

Air quality and validated non-invasive cardiovascular biomarkers

Andre van der Wiel, Scapeler, Sensing Outdoor Air Quality

Leo van Capellen, Van Capellen Advies, Sensing Indoor Air Quality

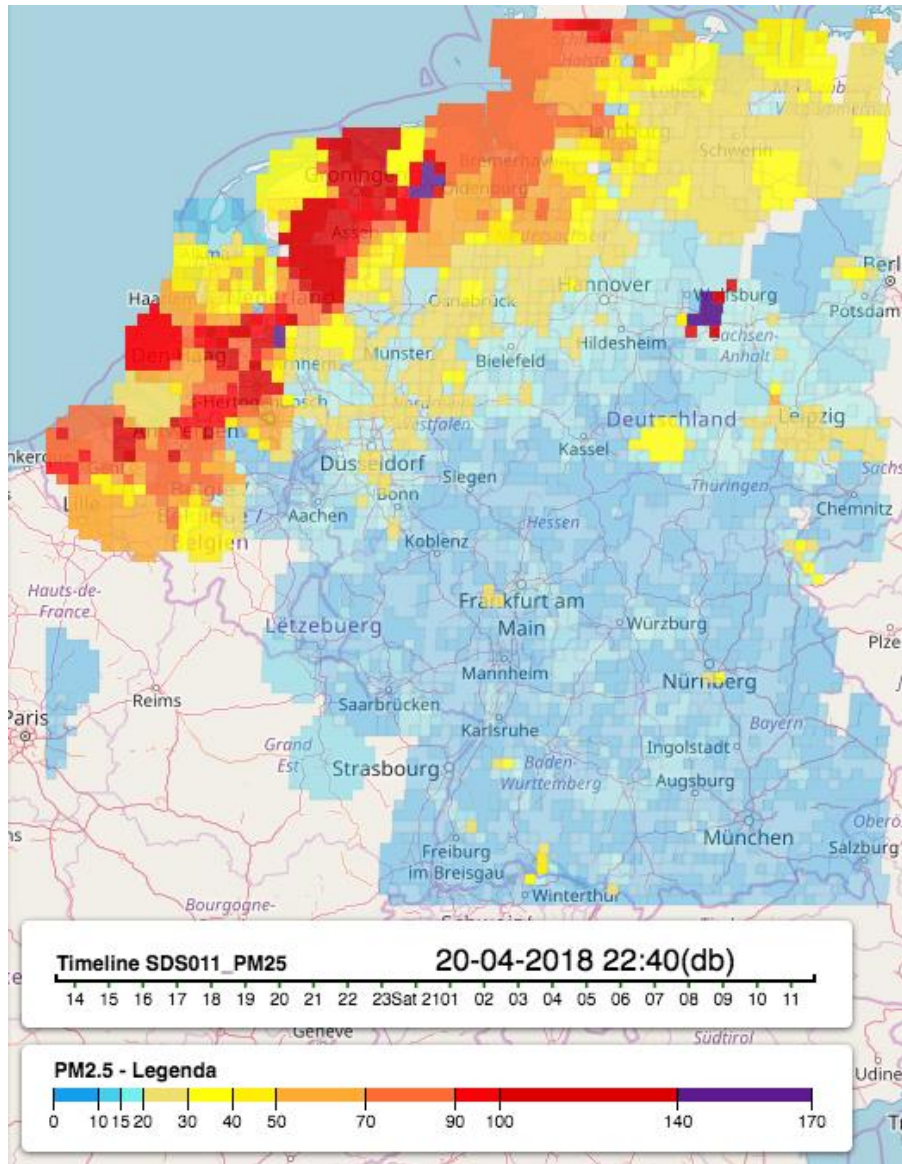
Eric de Groot, Imagelabonline & Cardiovascular, Sensing humans

SCAPEL



ER

Open data specialist and founder independent awareness platform for a healthy living environment.



Andre van der Wiel, Scapeler, Sensing Outside Air Quality

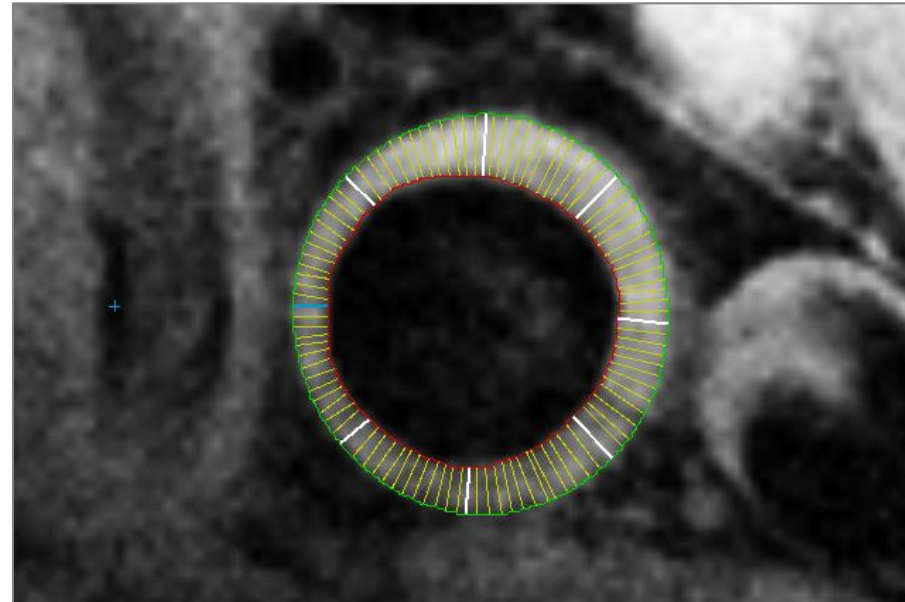
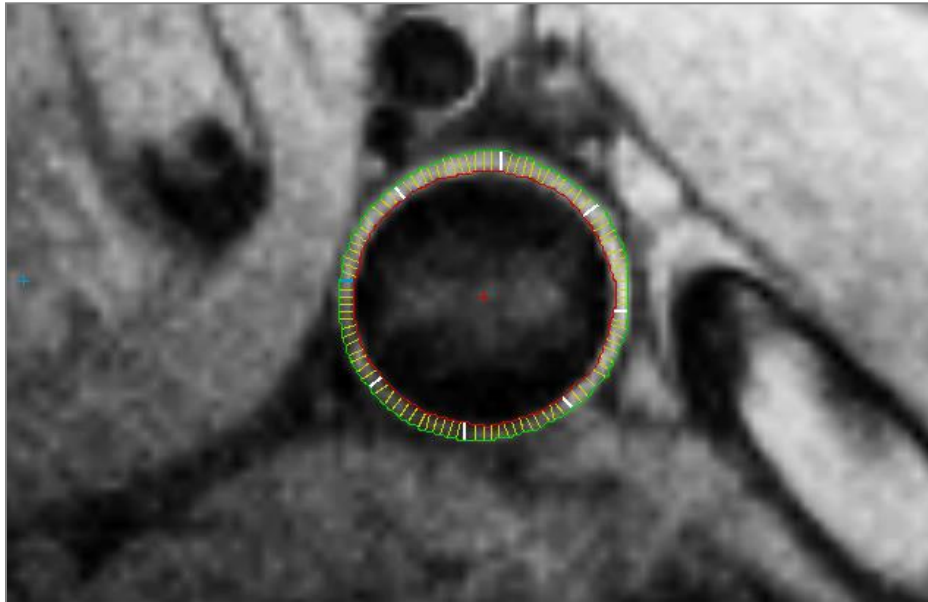


Indoor environment, living/working conditions, healthy/sustainable buildings, energy and environment, building physics, cost management.

Leo van Capellen, Van Capellen Advies, Sensing Indoor Air Quality

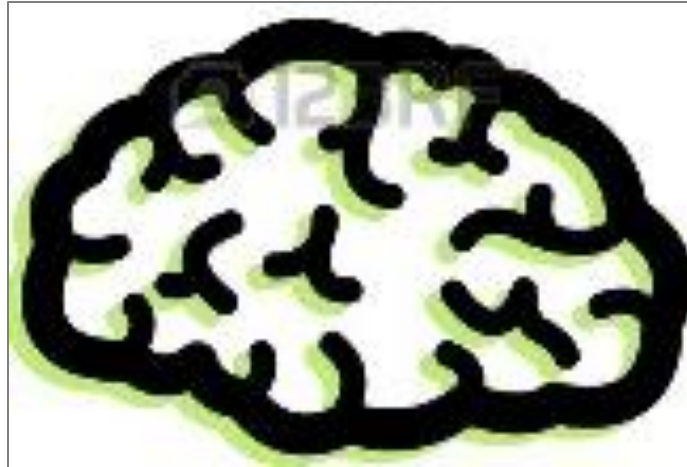


Application of non-invasive cardiovascular assessments,
epidemiological studies, human clinical trials.



Eric de Groot, Imagelabonline & Cardiovascular, Sensing
humans; Well being/ Cardiovascular

Major challenge in human studies: recruitment, compliance and monitoring/socializing.

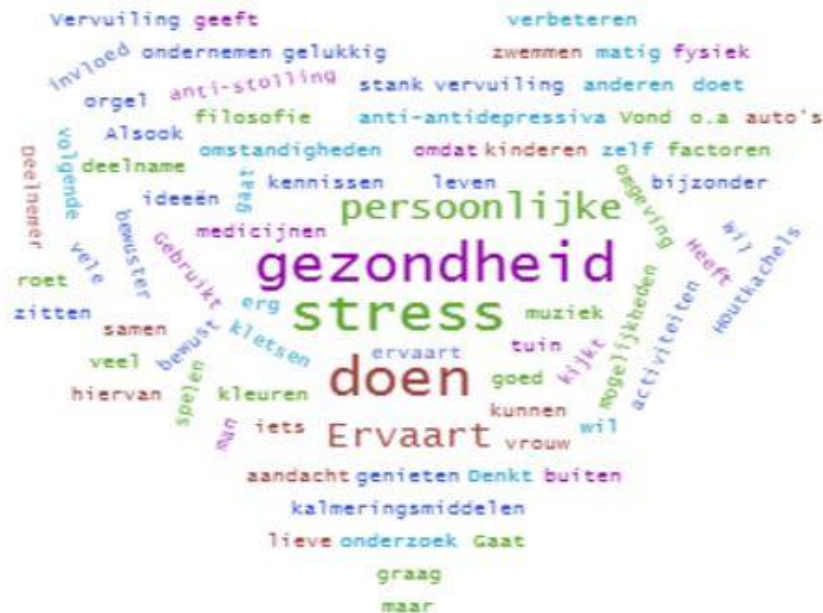


Gezondheid algemeen

D1 Hoe zou u over het algemeen uw gezondheid noemen? Uitstekend
 Zeer goed
 Goed
 Matig
 Slecht

D2 Wilt u bij de volgende ziekten en aandoeningen aankruisen of u die heeft of in de afgelopen 12 maanden heeft gehad?
Kruis op iedere regel één vakje aan.

	nee	Ja, niet door arts vastgesteld	Ja, door arts vastgesteld
a. Diabetes mellitus/suikerziekte	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Stroke, hersenbloeding, herseninfarct of TIA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Hartinfarct	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Een andere ernstige hartaandoening (zoals hartfalen of ...)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

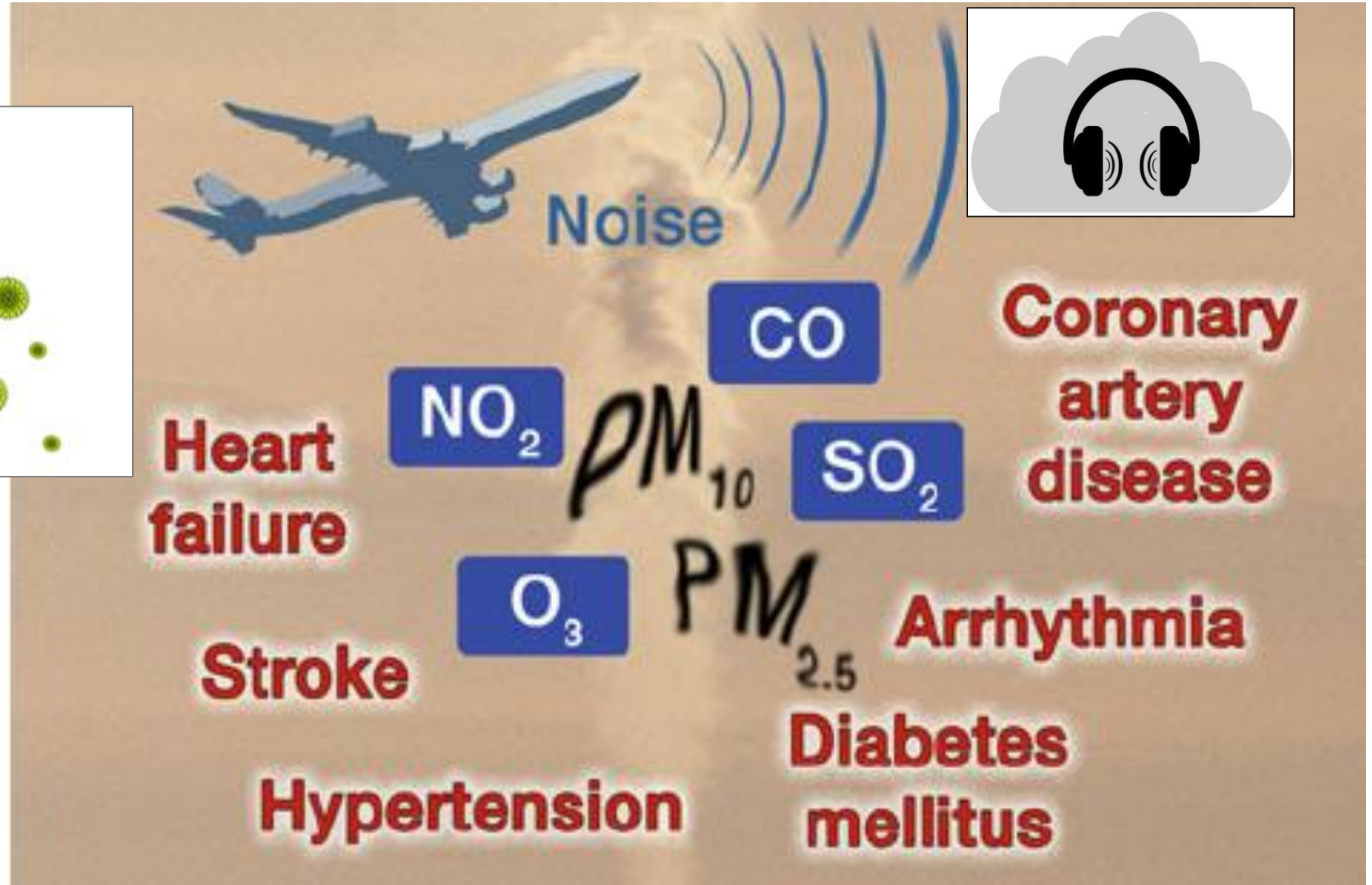
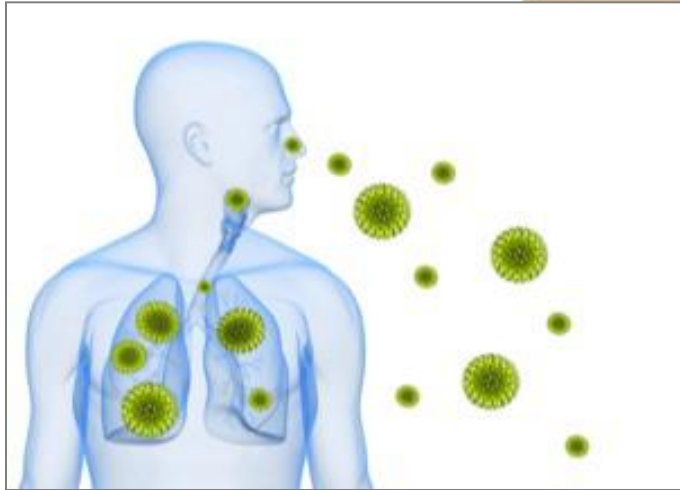


Leefomgeving

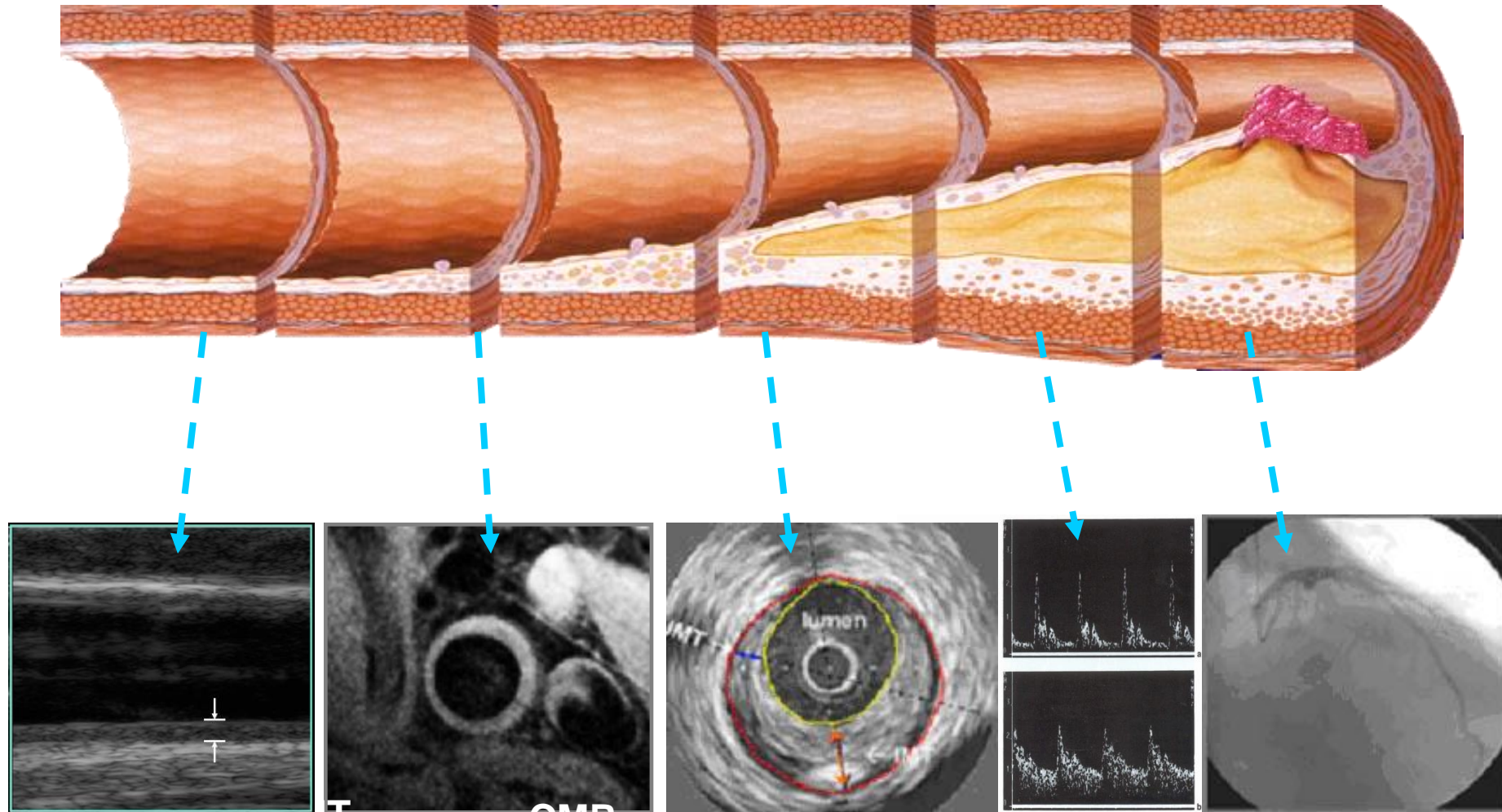
C1 Kruis de grootste (milieu)problemen aan, die u in uw buurt ervaart.
 U mag hier maximaal 3 antwoorden aankruisen

- Ik ervaar geen (milieu)problemen in mijn buurt
- Geluidsoverlast
- Bodemverontreiniging
- Rommel op straat
- Hondenpoep
- Slecht onderhoud van wegen en/of groen
- Geuroverlast
- Risico's door industriële bedrijven
- Waterverontreiniging
- Luchtverontreiniging
- Aantasting van groen (te weinig groen in en om uw woonplaats)
- Milieubelasting door verkeer
- Zendmasten voor radio en televisie of antennes voor mobiele telefonie
- Hoogspanningsleidingen
- Lichtoverlast
- Anders, namelijk

Evaluation of clinical outcomes of symptomatic disease



Evaluation of surrogate outcomes of cardiovascular health/disease



Need for early detection of disease: why non-invasive validated surrogate biomarkers rather than use clinical outcomes?

Identification of early stages of disease prior to clinical symptoms

Efficient testing of intervention (life-style, food/pharma)

Allows for evaluation in humans, patients and non-patients, cross-sectionally and in follow-up





CAI N-12345

AMC Vascular Imagin

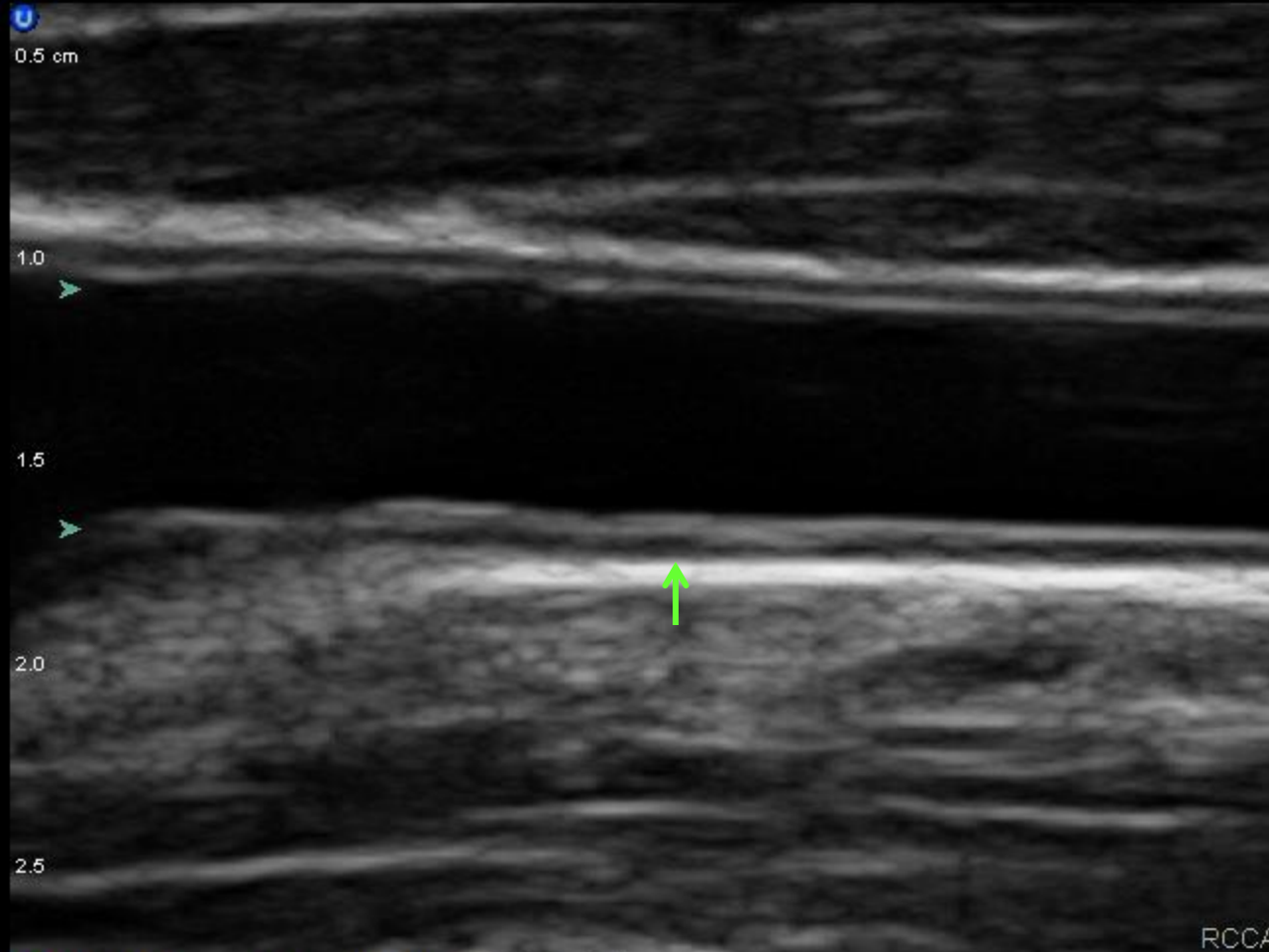
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General

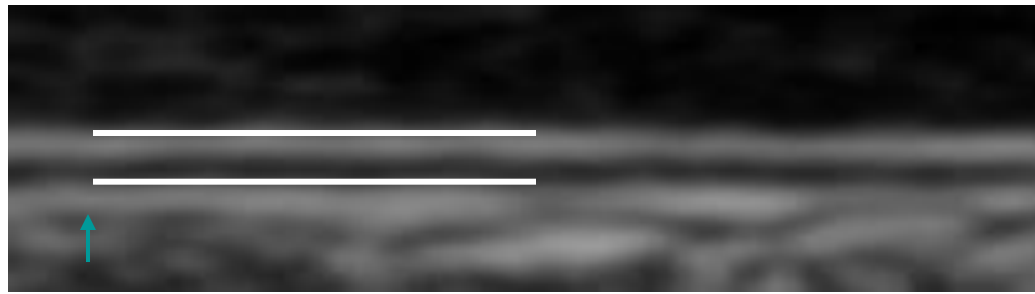
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Dyn 80dB
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Map 4
Chroma 0
Power 0
MI<0.40
Clarity Low

1000 / 1000

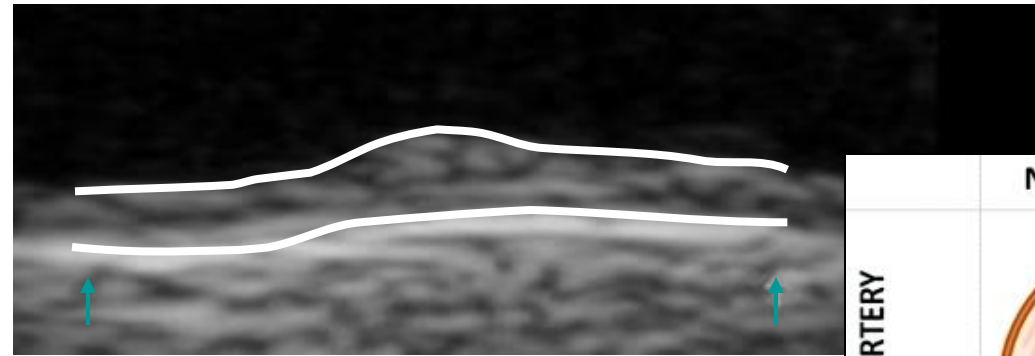
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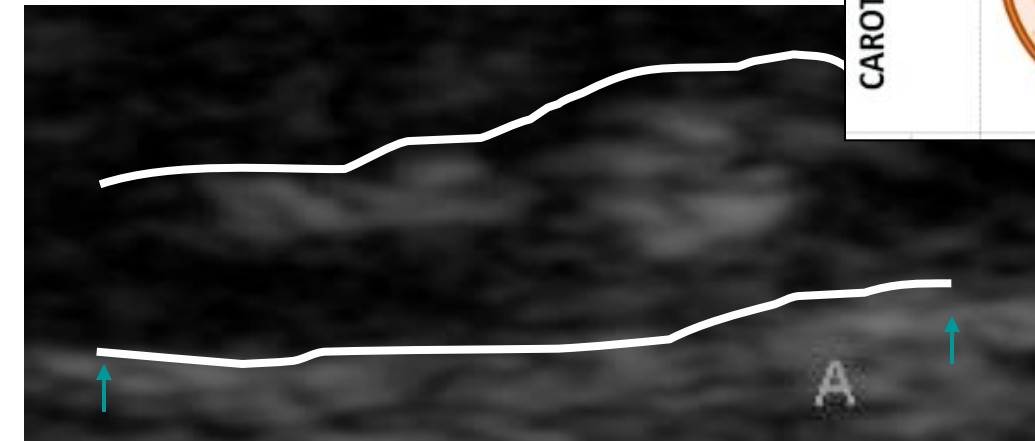
90 years



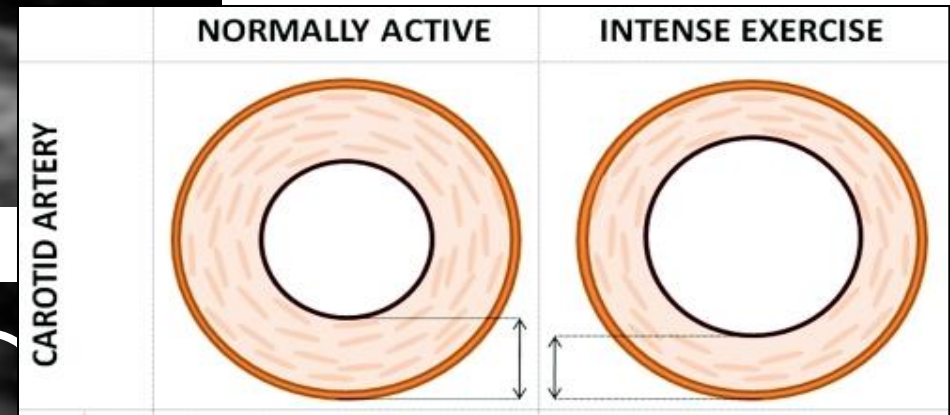
A



B



C





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



<http://www.elsevier.com/locate/atherosclerosis>

Atherogenesis in youth – Early consequence of adolescent smoking



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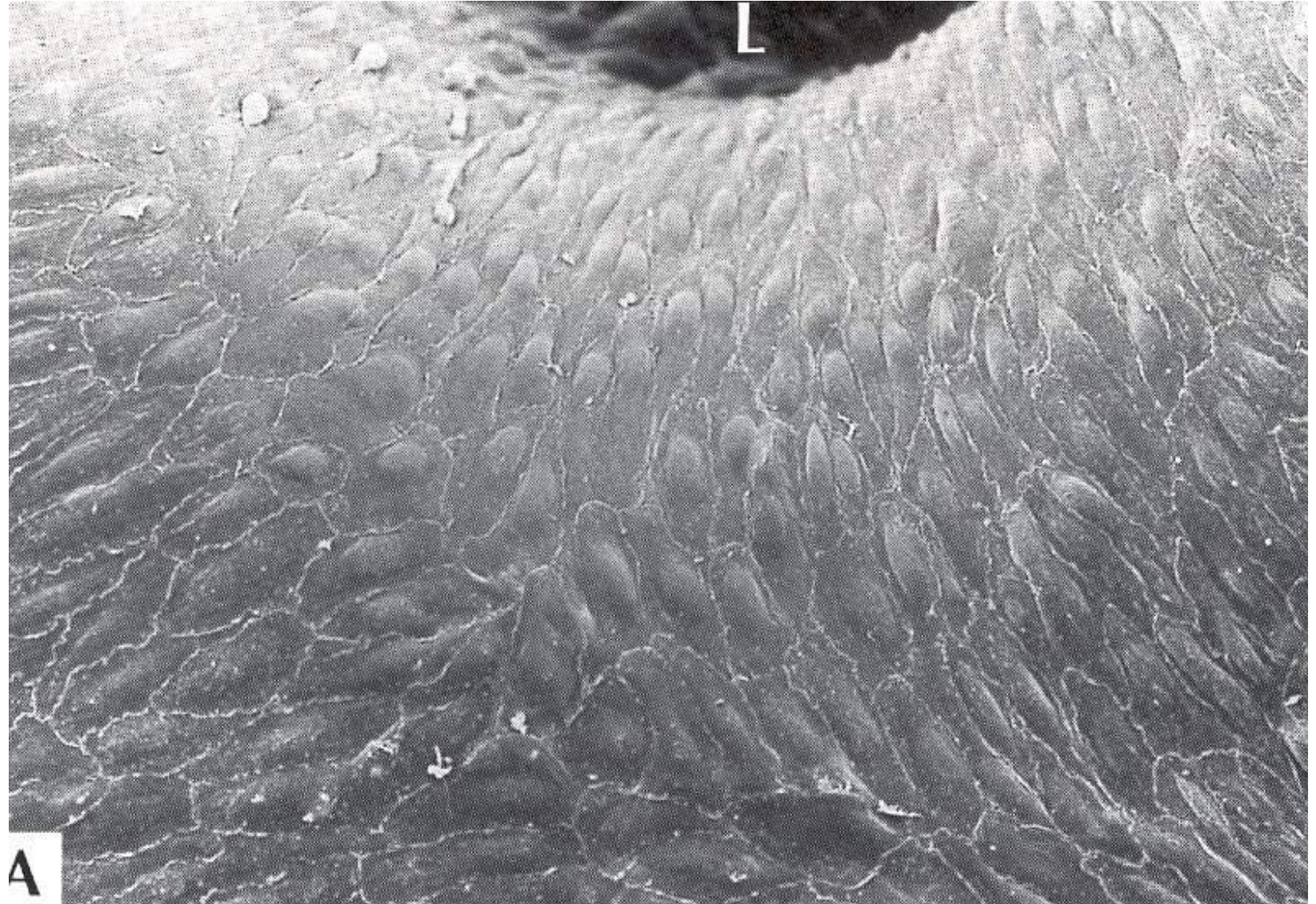
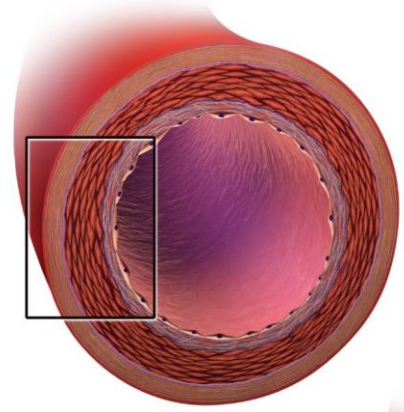
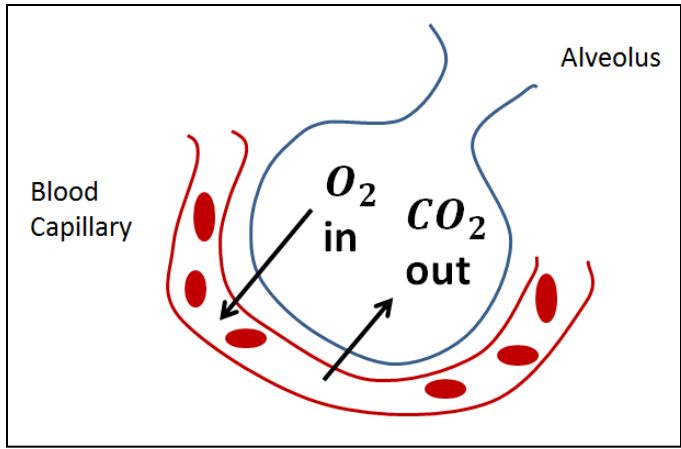
^g Hôpitaux Universitaires, Polyclinique, Rue Gabrielle-Perret-Gentil 4, CH 1205 Genève, Switzerland

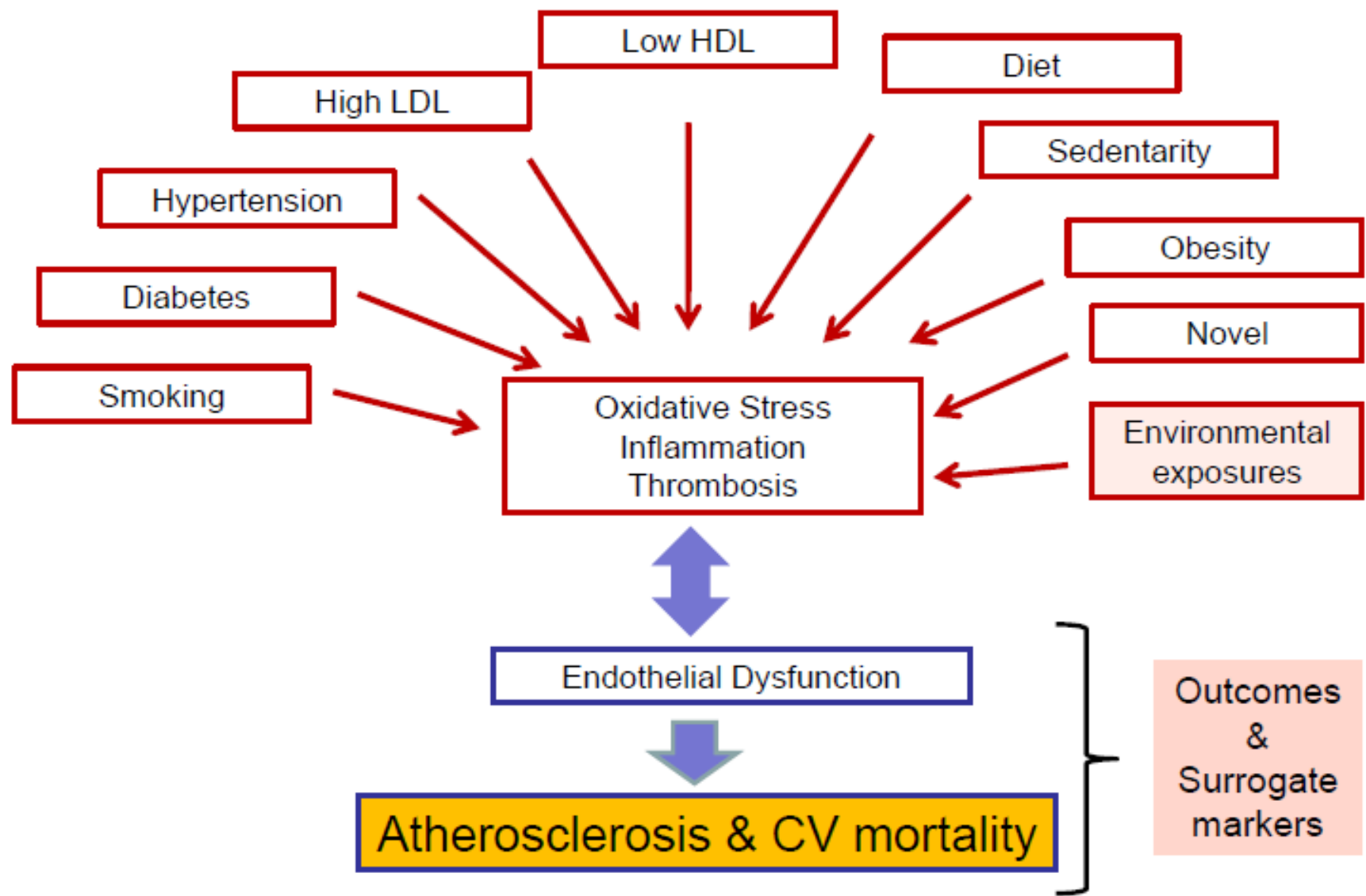
^h Spital Davos, Promenade 4, CH 7270 Davos, Switzerland

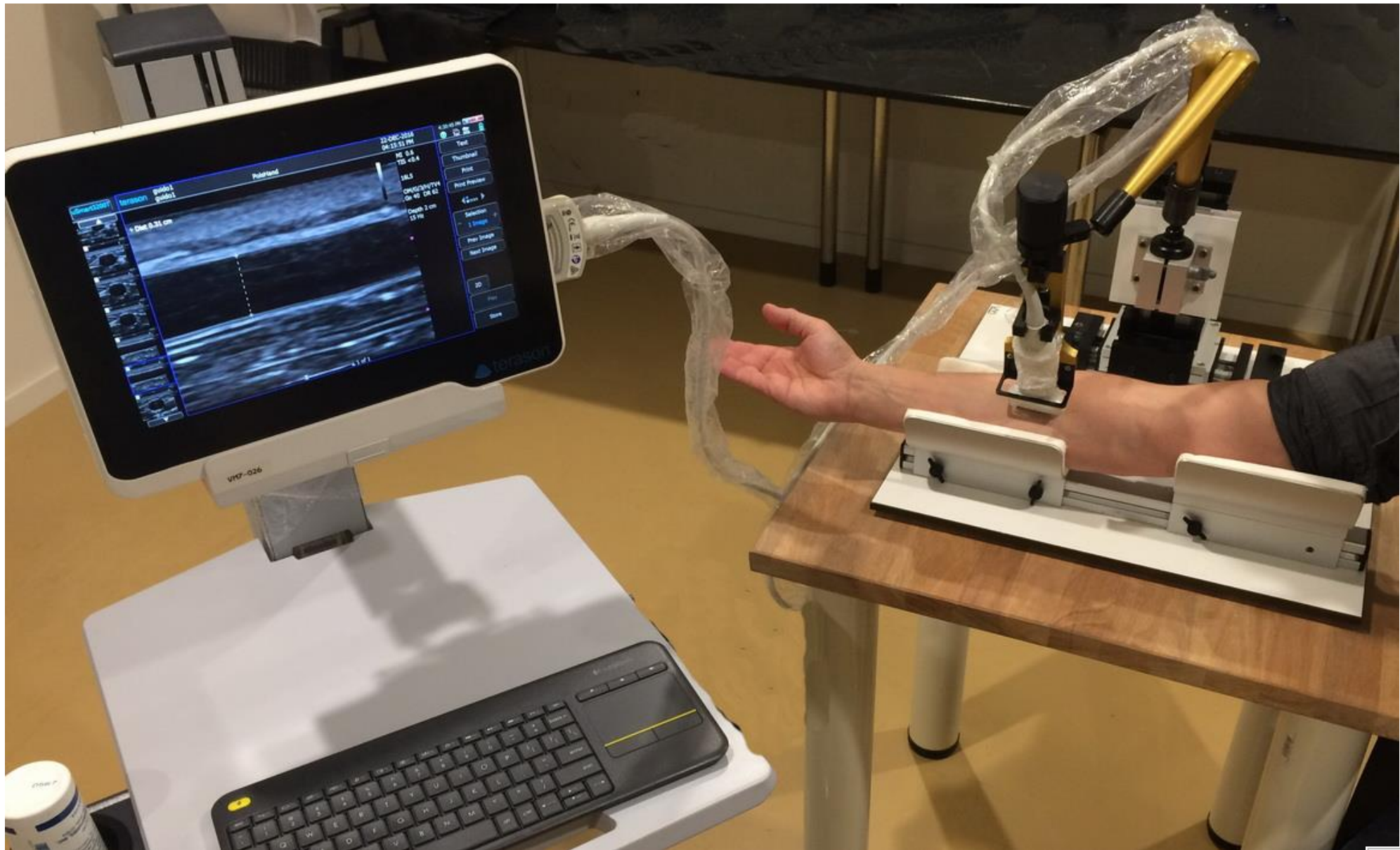
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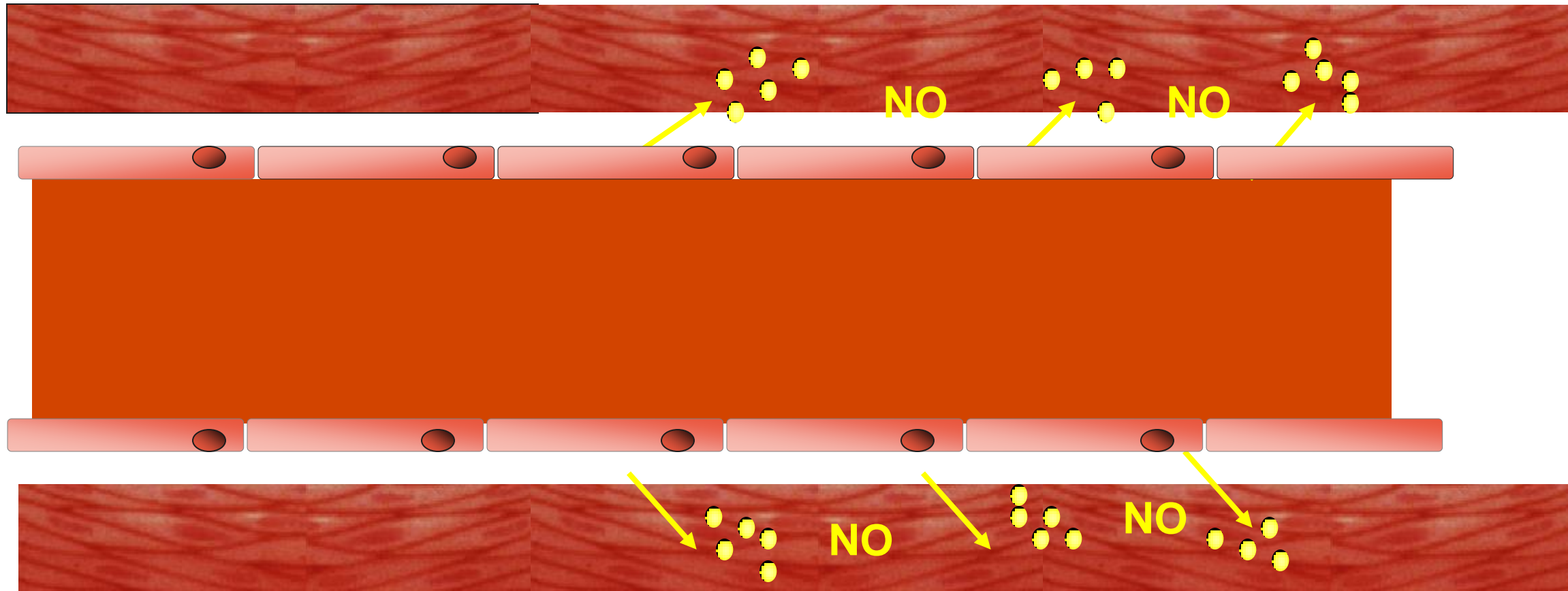
^k Hôpitaux Universitaires, Service de pneumologie, Rue Gabrielle-Perret-Gentil 4, CH 1205 Genève, Switzerland

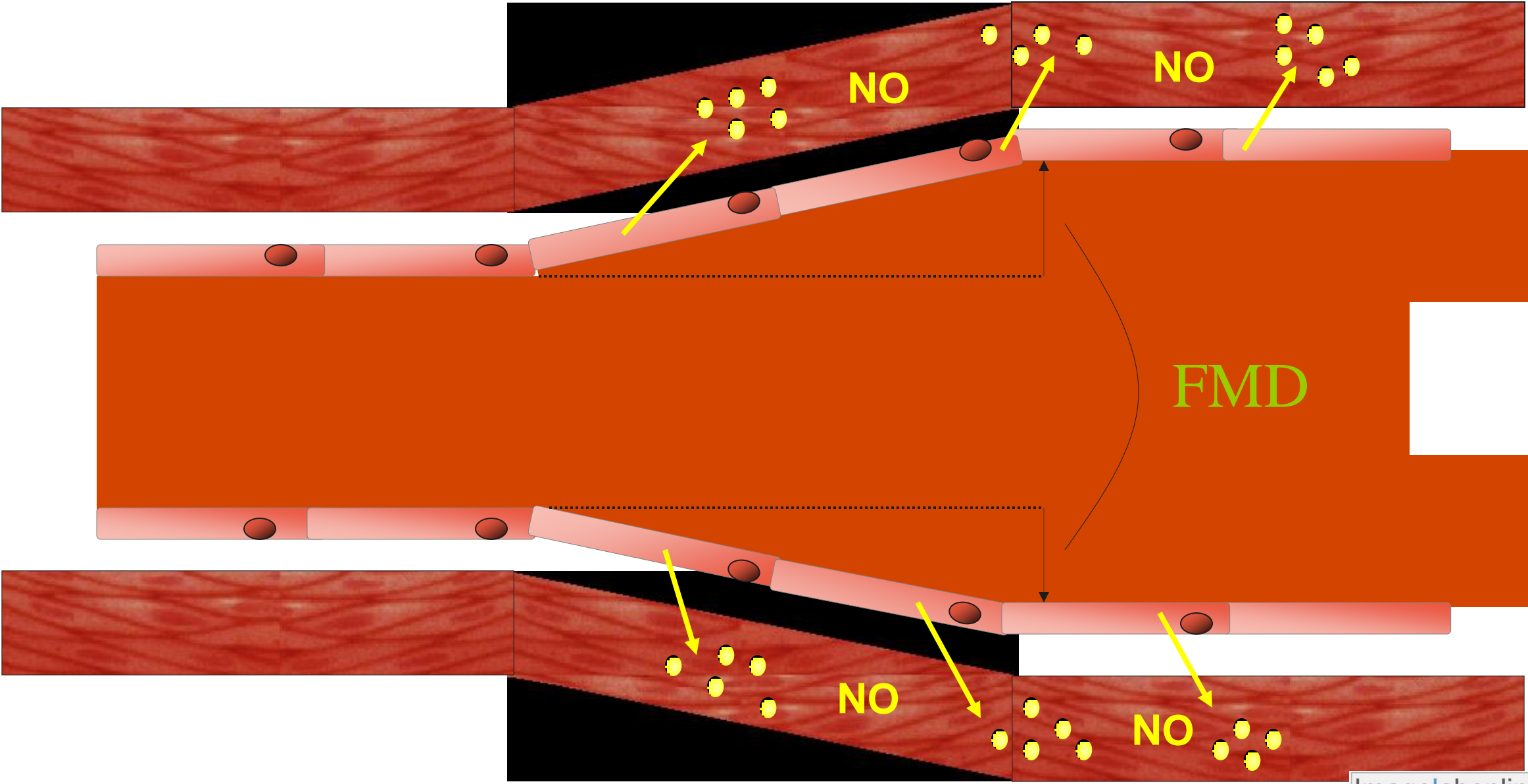






● Cuff release





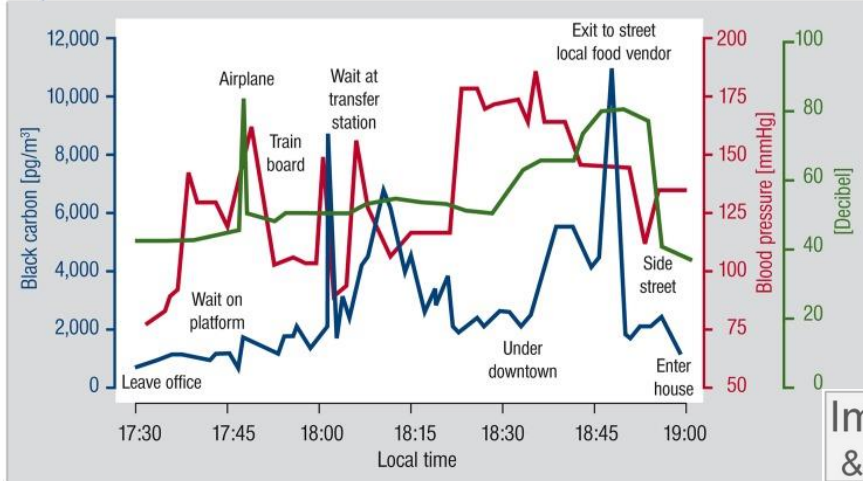
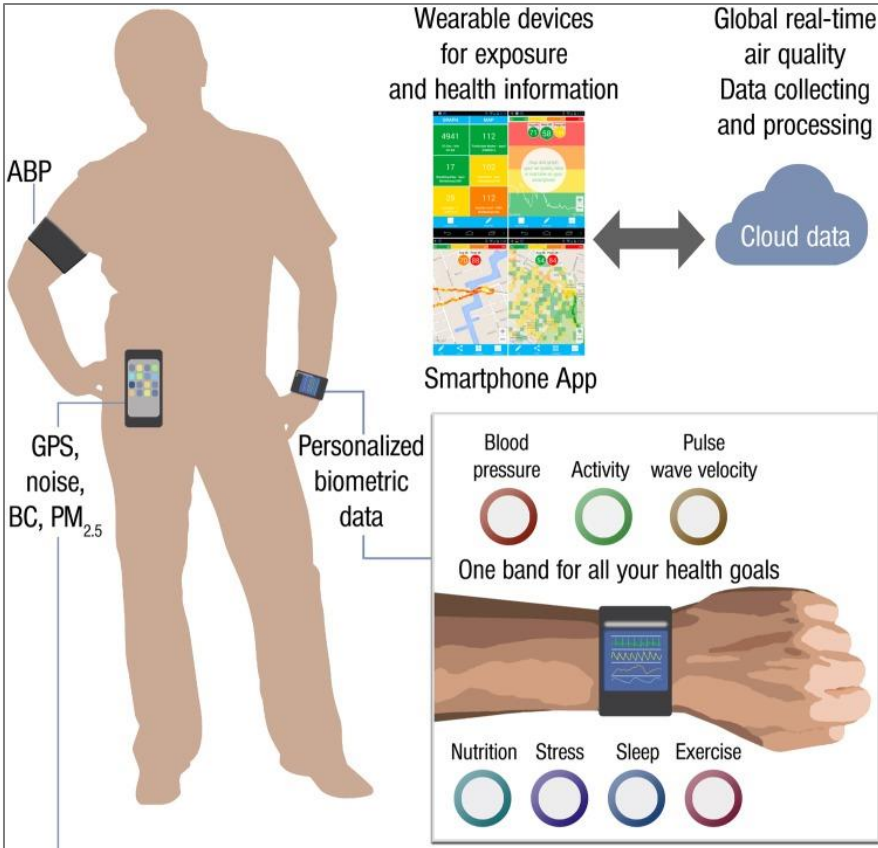
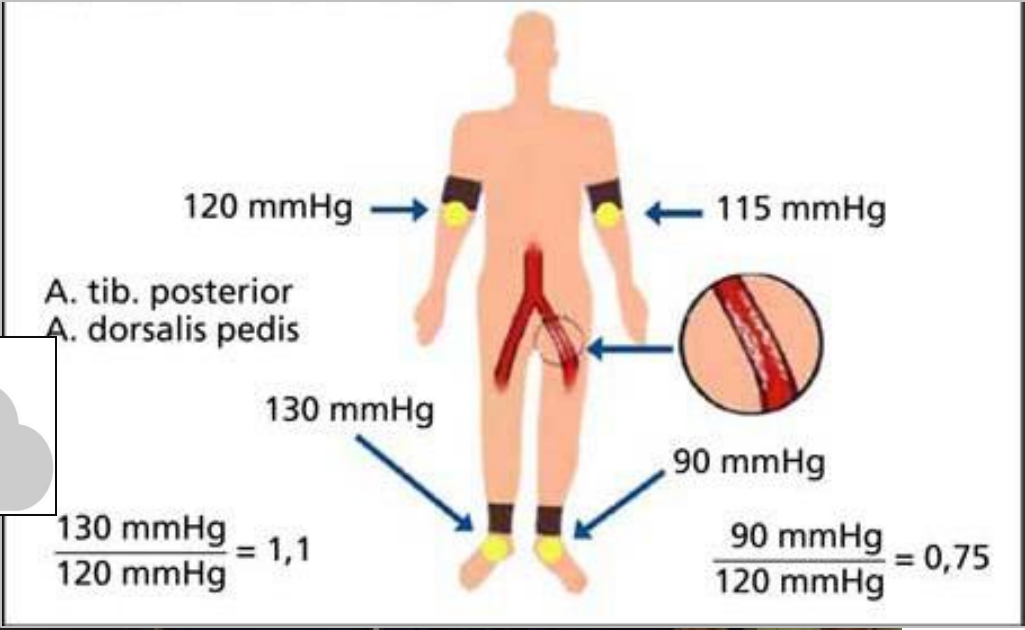
Effect of nighttime aircraft noise exposure on endothelial function and stress hormone release in healthy adults

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Summary

Surrogate imaging markers can efficiently evaluate cardiovascular health risk and benefits

In all stages of disease

In patients and non-patients

In a scientific and regulatory wise validated and compliant fashion

A major challenge in human evaluations is recruitment.

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Expectations

We expect CAMS data to contribute to refinement of study design (e.g. gradients, spatial/temporal resolutions) and understanding of results

We anticipate the CAMS data will be complementary and of additional value to existing sensor networks and citizen science data

We intend to contribute human data in outside and indoor air quality studies in support of cardiovascular health and cvd prevention

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