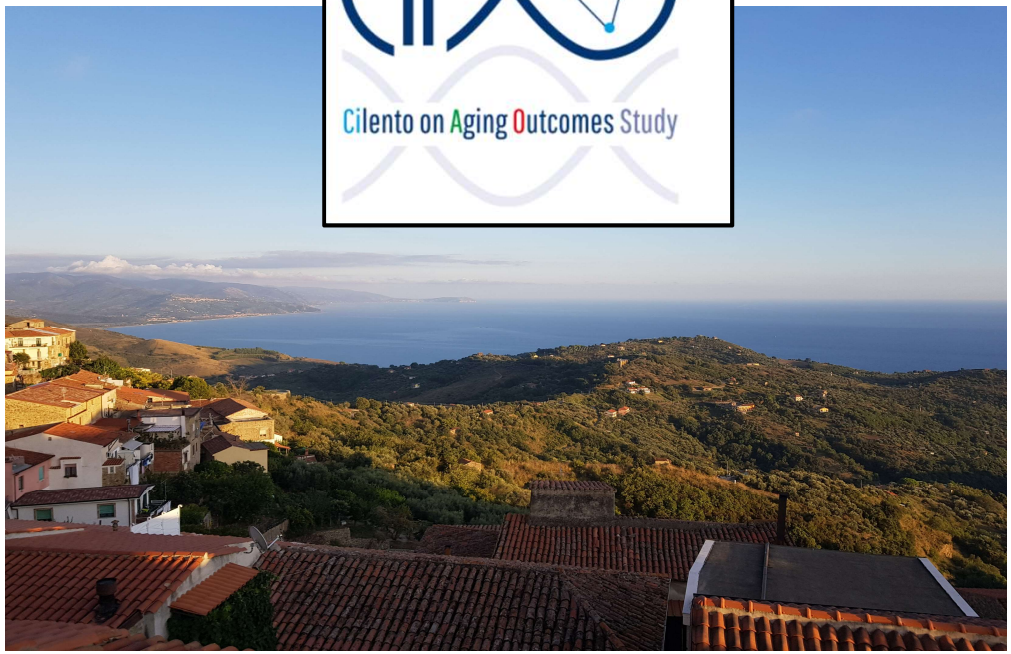
CARDIOVASCULAR DISEASE AND CANCER IN CILENTO AND MALMÖ

Olle Melander, MD, PhD, Professor of Internal Medicine, Lund University, Malmö, Sweden

Cilento on Aging Outcomes Study



Malmö Offspring Study

GREAT ITALY VIII INTERNATIONAL MEETING
SEPTEMBER 26TH –OCTOBER 4TH 2019
CILENTO REGION –SALERNO (Italy)

GREAT
global research on acute conditions team

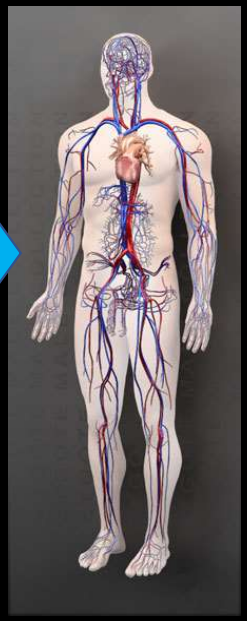
DIFFERENCES BETWEEN CILENTO AND MALMÖ??

CAN DISEASE RISK AND HEALTHY AGEING BE IMRPOVED BY MODIFICATION OF LIFE STYLE?

Diet/Life style

GUT BACTERIA

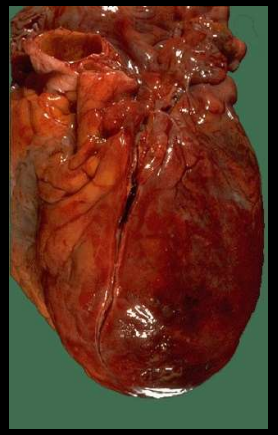
Hormones
Enzymes



METABOLITES

STROKE

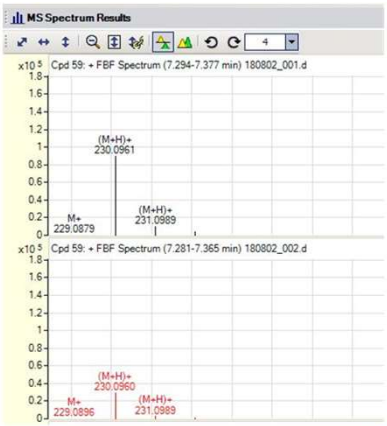
MYOCARDIAL INFARCTION



CILENTO

n=1000

Stage 1



MALMÖ

n=1000

Middle aged (50-67 years), population based

WHICH LIFE STYLE AND METABOLIC FACTORS DIFFER BETWEEN CILENTO AND MALMÖ?

→ DIFFERENCES IN LIFE-STYLE, METABOLOME AND GUT MICROBIOME

Stage 2

Factors from stage 1

METABOLITE X, Y, Z...
LIFE STYLE FACTOR X, Y, Z...

→ PREDICTION OF DISEASE INCIDENCE (MALMÖ DIET AND CANCER STUDY + MALMÖ PREVENTIVE PROJECT)

CARDIOVASCULAR DISEASE; DIABETES; CANCER

Stage 3

Factors from stage 1+2

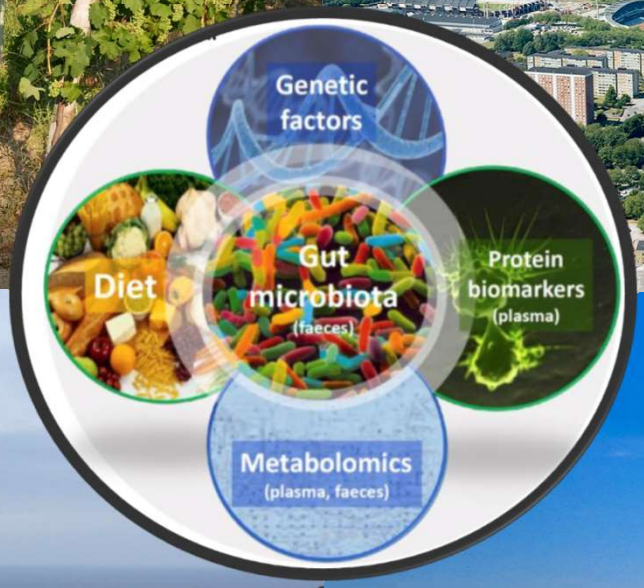
ENVIRONMENTAL EXCHANGE

→ CAN MOVE OF MALMÖ AND CILENTO PEOPLE SIGNIFICANTLY ALTER DISEASE ASSOCIATED METABOLITES AND GUT MICROBIOME?

Cilento, Italy

Malmö, Sweden

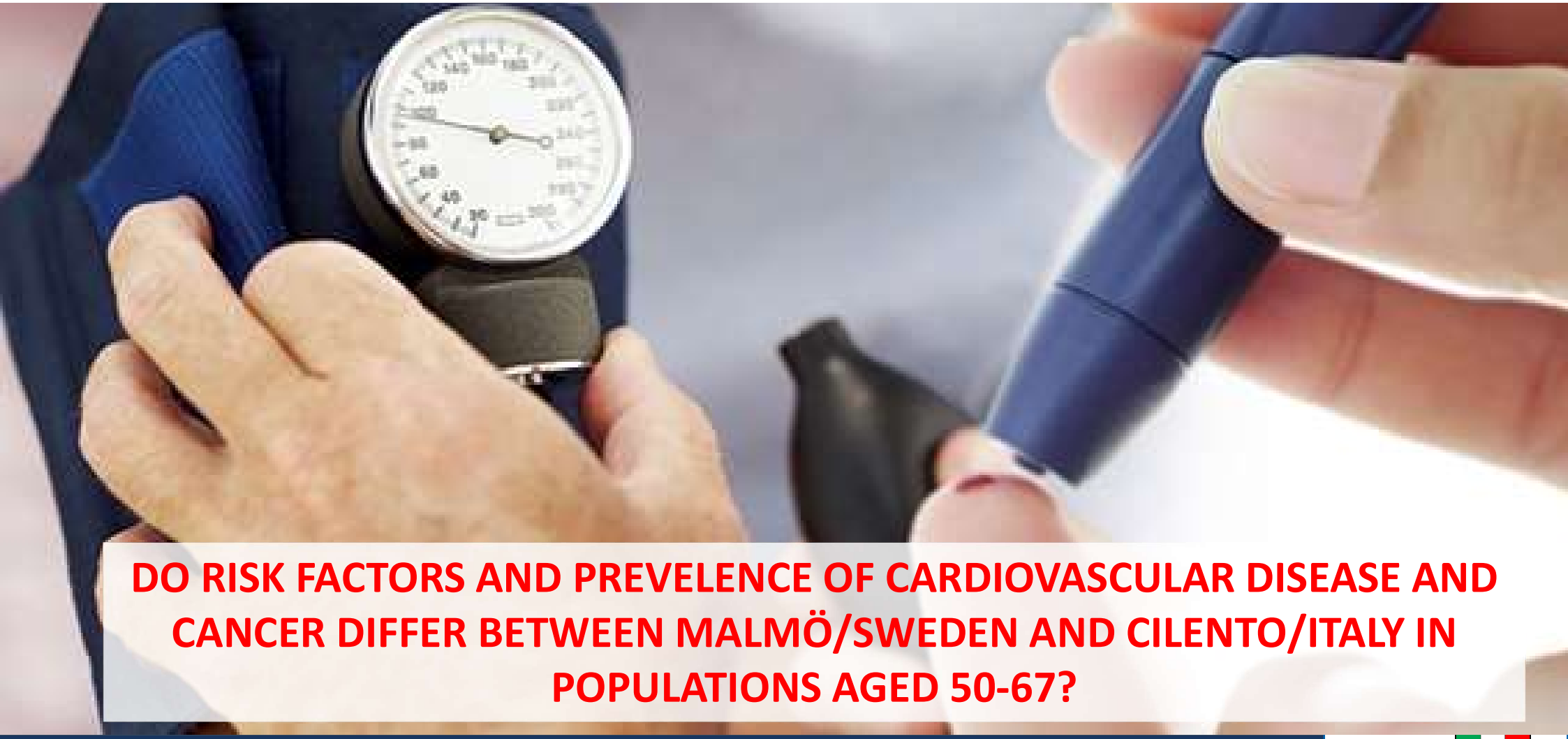
STAGE 1: COMPARISON OF DIFFERENCES IN LIFE-STYLE AND BIOLOGICAL FACTORS



Cilento
N=1012
(50-67 years)

Malmö
N=1309
(50-67 years)

***IDENTICAL QUESTIONNAIRE (SWEDISH AND ITALIAN VERSION)**
***IDENTICAL PLASMA AND STOOL SAMPLE COLLECTION/STORAGE**
***IDENTICAL BIOCHEMICAL ASSAYS**



DO RISK FACTORS AND PREVELENCE OF CARDIOVASCULAR DISEASE AND CANCER DIFFER BETWEEN MALMÖ/SWEDEN AND CILENTO/ITALY IN POPULATIONS AGED 50-67?

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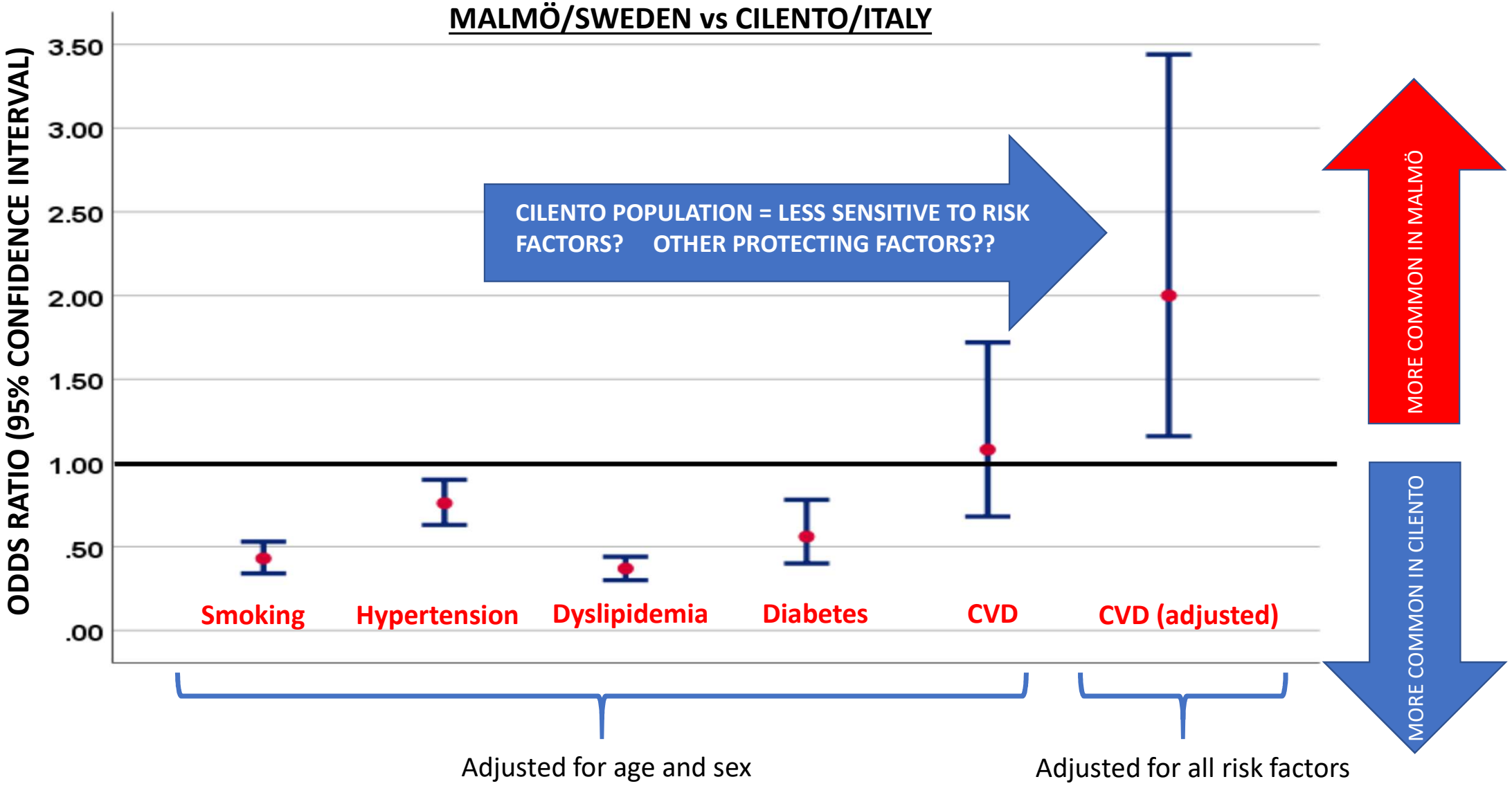
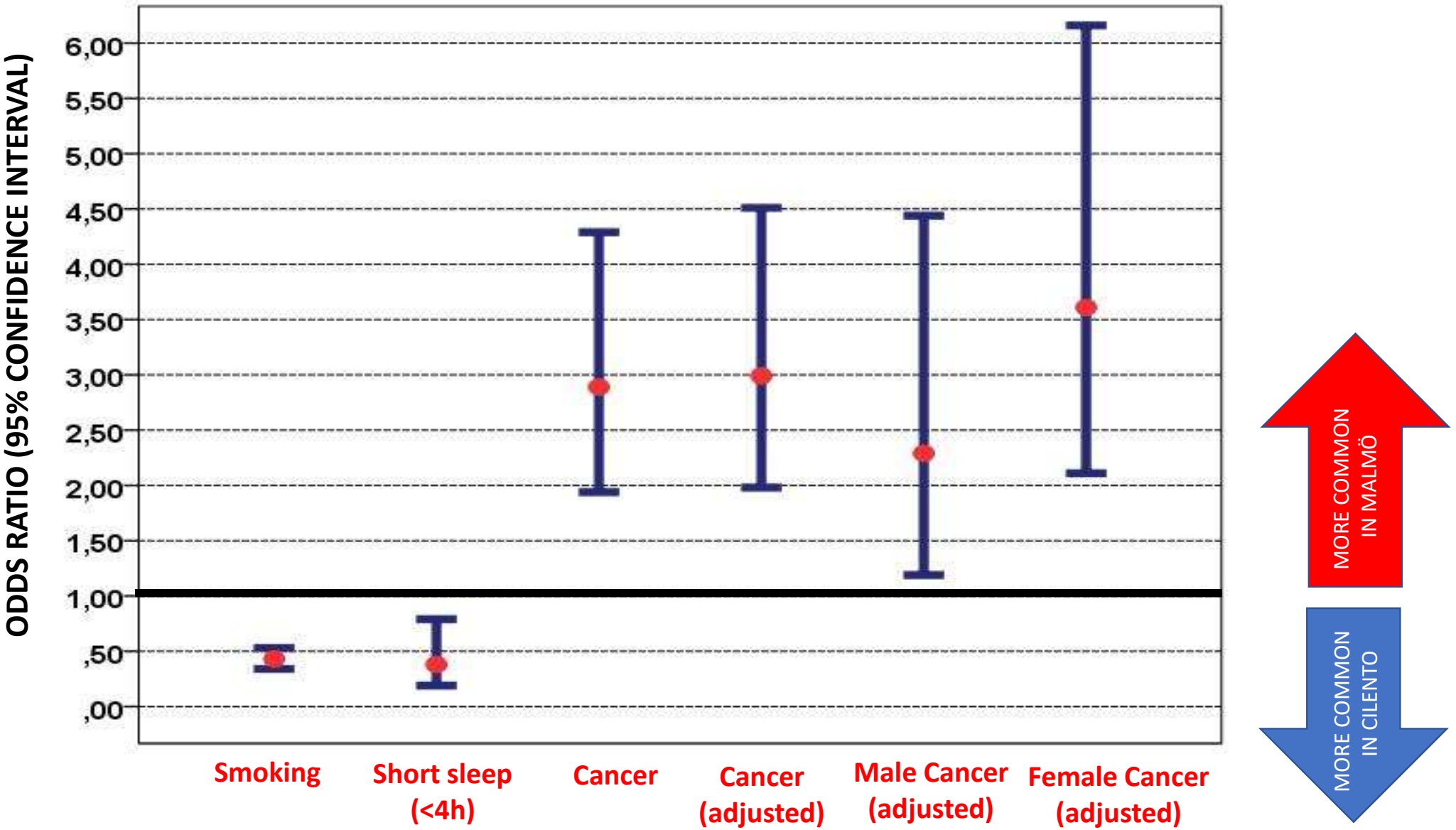
ODDS RATIO FOR RISK FACTORS AND CARDIOVASCULAR DISEASE (MI AND STROKE) IN MALMÖ/SWEDEN vs CILENTO/ITALY



ODDS RATIO FOR RISK FACTORS AND CANCER IN MALMÖ/SWEDEN vs CILENTO/ITALY (age and sex adjusted)



DIFFERENCES BETWEEN CILENTO AND MALMÖ??

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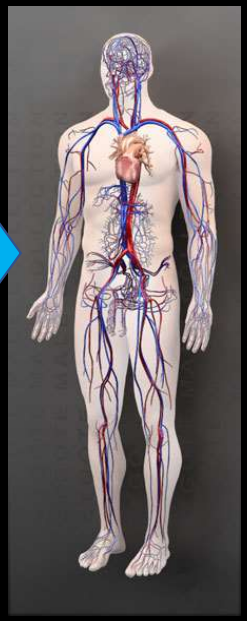

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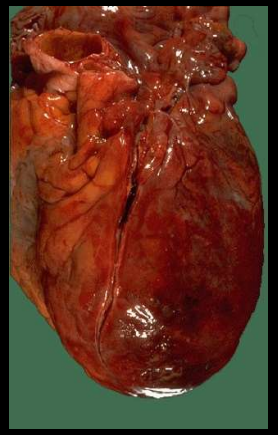
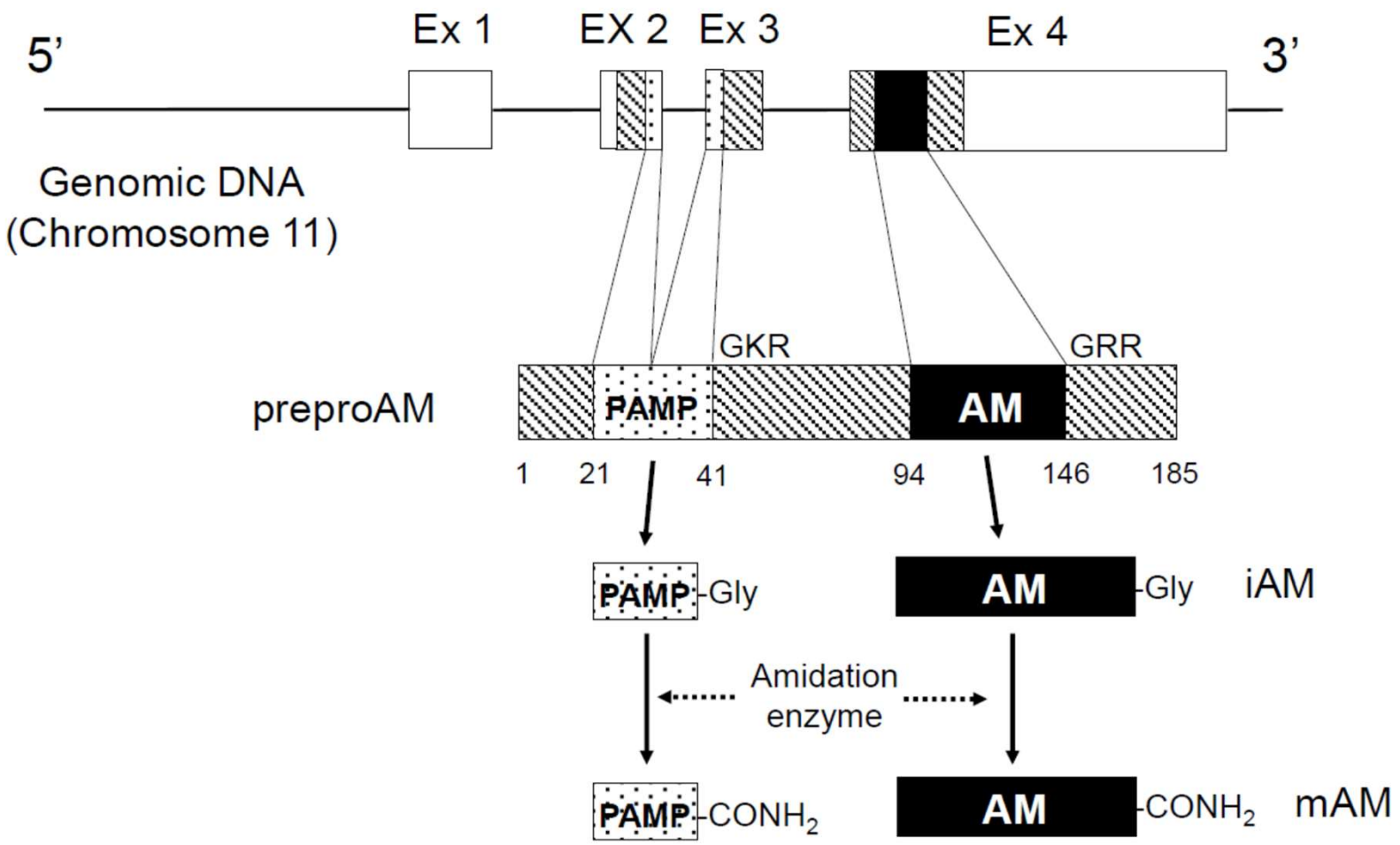
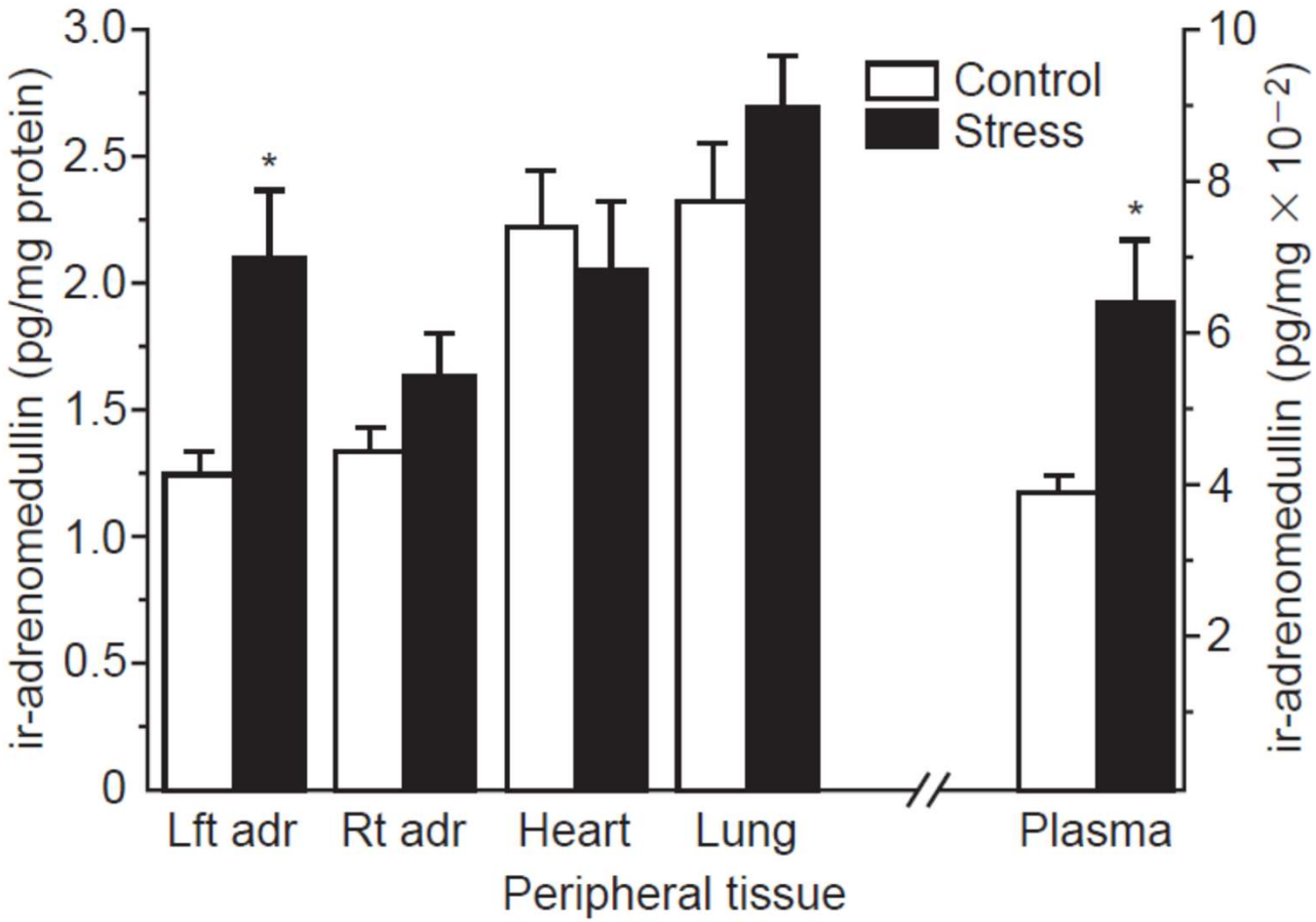



STRESS LEVEL
LOW
MEDIUM
HIGH

ADRENOMEDULLIN- WIDELY EXPRESSED AND SECRETED WITH ENDOTHELIUM AS A MAIN SOURCE OF CIRCULATING LEVELS



STRESS CAUSES INCREASED PRODUCTION AND SECRETION OF ADRENOMEDULLIN



NeuroReport 10, 2829–2833 (1999)

Novel and Conventional Biomarkers for Prediction of Incident Cardiovascular Events in the Community

Biomarker	HR: Multivariable-Adjusted HR (95% CI)[b]	*P* Value
First cardiovascular events		
CRP	1.19 (1.07-1.32)	.002
Cystatin C	1.13 (1.03-1.23)	.006
MR-proADM	1.12 (1.01-1.24)	.04
MR-proANP	1.12 (1.00-1.25)	.04
N-BNP	1.22 (1.10-1.36)	<.001
First coronary events		
Cystatin C	1.15 (1.04-1.27)	.006
MR-proADM	1.21 (1.07-1.37)	.002
N-BNP	1.28 (1.12-1.47)	<.001

Melander et al. JAMA 2009

Midregional proadrenomedullin predicts reduced blood pressure and glucose elevation over time despite enhanced progression of obesity markers

Therese Ohlsson, Peter M. Nilsson, Margaretha Persson, and Olle Melander

Journal of Hypertension 2019, 37:590–595

MR-proADM ↑

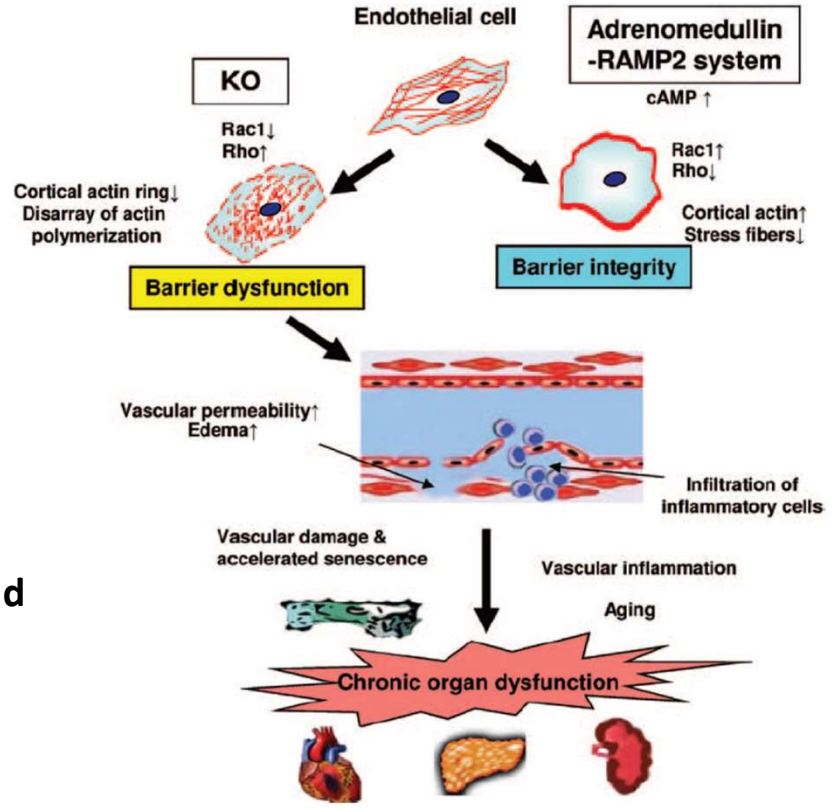
Baseline:	SBP ↑	FBG ↑	Waist ↑	BMI ↑
Follow-up:	ΔSBP ↓	ΔFBG ↓	ΔWaist ↑	ΔBMI ↑

ADM (bio-active ADM) = Good guy but sign of something bad

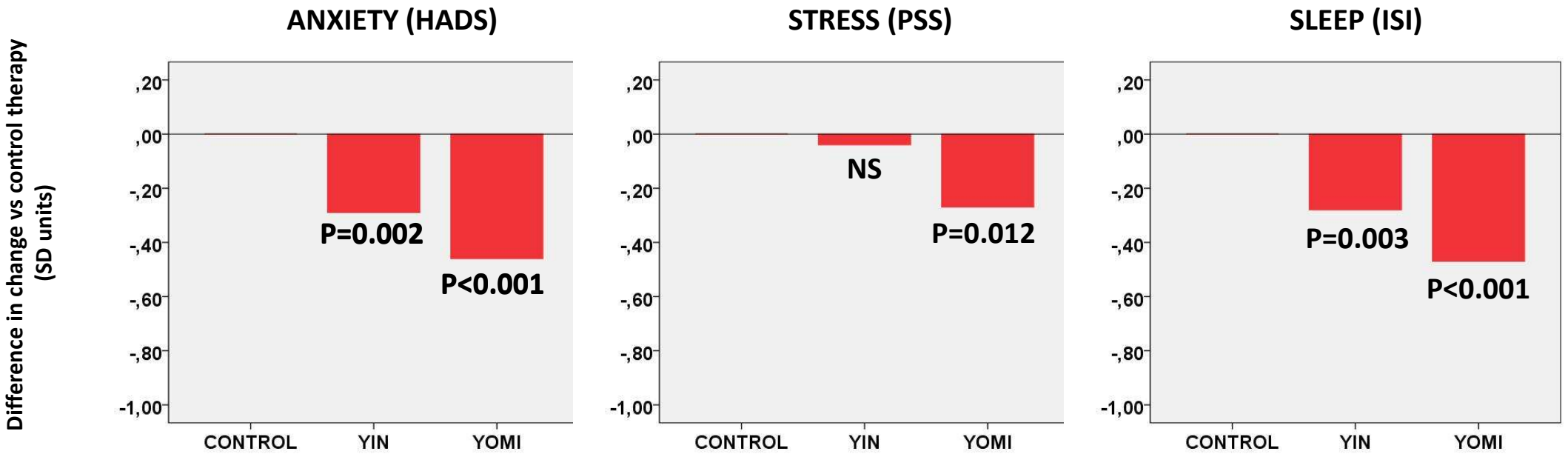
”high value = cry for help”

Vascular Endothelial Adrenomedullin-RAMP2 System Is Essential for Vascular Integrity and Organ Homeostasis

Teruhide Koyama; Laura Ochoa-Callejero, PhD; Takayuki Sakurai, PhD; Akiko Kamiyoshi, PhD; Yuka Ichikawa-Shindo, MD, PhD; Nobuyoshi Iinuma, MD, PhD; Takuma Arai, MD, PhD; Takahiro Yoshizawa; Yasuhiro Iesato, MD; Yang Lei; Ryuichi Uetake; Ayano Okimura; Akihiro Yamauchi; Megumu Tanaka; Kyoko Igarashi; Yuichi Toriyama, MD; Hisaka Kawate; Ralf H. Adams, PhD; Hayato Kawakami, MD, PhD; Naoki Mochizuki, MD, PhD; Alfredo Martínez, PhD; Takayuki Shindo, MD, PhD

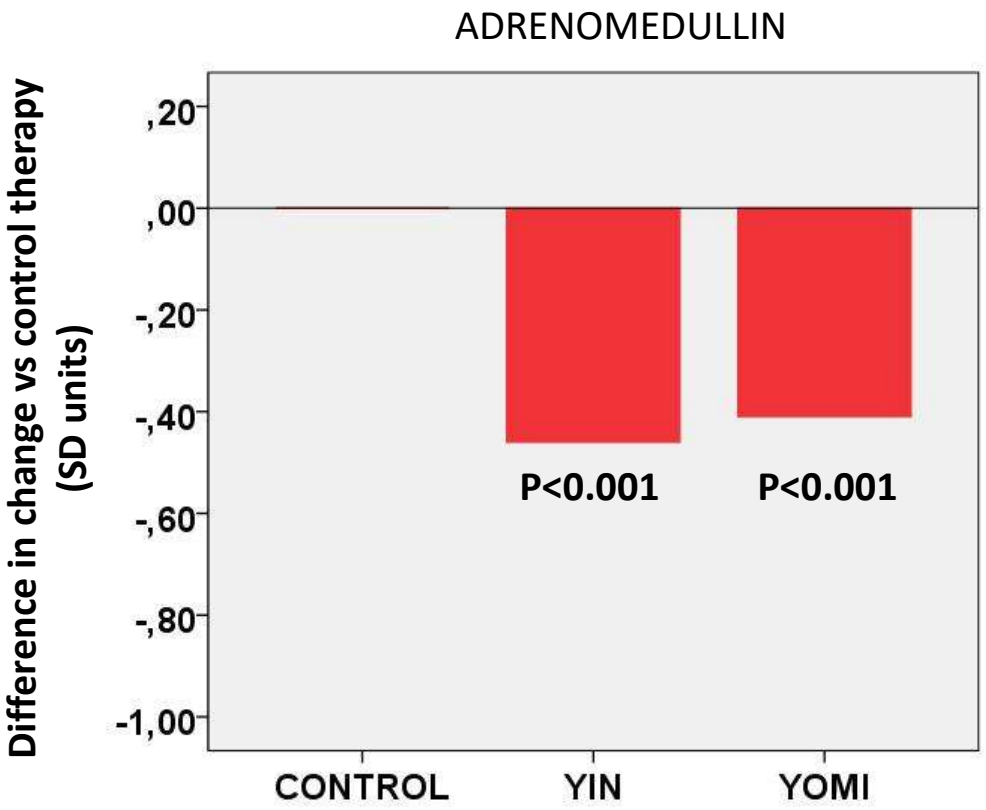


Effects of 5-weeks yoga (”YIN”) and yoga+mindfulness (YOMI) vs CONTROL on parameters of psychological stress



Daukantaitė, D, PLOS ONE, 2018

Effects of 5-weeks yoga (”YIN”) and yoga+mindfulness (YOMI) vs CONTROL on circulating adrenumedullin concentration



YOMI INDUCED CHANGE OF ADRENUMEDULLIN VS CHANGE OF ANXIETY

r=0.28, P=0.02

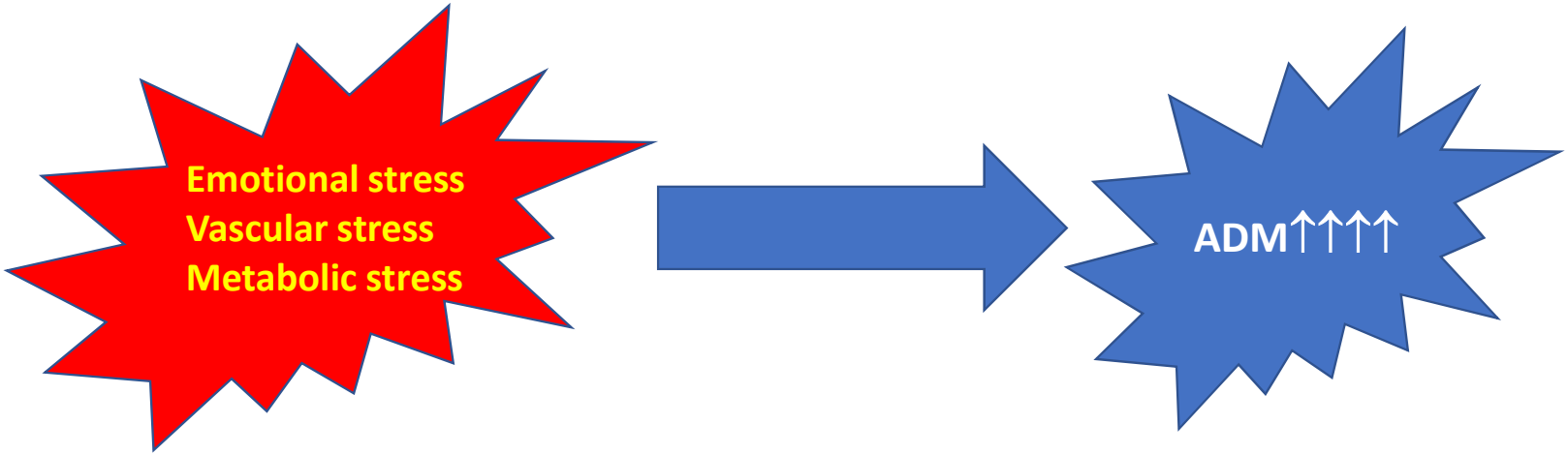
Daukantaitė, D, PLOS ONE, 2018

RESEARCH ARTICLE

Five-week yin yoga-based interventions decreased plasma adrenomedullin and increased psychological health in stressed adults: A randomized controlled trial

Daiva Daukantaitė[1☯], Una Tellhed[1☯], Rachel E. Maddux[1], Thomas Svensson[2,3], Olle Melander[2,4*]

PLOS ONE | https://doi.org/10.1371/journal.pone.0200518 July 18, 2018



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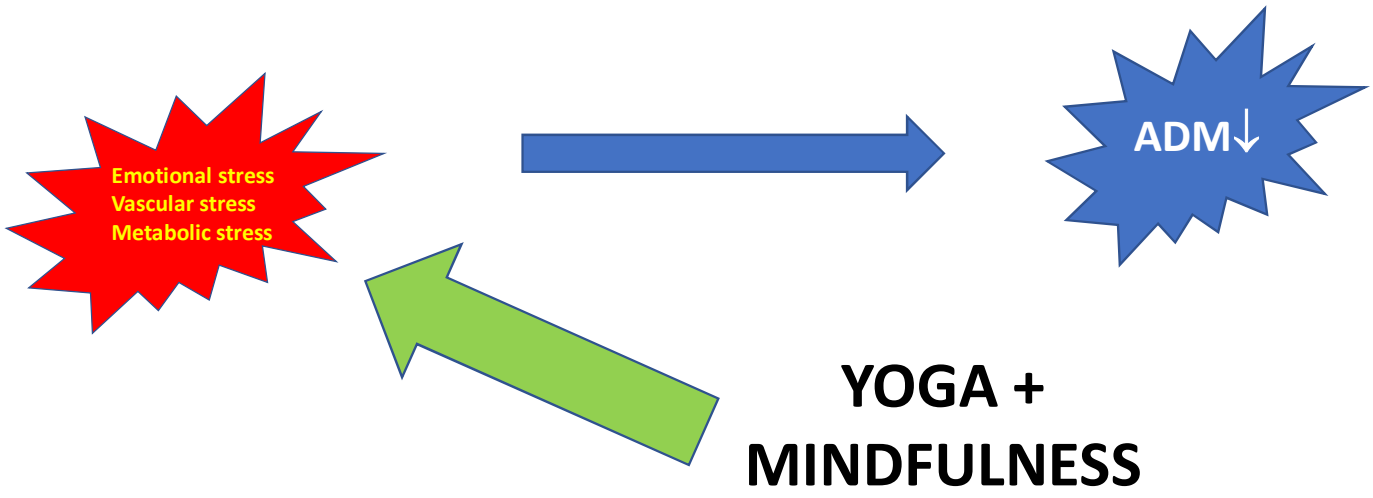
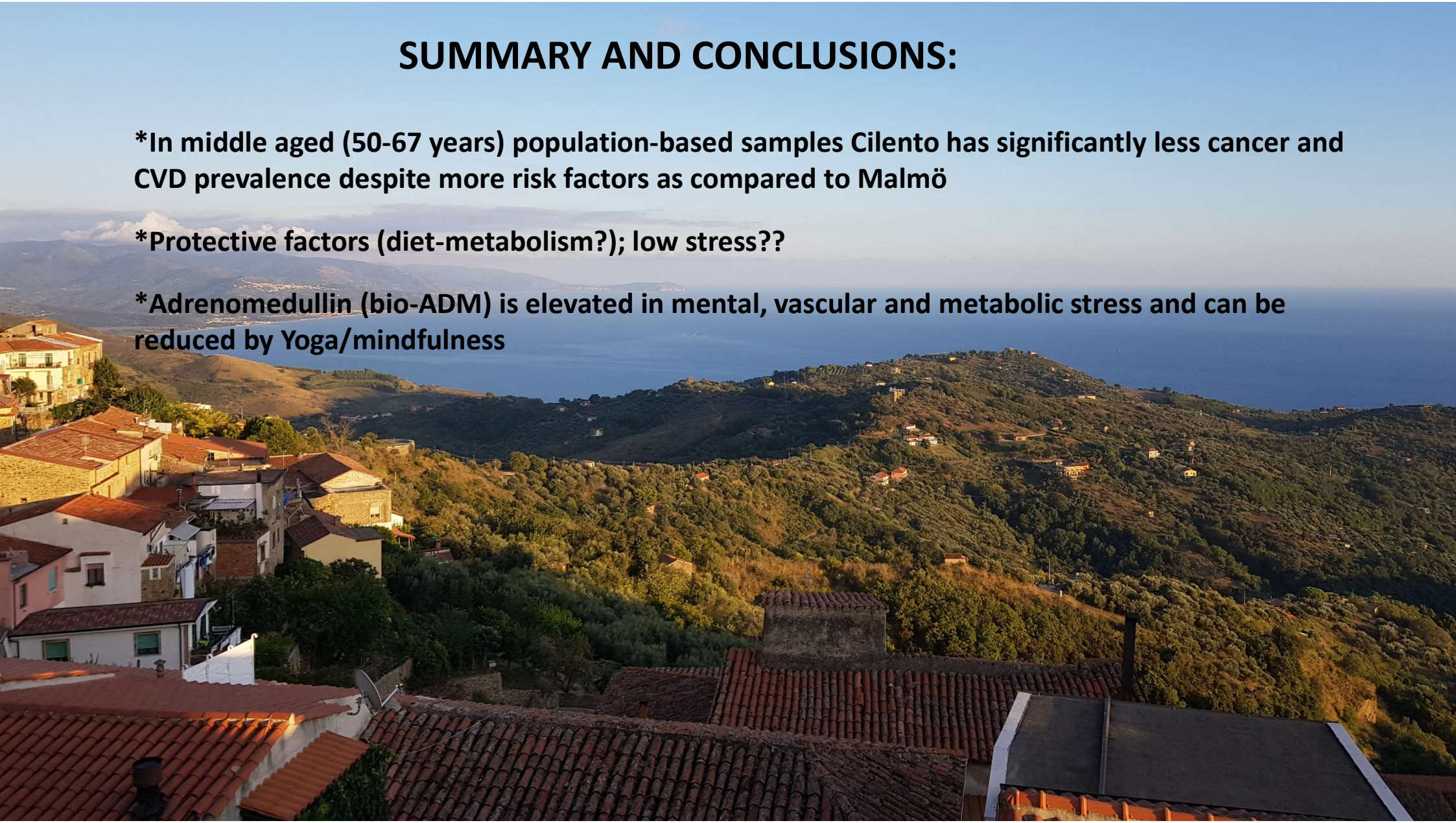


SUMMARY AND CONCLUSIONS:

***In middle aged (50-67 years) population-based samples Cilento has significantly less cancer and CVD prevalence despite more risk factors as compared to Malmö**

***Protective factors (diet-metabolism?); low stress??**

***Adrenomedullin (bio-ADM) is elevated in mental, vascular and metabolic stress and can be reduced by Yoga/mindfulness**



GRAZIE!