

UNIVERSITY OF COPENHAGEN

THE TIME IS NOW!- DON'T DELAY BEING PHYSICALLY ACTIVE

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TWO MAIN MESSAGES

WITH REGARD TO LIFESTYLE RELATED DISEASE

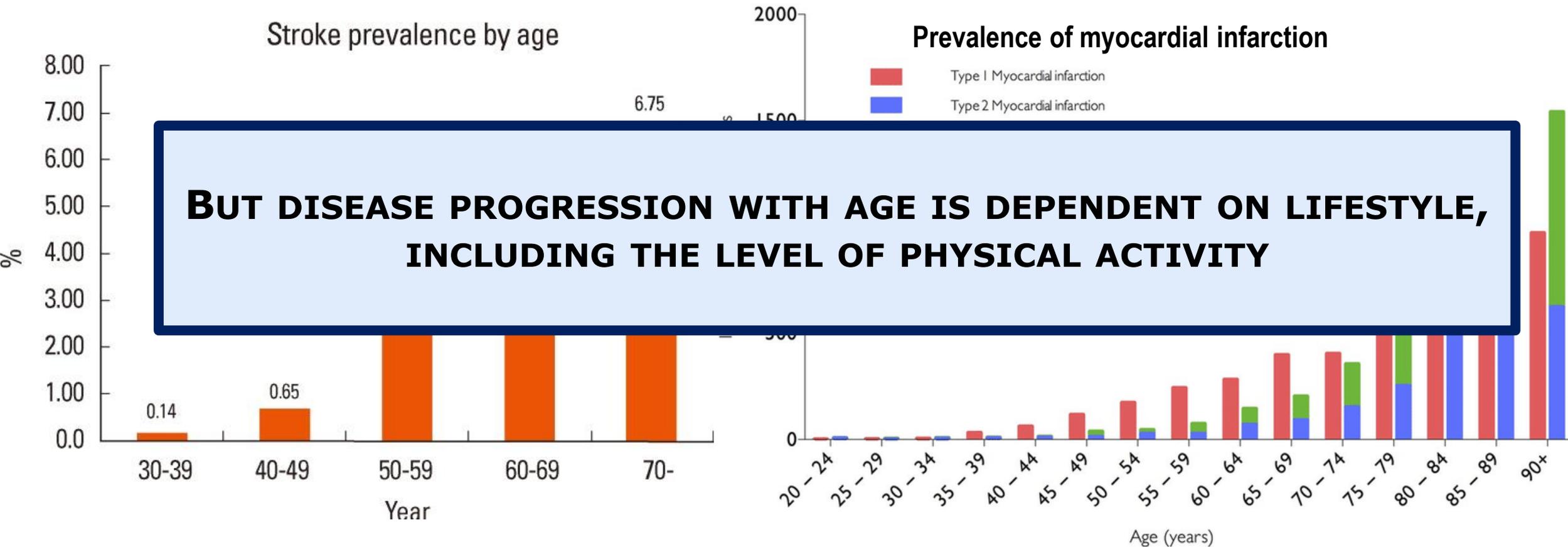
THERE IS A DIFFERENCE BETWEEN CHRONOLOGICAL AGE AND BIOLOGICAL AGE, THUS THE SOLE TERM "AGING" IN THIS FIELD CAN BE MISLEADING



IT MAY BE MORE EFFECTIVE TO **PREVENT** THE EFFECTS OF INACTIVE AGING RATHER THAN TO TRY TO **REVERSE** THE CONSEQUENCES



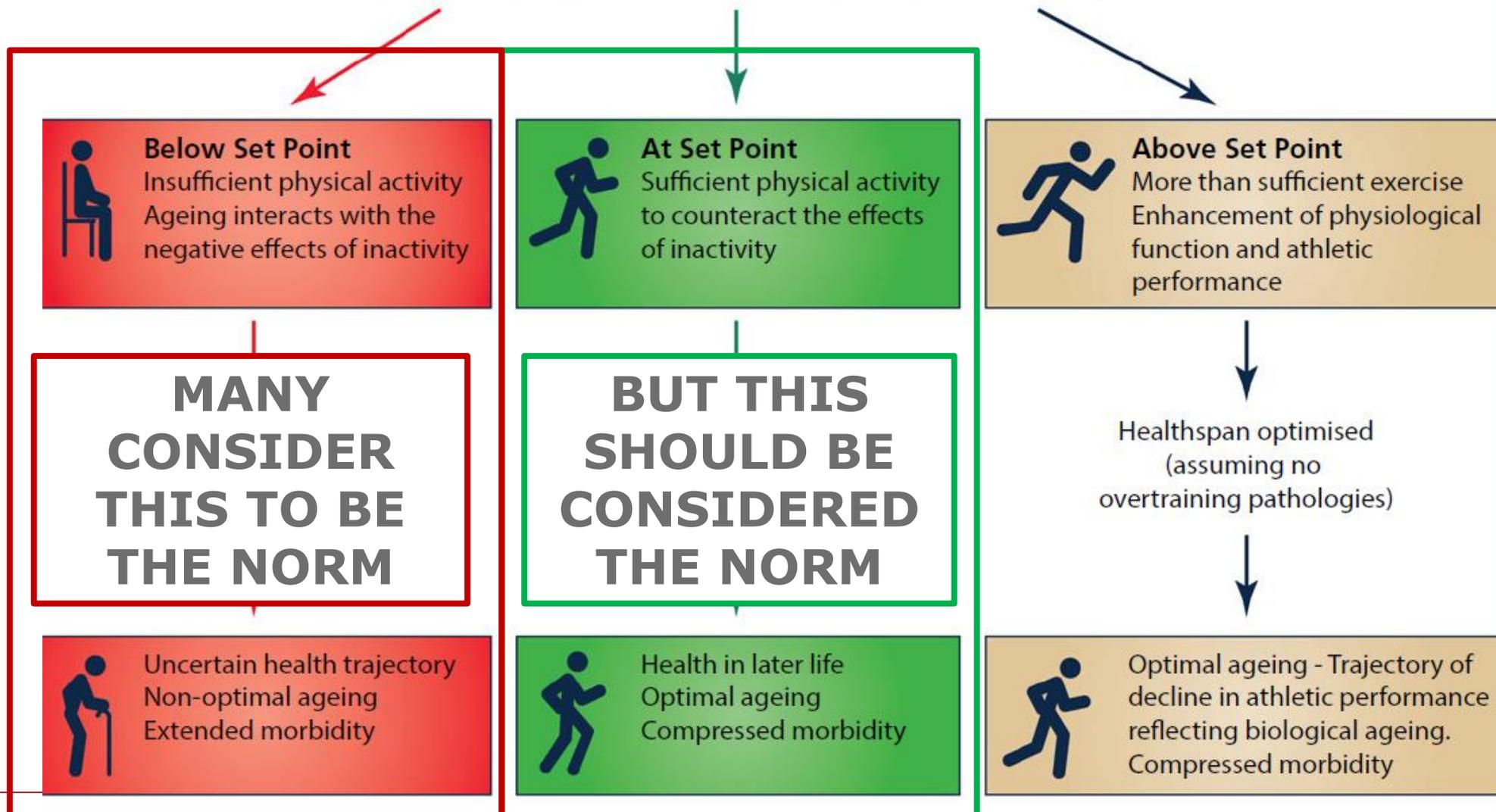
"AGEING" IS A MAJOR RISK FACTOR FOR CARDIOVASCULAR EVENTS



AGEING AND THE INFLUENCE OF PHYSICAL ACTIVITY

Lazarus and Harridge *JPhysiol* 2017

Set Point Theory
The graded effects of physical activity/exercise on ageing



VASCULAR FUNCTION IN RELATION TO LIFELONG PHYSICAL ACTIVITY LEVEL IN OLDER ADULT MEN



GROUPS

Young: 20-30 yrs

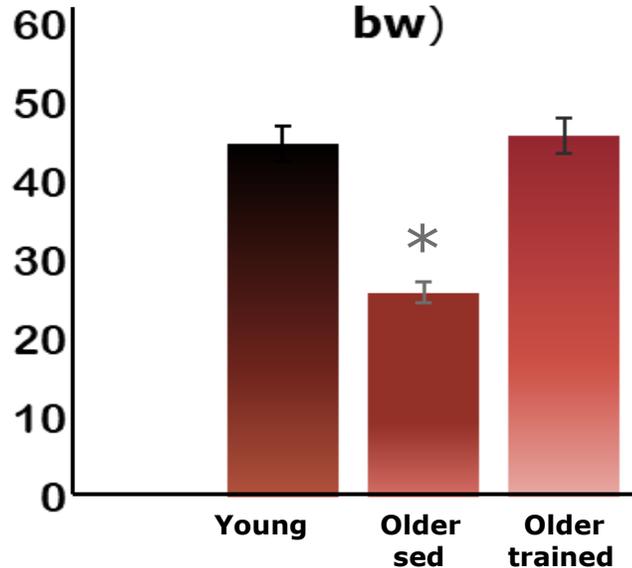
Older:

60-65 yrs-sedentary

60-65 yrs-well-trained

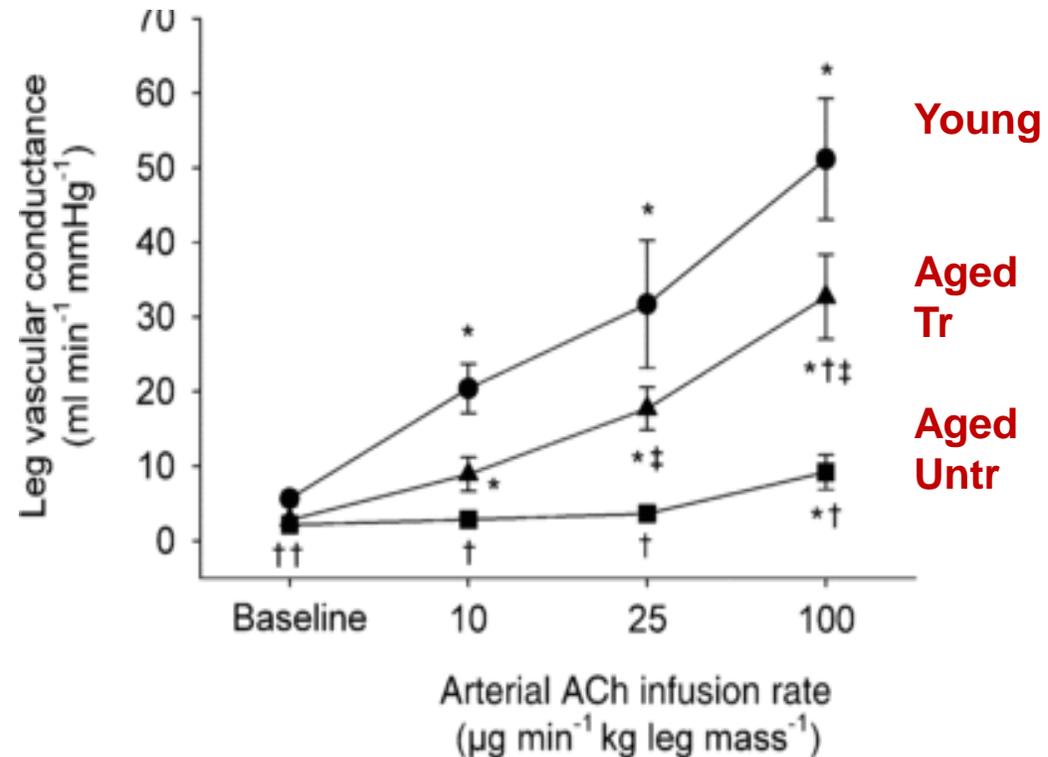
FITNESS LEVEL

VO₂ max (ml/min/kg bw)

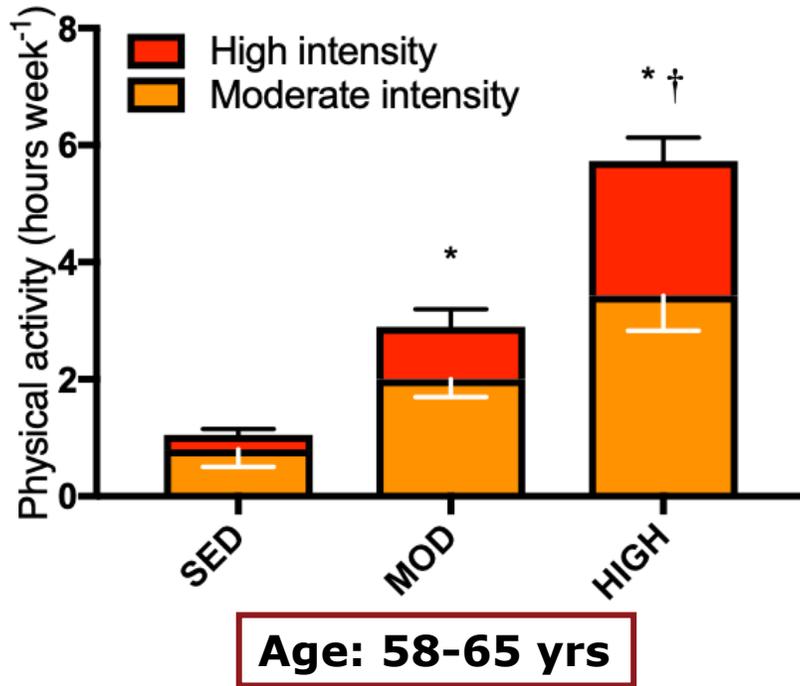


SKELETAL MUSCLE VASCULAR FUNCTION: A GOOD MARKER OF OVERALL VASCULAR HEALTH

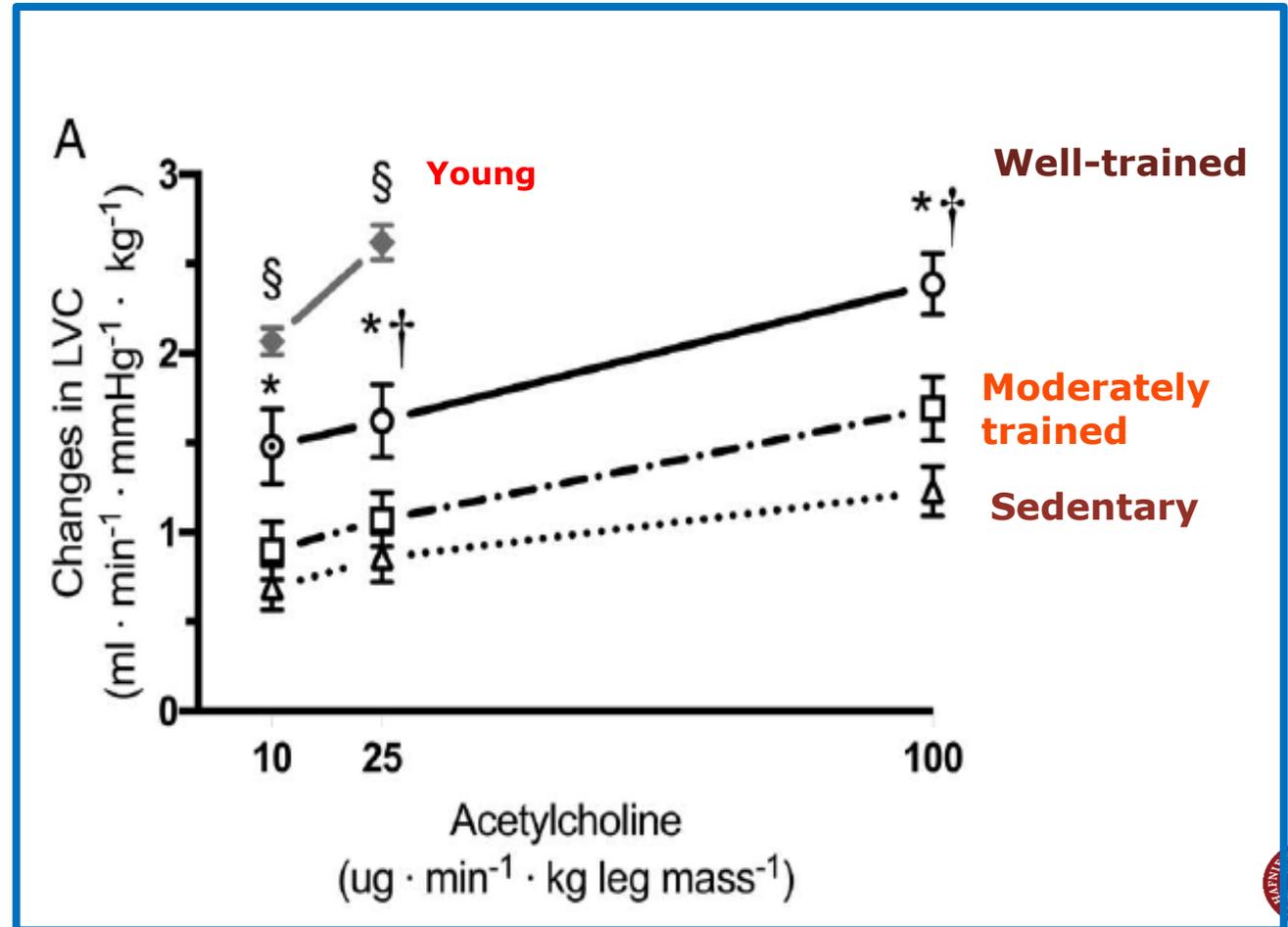
CHANGE IN LEG VASCULAR CONDUCTANCE WITH ACh INFUSION



VASCULAR FUNCTION ACCORDING TO LIFELONG PHYSICAL ACTIVITY LEVEL IN WOMEN



Vascular function



Lasse Gliemann



Andrea Tamariz Elleman



**SO IT IS CLEAR THAT REGULAR PHYSICAL ACTIVITY PROMOTES
HEALTHY AGING,**

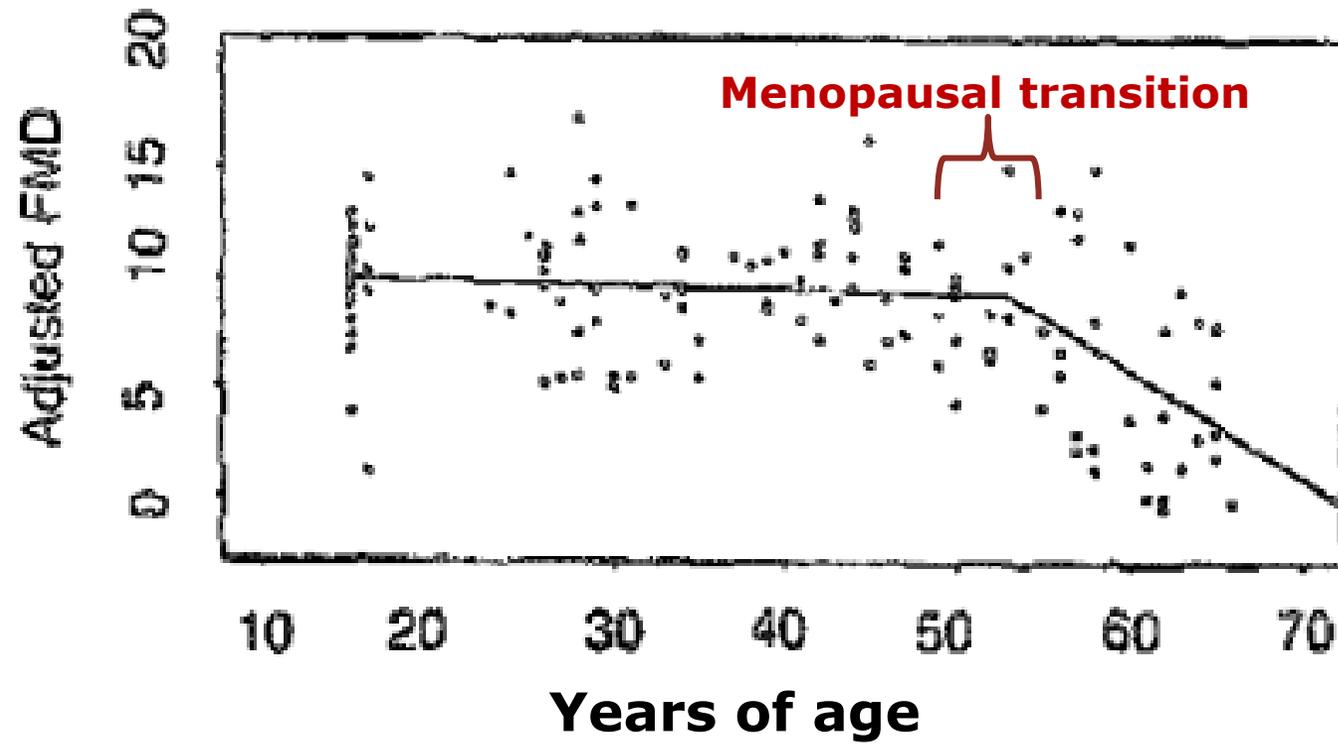
**BUT ARE THE BENEFITS THE SAME REGARDLESS OF WHEN IN
LIFE YOU BECOME ACTIVE?**

A STUDY IN WOMEN



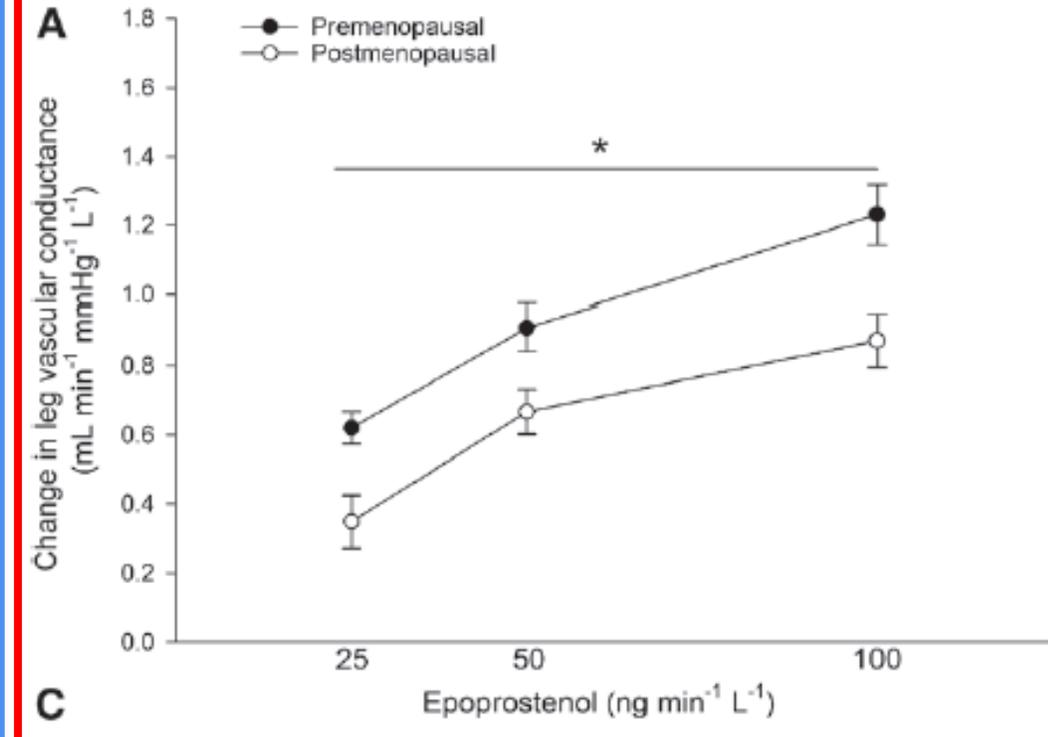
ESTROGEN LOSS IN WOMEN AT MENOPAUSE IS ASSOCIATED WITH A RAPID DECLINE IN VASCULAR HEALTH

Vascular function in women of different ages



Celermajer et al. JACC 1994

Vascular function in late pre- and recent postmenopausal women- 4 years of difference in age



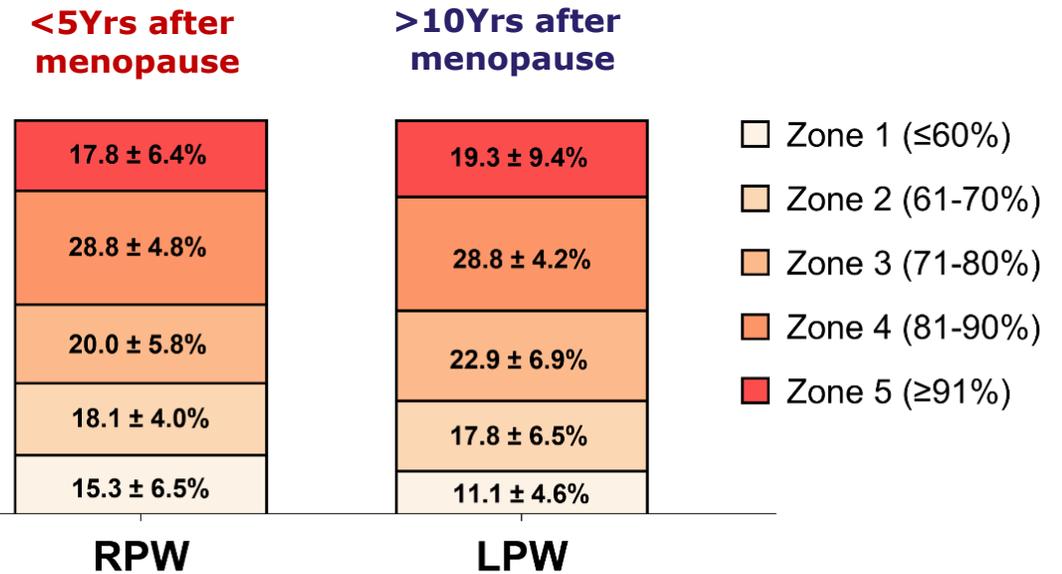
Nyberg et al. Hypertension 2016

IS IT MORE BENEFICIAL TO TRAIN SOON AFTER RATHER THAN LATER AFTER MENOPAUSE IN WOMEN?

A COMPARISON OF TRAINING EFFECTS IN RECENT AND LATE POSTMENOPAUSAL WOMEN

Participant Characteristics				
	EPW (n=14)		LPW (n=13)	
	PRE	POST	PRE	POST
Age – yr.	55.7 ± 2.8	-	61.9 ± 4.5###	-
Years after menopause – yr.	4.1 ± 1.1	-	13.0 ± 3.8###	-
Body weight – kg	69.6 ± 8.2	68.4 ± 8.0*	71.3 ± 9.0	71.4 ± 8.9
Body mass index – kg m ⁻²	24.9 ± 2.3	24.5 ± 2.4*	25.9 ± 2.2	25.9 ± 2.3

Training intensities were similar between the groups



Eight weeks of training Floorball + spinning



Kate Wickham

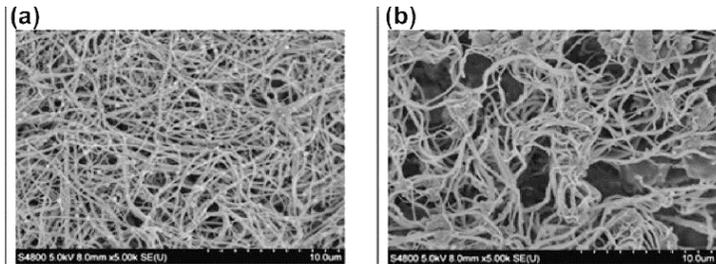
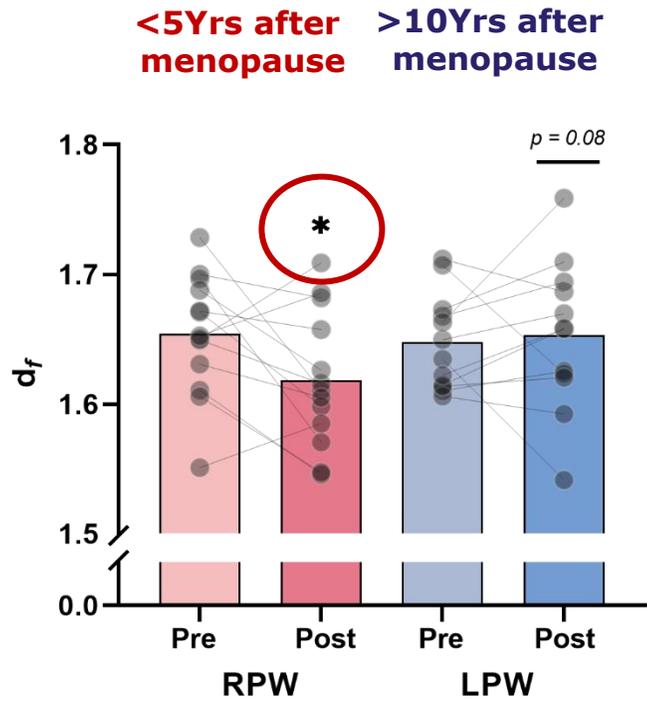


Line Olsen

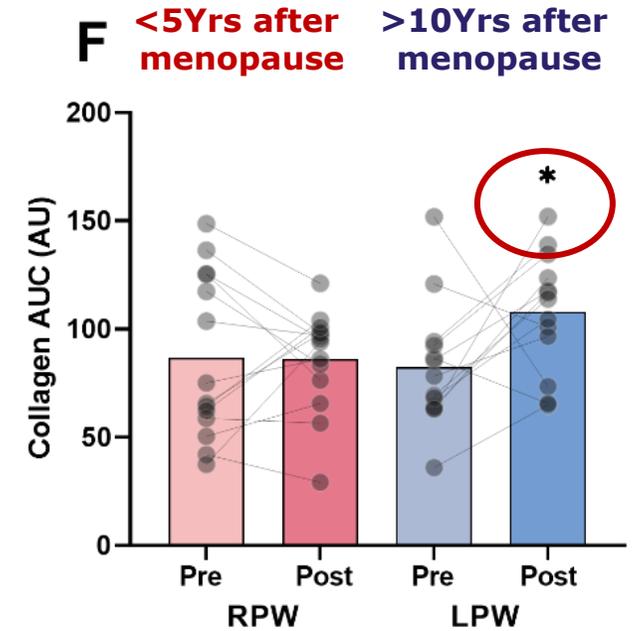
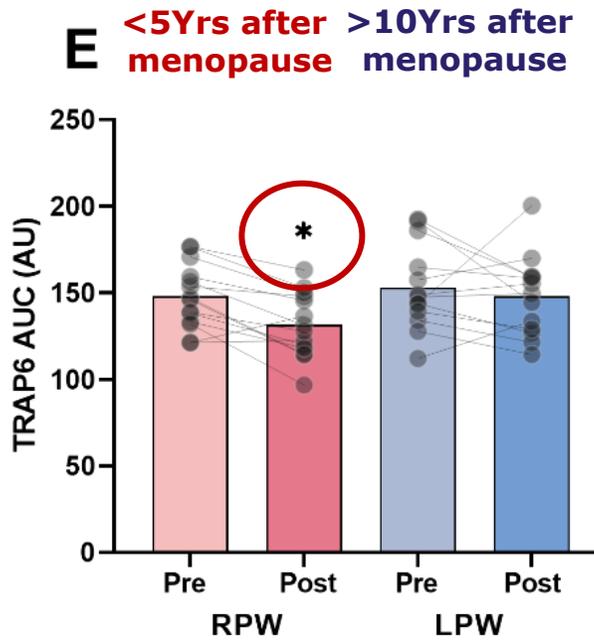


MARKERS INDICATING RISK OF BLOOD CLOTS

Clot microstructure



Platelet reactivity



MAIN TAKE HOME MESSAGE

**LIFELONG TRAINING AND EVEN JUST A SHORT PERIOD OF TRAINING OPPOSES THE
DETRIMENTAL EFFECTS OF AGEING ON VASCULAR HEALTH IN MEN AND WOMEN**

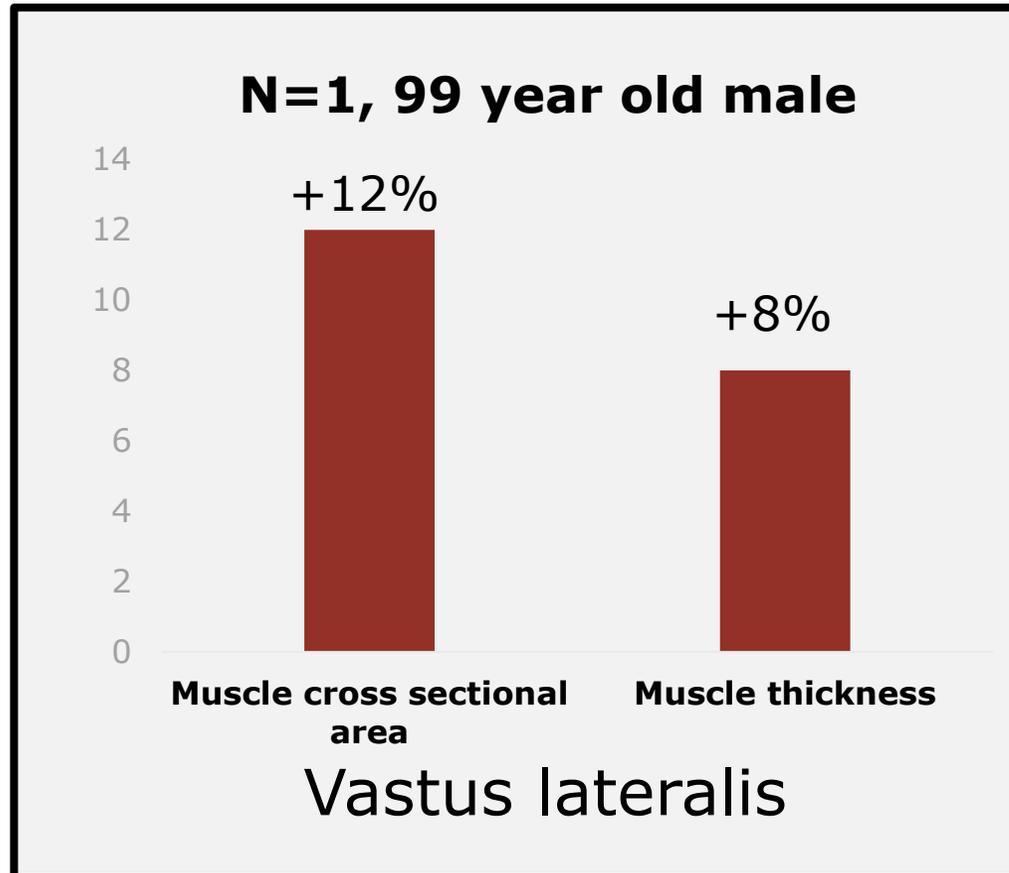
BUT

**WOMEN ARE LIKELY TO HAVE BETTER VASCULAR HEALTH GAINS IF PHYSICAL ACTIVITY IS
INITIATED PRIOR TO, OR AT, THE MENOPAUSAL TRANSITION, RATHER THAN LATER IN
LIFE**

**OVERALL THERE IS EVIDENCE TO SUGGEST THAT IT IS BETTER TO PREVENT RATHER THAN
REVERSE THE EFFECTS OF INACTIVE AGEING ON HEALTH**



BUT IT MAY NEVER BE TOO LATE TO BEGIN EXERCISING...



Training protocol: 24 sessions of a unilateral free-weight knee extension exercise with partial blood flow restriction through a manometer cuff set at 50% of complete vascular occlusion pressure.



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