

Feinstaub in der Arbeitswelt und Kritik an den MAK-Werten aus arbeits- und umweltmedizinischer Sicht

Neuberger M et al. 2004: Wien Klin Wochenschr 116 (Suppl 1): 8-12.
Cherie JW et al. 2013: Ann Occup Hyg 57 (6): 685-691

Manfred Neuberger

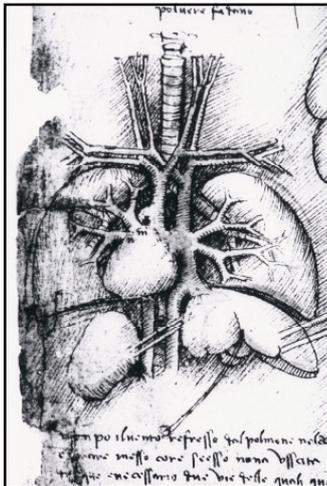
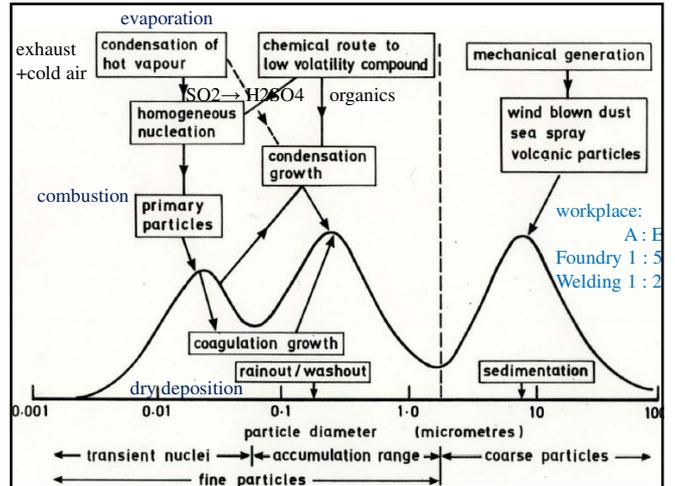
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Clean Air Commission

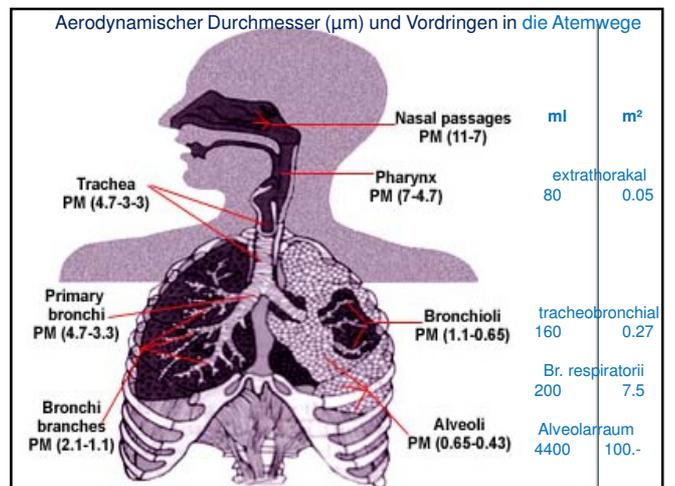
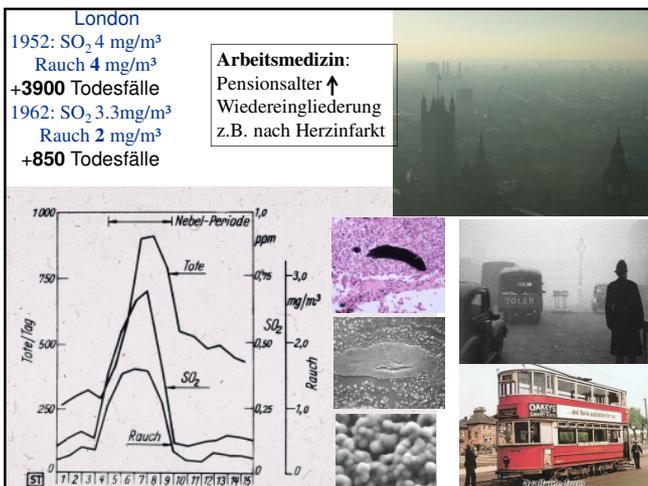
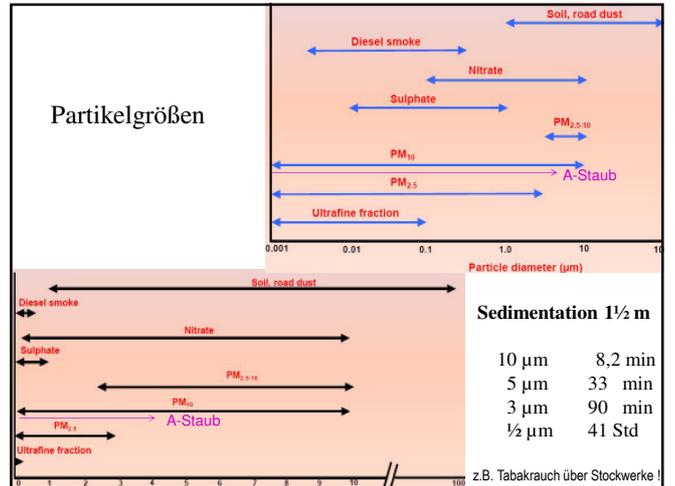


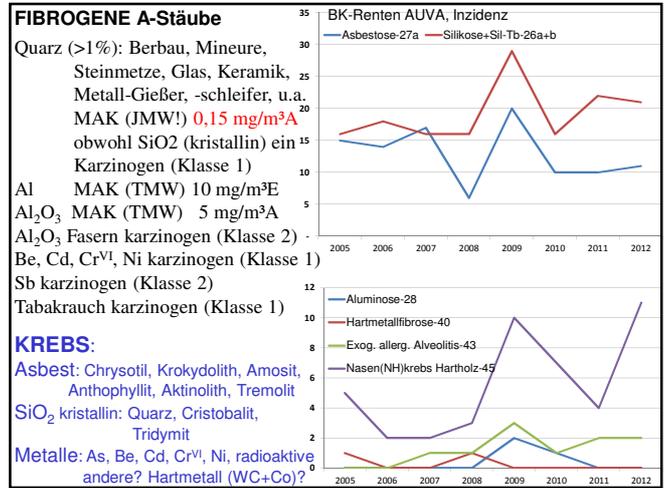
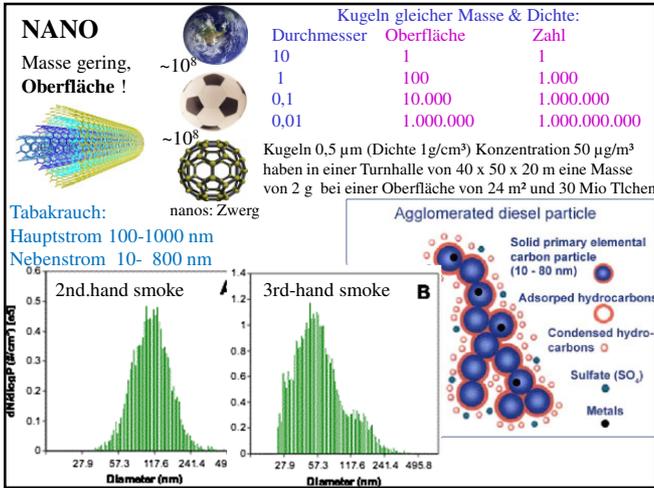
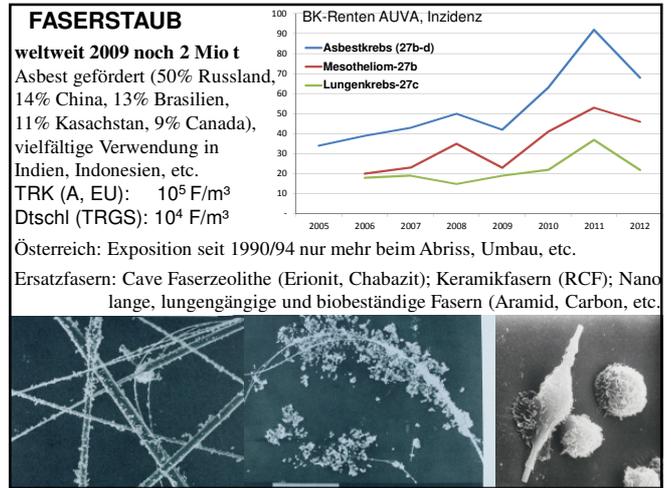
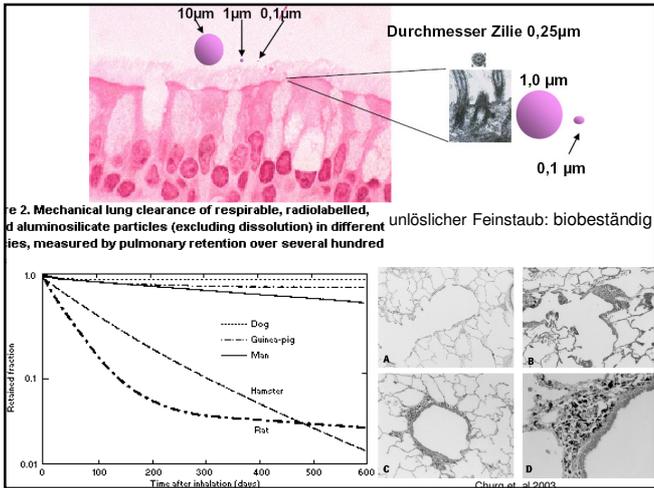
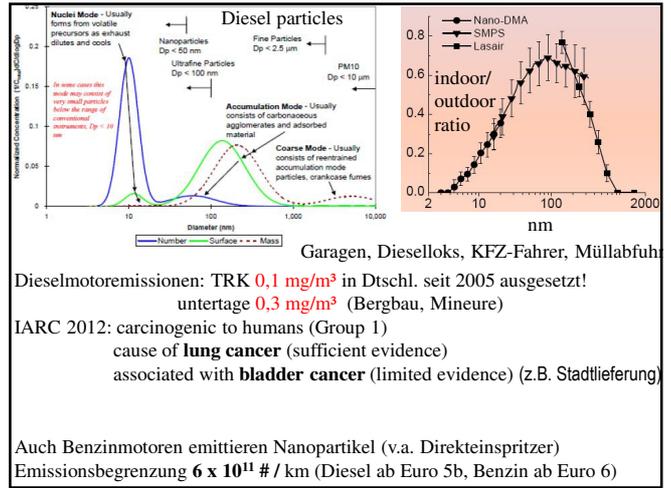
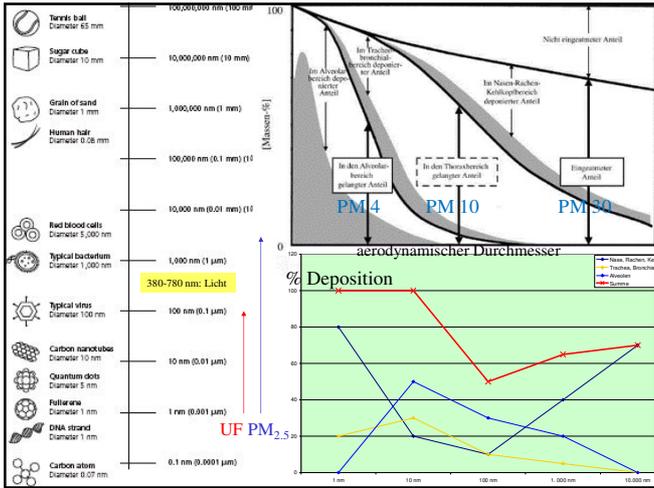
www.aerzteinitiative.at



← **“Staub macht krank”**

fein > grob, anthropogen > natürl.
keine Schwelle: Minimierung!
Funkt. Frühveränderung reversibel
Akute Wirkung bei Risikogruppen
(Vorgeschädigte)
Überwachung benötigt bessere
Indikatoren (PM_{2.5}, Obfl,...)
Grenzwerte revisionsbedürftig
(MAK für “Inertstaub”,
Dieselruss, Quarz;
MIK_K für PM_{2.5})
Innenräume: Rauchverbot!
„Bergsucht“ (1534): Ra-Lungenkrebs

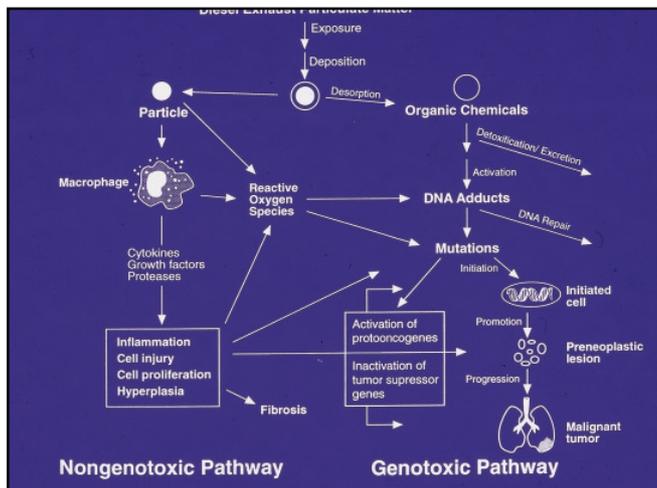
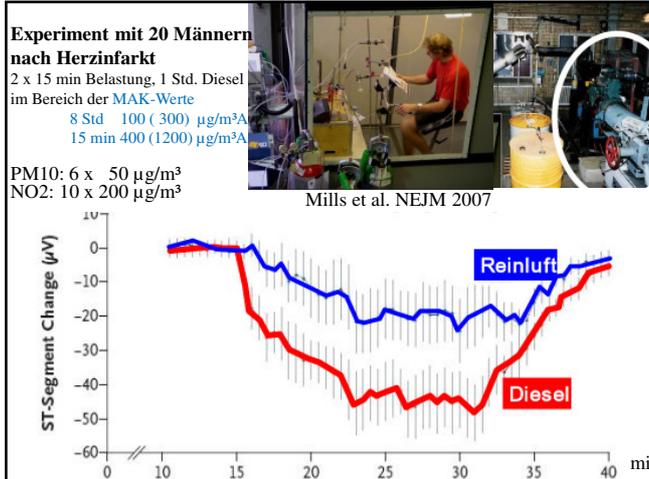




Erste Langzeitbeobachtung von Staubarbeitern (ohne Asbestexposition) ab 40a (Wiener Metall-, Stein-, Ziegel-, Glas-, Keramikindustrie) und einer männlichen Kontrollkohorte, gematched nach Alter, Beobachtungsbeginn und Raucherstatus:

Todesursache	Staubarbeiter	Kontrollkohorte	Risiko (hazard)	95%-Konf.-intervall	p (Cox)
Malignome	451	409	1.26	1.10 - 1.44	0.001
Lungenkrebs	189	149	1.42	1.14 - 1.76	0.002
Magenkrebs	81	52	1.77	1.25 - 2.51	0.001
COPD	86	55	1.82	1.30 - 2.56	0.001
Silikose u.a. chr.	60	1	67.12	9.3 - 484.4	<0.001
Alle	1610	1607	1.18	1.10 - 1.26	0.001

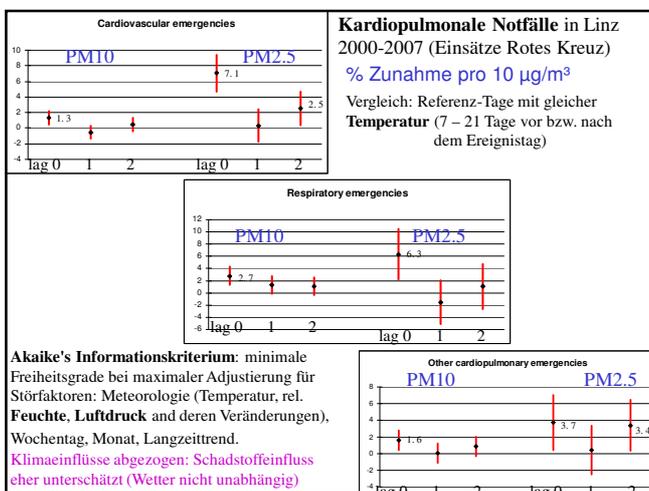
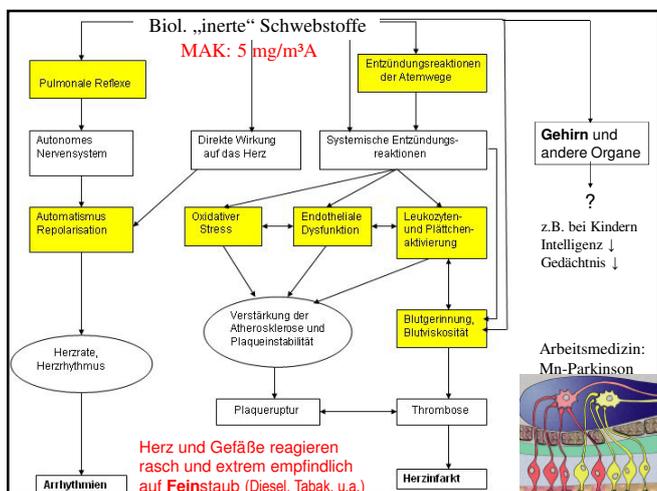
Die Silikose erklärte die Unterschiede bei **LUNGENKREBS nicht!**
Auch „Inertstaub“ in hohen Dosen fördert COPD!



Times Spent in Traffic and Heart Attacks one hour later

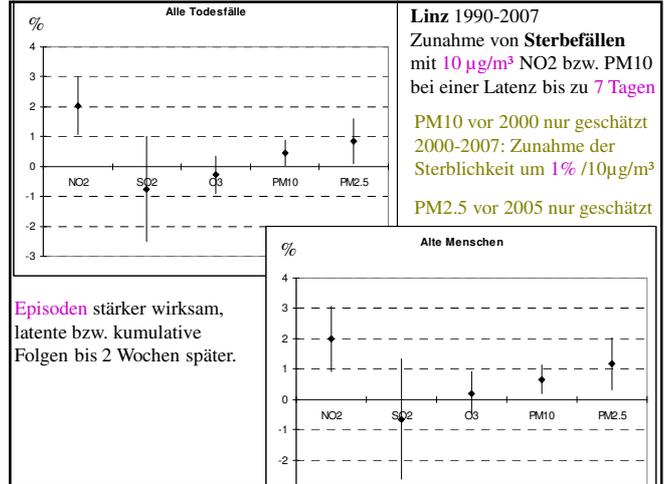
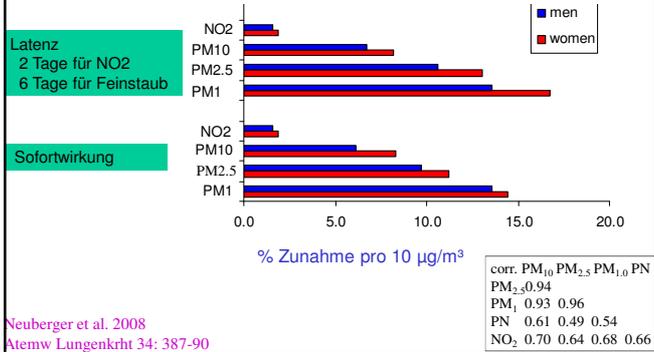
Augsburg n = 691 matching 1 : 3	Traffic	Cars	Public Transport	Bicycles
Peters et al. NEJM 2004				
Odds Ratio	2.9	2.6	3.1	3.9
95% Confidence Interval	2.2 - 3.8	1.9 - 3.6	1.4 - 6.8	2.1 - 7.2

Peters et al. 2005: case (851 survivors) crossover, lagged 2 days: 10% increase per IQR of PM10 (24h).
Peters et al. 2010: ultrafines (road proximity)



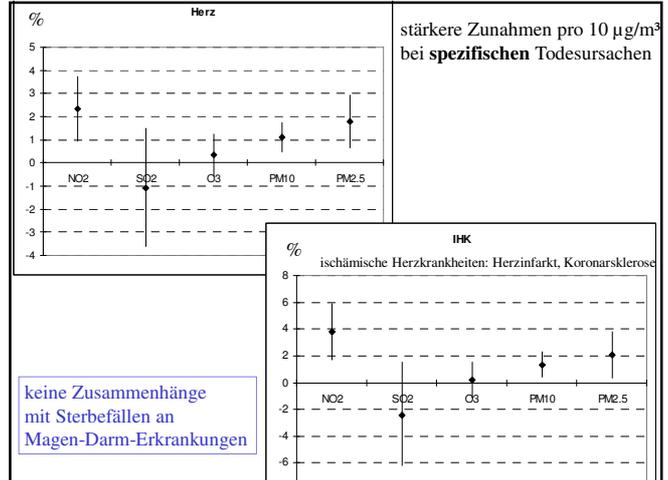
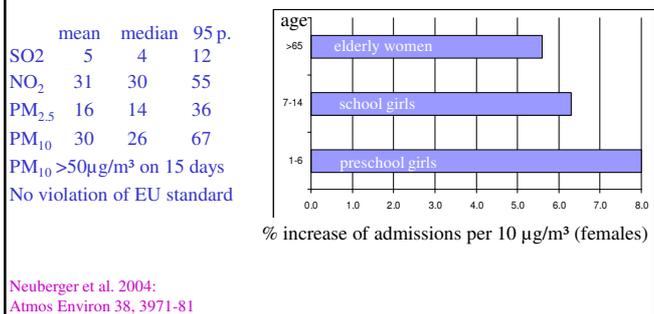
Linz: Kardiovaskuläre Spitalsaufnahmen (ICD 410-438) und tägliche Feinstaub- und NO2 Konzentration 2000-2001

semiparametric Poisson GAMs (best fit selected from all models for lags 0 up to 14 days), significant associations for PM, PN, NO2, SO2, H2S, time, mean temperature, rel.humidity

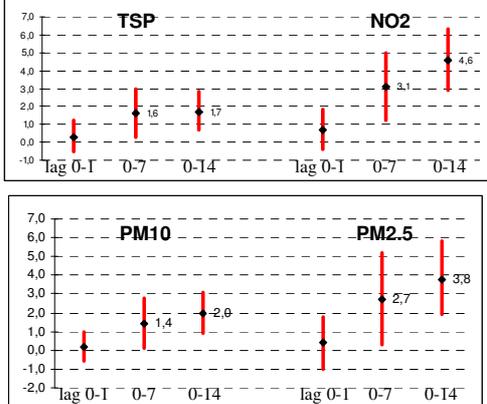


↑ Spitalsaufnahmen wegen Atemwegserkrankungen (ICD-9: 490-496 bei Entlassung) in Wien mit der täglichen PM2.5 - Konzentration 1999-2000

semiparametric gam.exact 14-day lag model considering temperature, humidity, NO2, week-day dummy, epidemic influenza registered by sentinels.



Wien 2000-2004: kardiovaskuläre Sterblichkeit, Δ% pro 10 µg/m³



Neuberger et al. 2007 Atmos Environ 41: 8549-56

Case-Crossover: Relatives Sterberisiko pro µg/m³ Linz, 2000-2007

