

- 1. WP3: Intervention study (Task 3.1):**  
"An Intervention study in Danish dwellings".
- 
- **CAMB cohort: 40 homes**
- 2. WP2: Cross sectional study (Task 2.1 and 2.3):**  
"Population based study of health effects of indoor air"
- 
- **CAMB cohort: 60 homes + 40 homes**
- **Health 2006 cohort: 100 homes**
-

**WP3: Intervention study** (Removal of particles)**Progress?**

- **CISBO meeting 2010/Ph.d-student (1 nov. 2010);**
- **CAMB cohort: 810 pers.(4 nov. 2010);**
- **Ethical committee aproval (10 nov.2010)**

▪ **Cph.: 40 non-smokers**

**25 letters**

▪ **5 homes from CAMB (16 nov. - 20 dec. 2010)...**  
(1 to february)

**WP3: Intervention study** (Removal of particles)**Problems?**

- **time for setup and sample collection (employed)**
- **noisy air cleaner (1 apartment out)**
- transport of equipment, my bike, weather



**WP3: Intervention study** (Removal of particles)



Solutions?



**Newspapers Ads, Radio, posters, friends etc.(\$\$\$):**

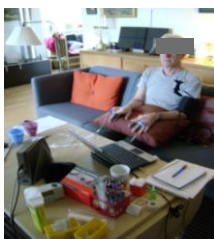
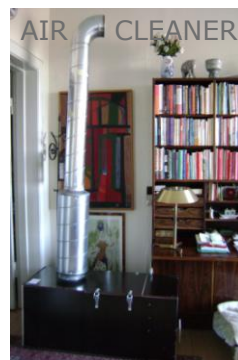
**1. 7 homes: 3 January- 8 February 2011**

**2. 5 homes+1 (CAMB) 7 February-16 March 2011**  
**+3 homes (an old IV study) :**

**3. 4 homes: 14 March- 20 April 2011**

**4. 6 homes: 26 April-31 May 2011**  
**(-1 out)**

**24 (-1 out) + 5 (CAMB) (-1 out) = 27 homes (48 PERSONS)** 😊



EndoPAT



Spirometer



Blood sampling

