



SICOM & AOCO 2024

SOMS International Conference on Obesity & Metabolism
in conjunction with Asia-Oceania Conference on Obesity

Hosted by

SOMS Society for Korean
Obesity and Metabolism Studies

Co-Hosted by



Empowering Health, Inspiring Change: Practical Solutions for Obesity

Date October 24 (Thu)~26 (Sat), 2024

Venue aT Center, Seoul, Republic of Korea (3F Segyero Room & 4F Changjo Room)

Muscle-Fat Dynamics in Aging Sarcopenic Obesity Demands Special Attentions

Liang-Kung Chen, MD, PhD

National Yang Ming Chiao Tung University, Taipei, Taiwan;
Taipei Municipal Gan-Dau Hospital, Taipei, Taiwan

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Liang-Kung Chen, MD, PhD

Superintendent, Taipei Municipal Gau-Dau Hospital
Distinguished Professor, National Yang Ming Chiao
Tung University

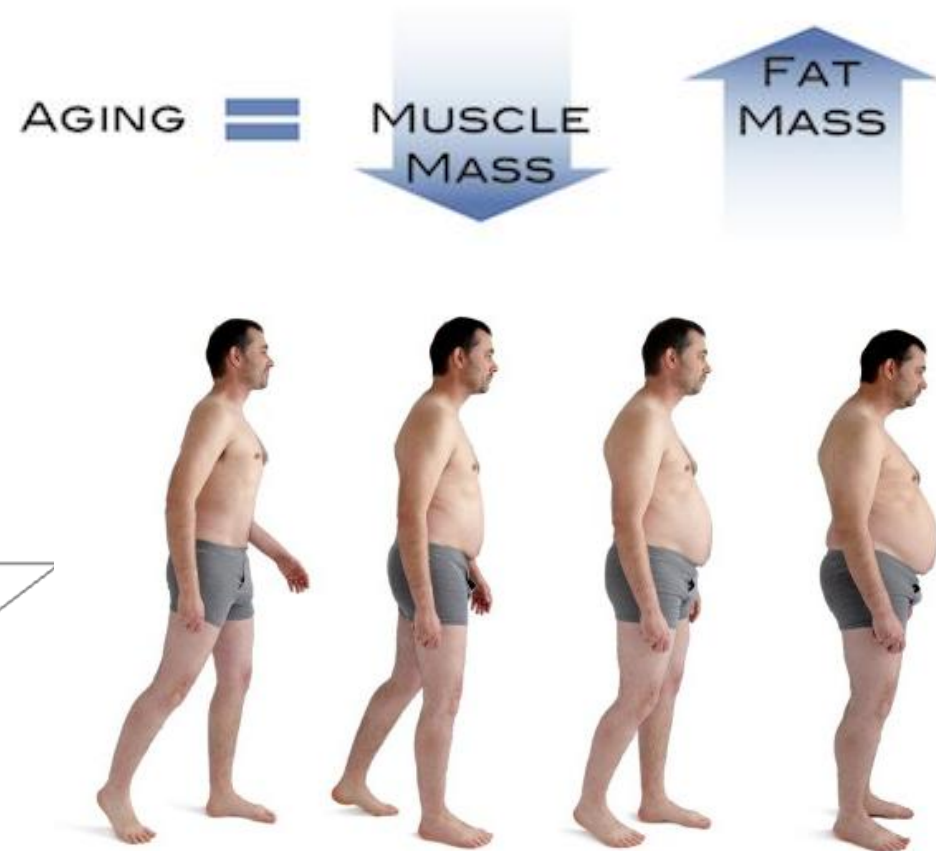
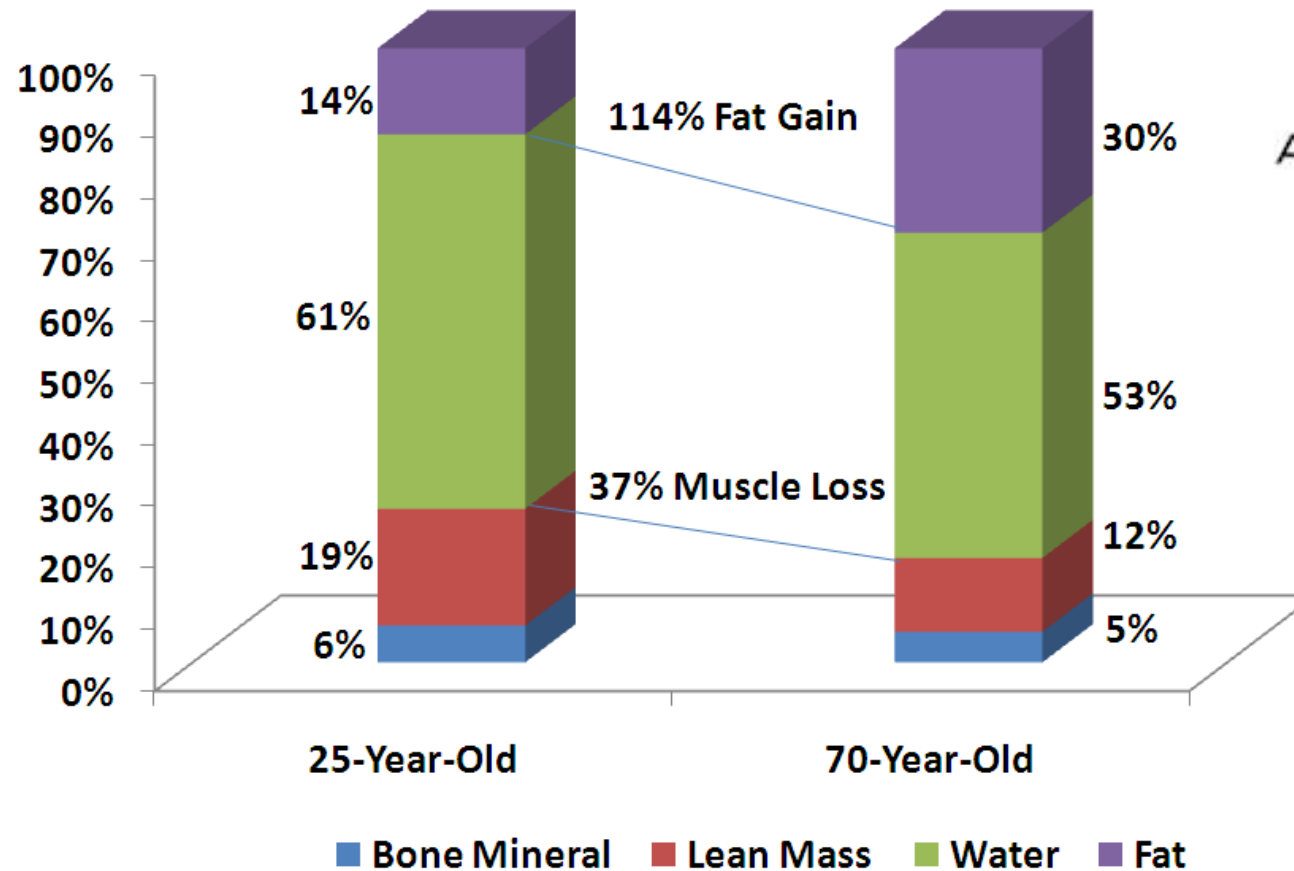
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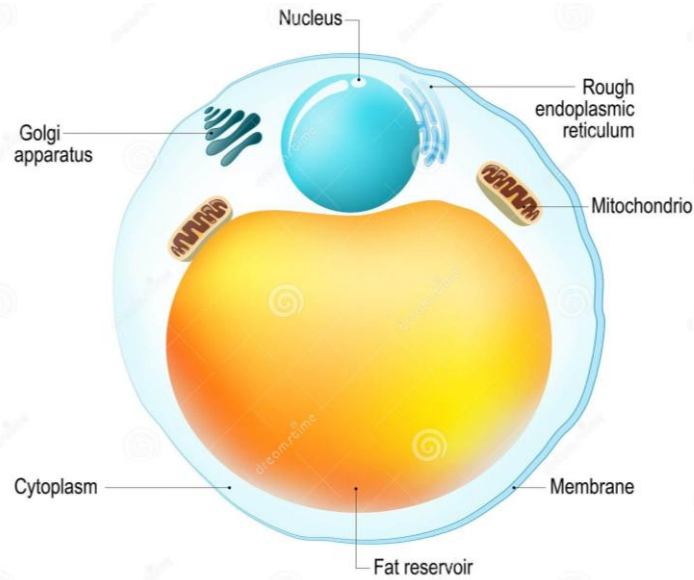
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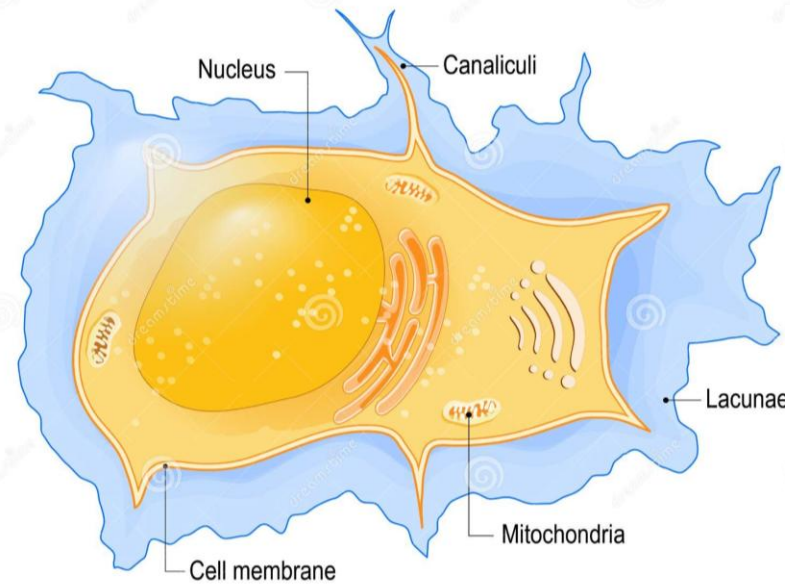
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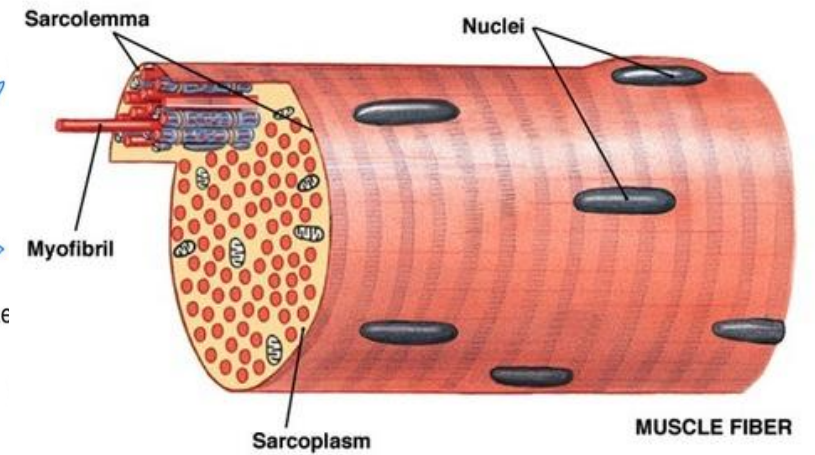
Obesity

**Visceral or
Subcutaneous**



Osteoporosis

**Bone Quality
or Density**



Sarcopenia

**Muscle Mass
or Function**

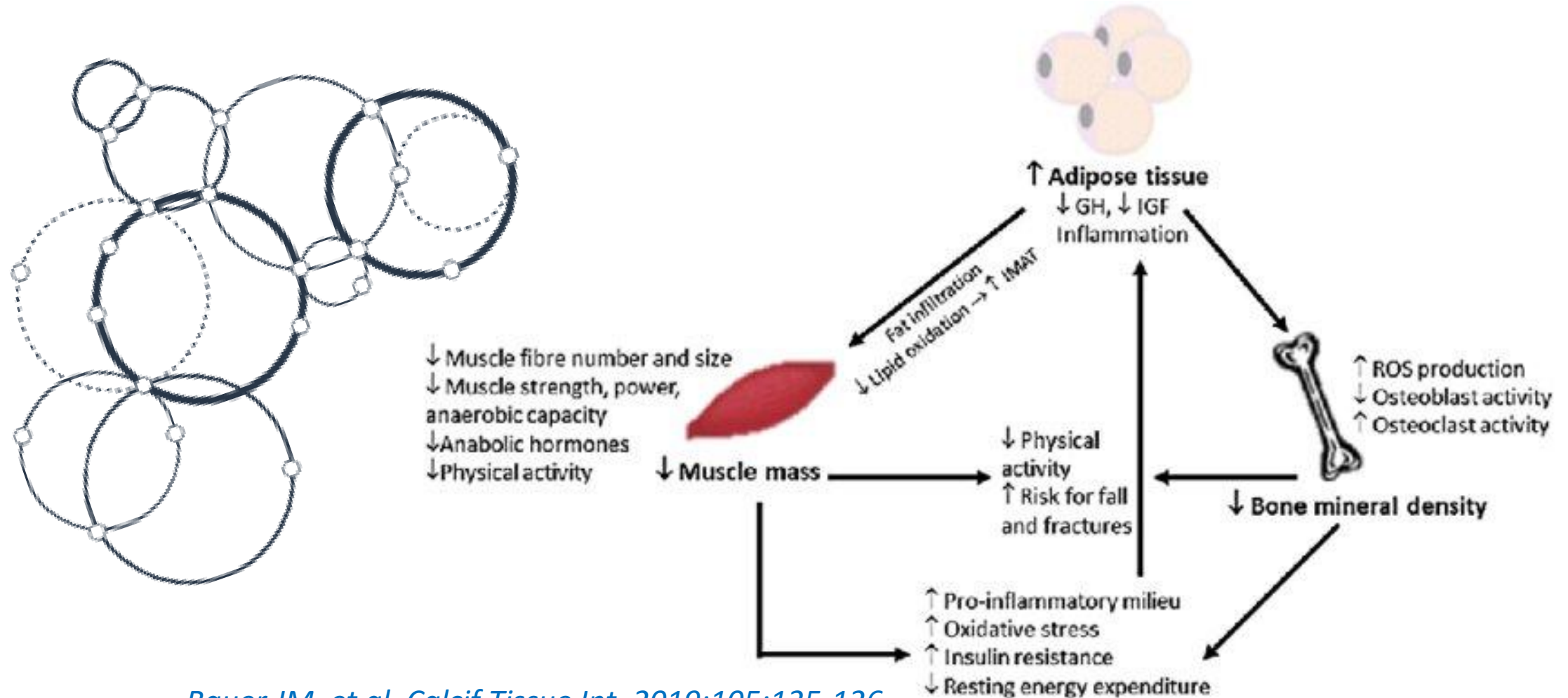
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Bauer JM, et al. Calcif Tissue Int. 2019;105:125-126.

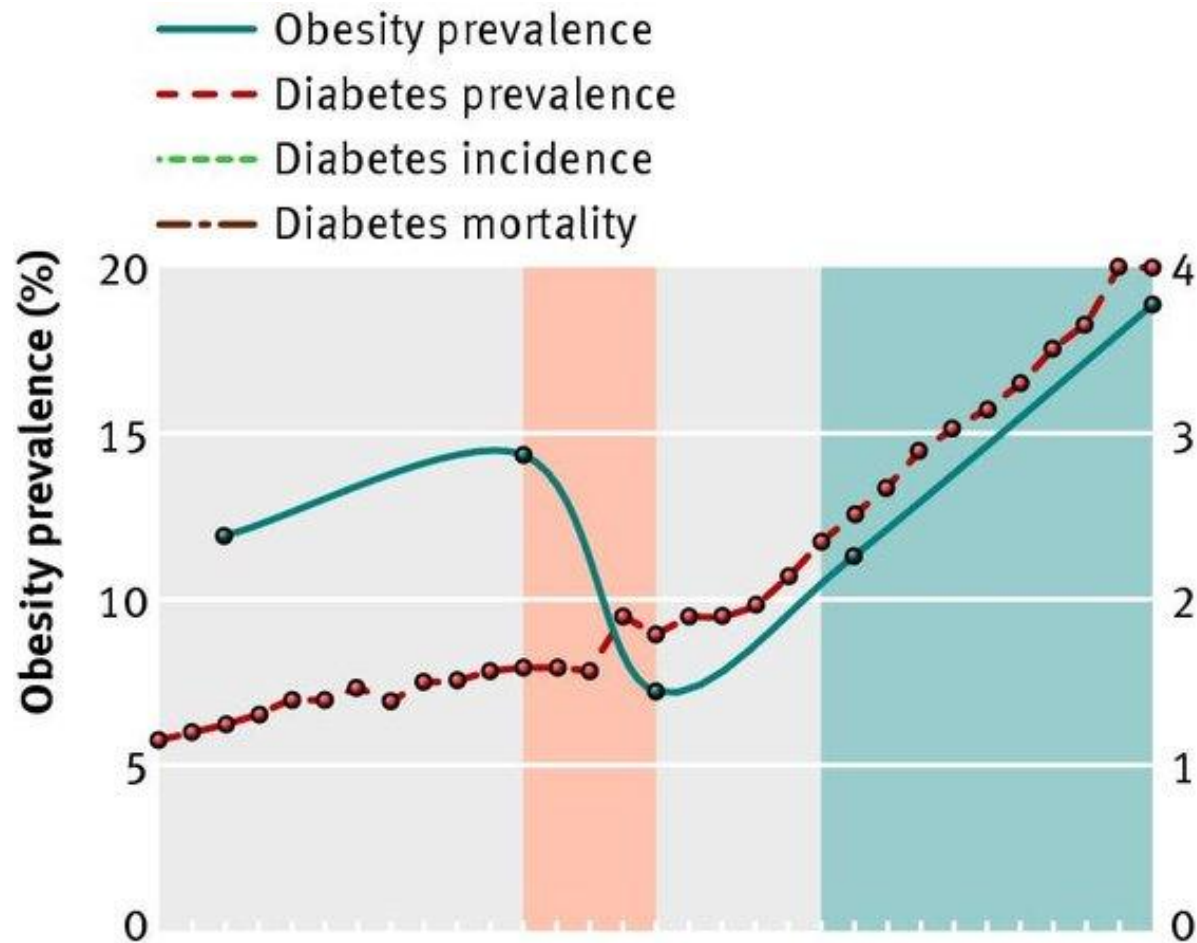
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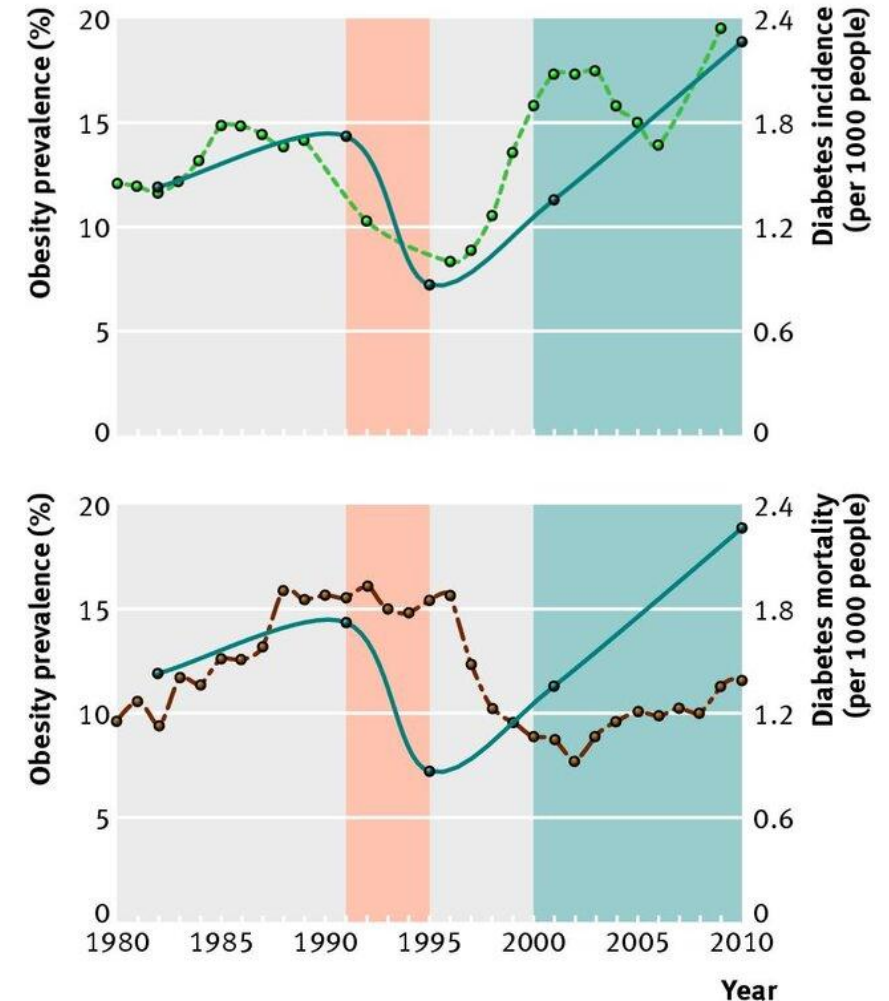


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Franco M, et al. *BMJ*. 2013;346:f1515

Diabetes prevalence
(per 100 people)



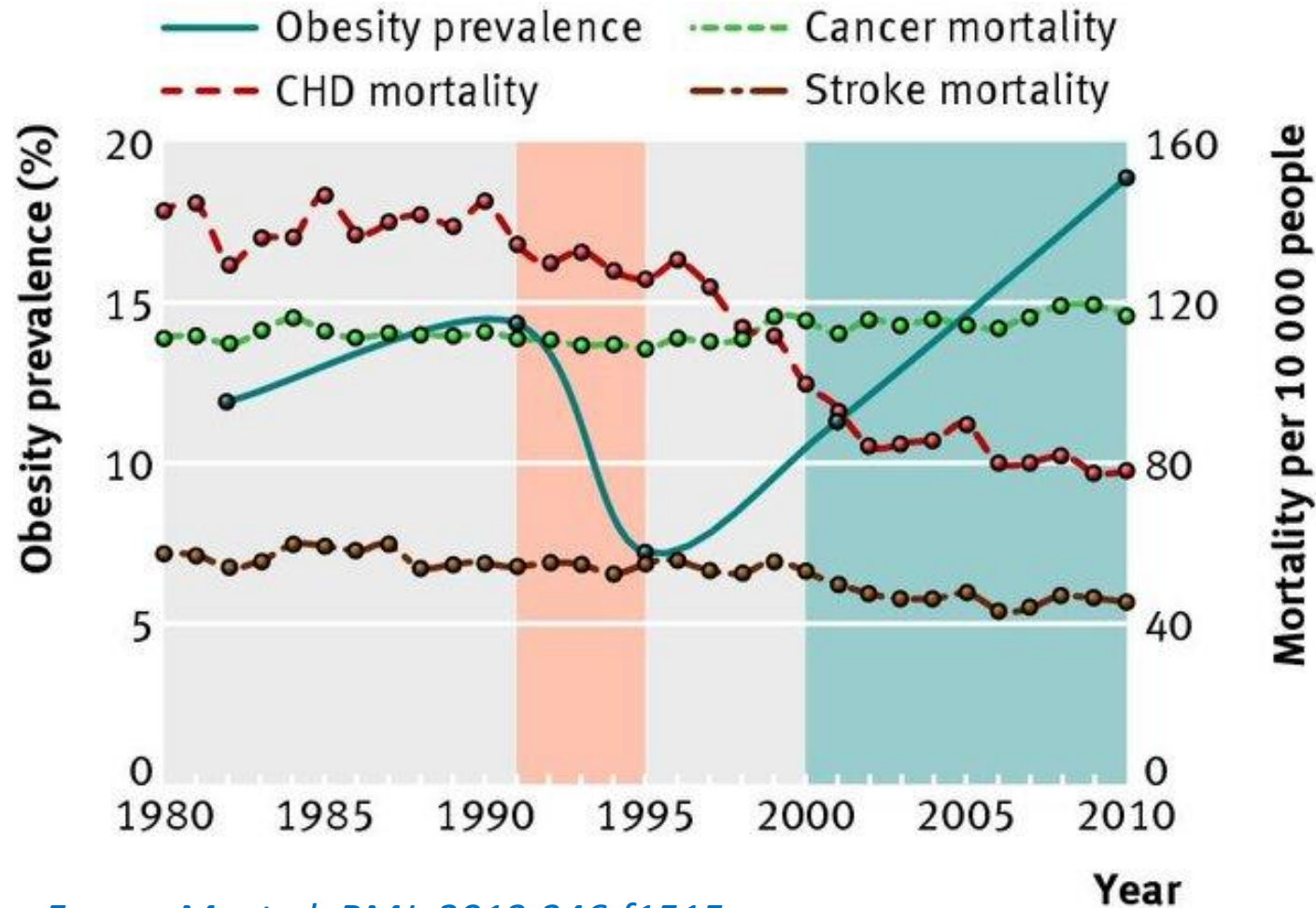
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Incubation period
Competing risk

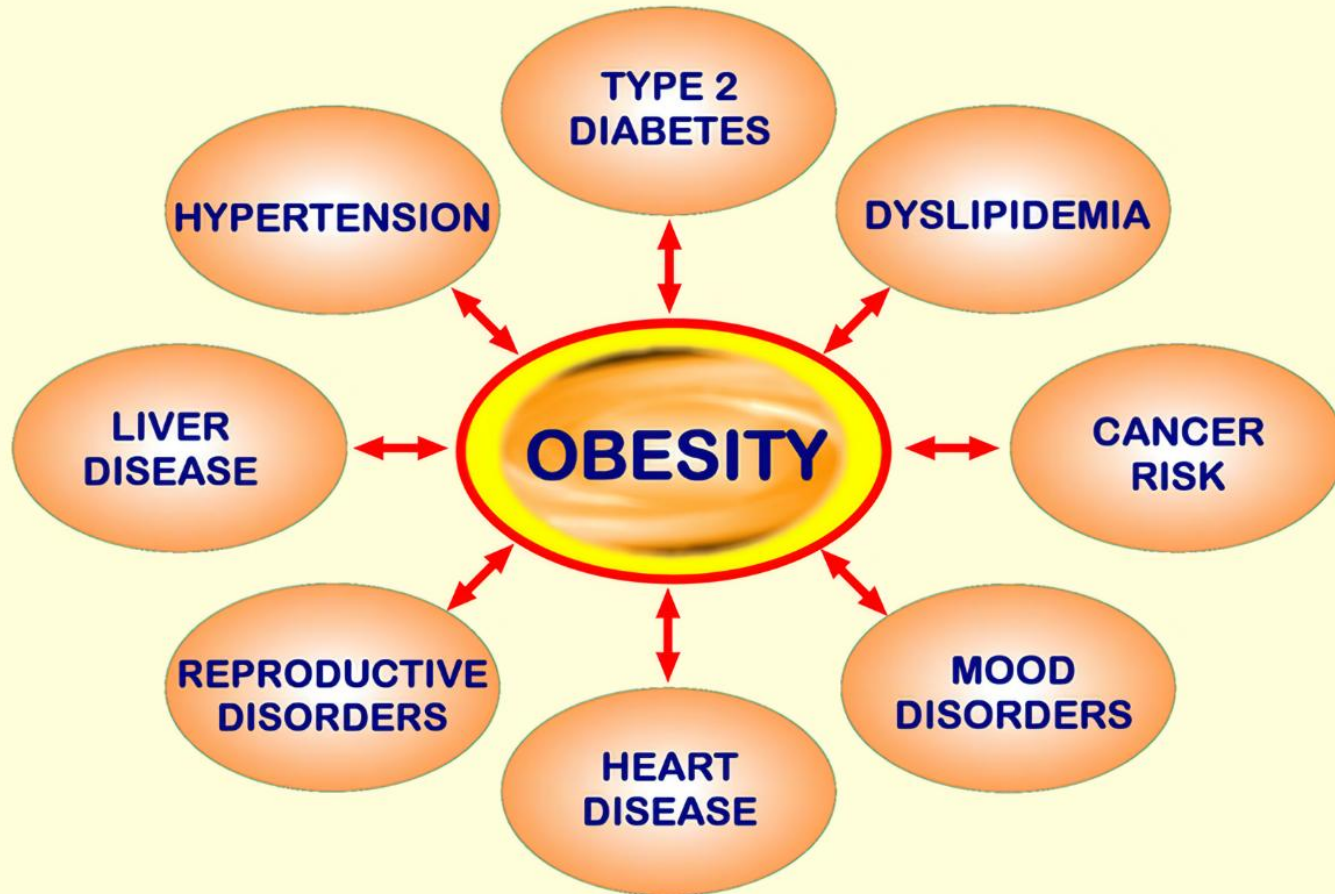
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WHAT IF...

At old age, there is existing
cardiometabolic disease?

Obesity for the whole life,
yet no any CV condition?

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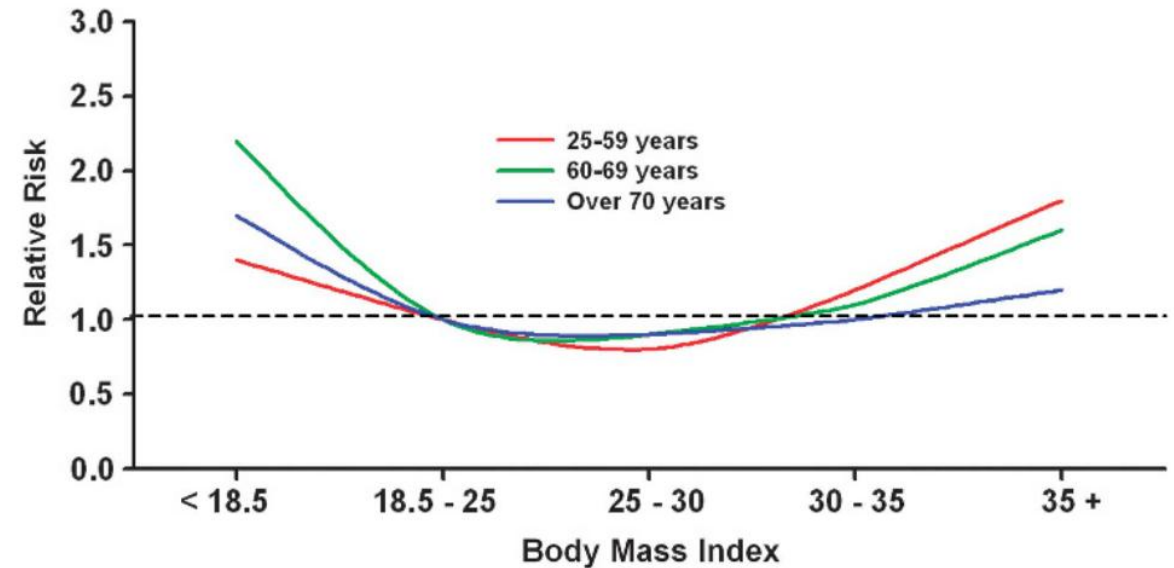
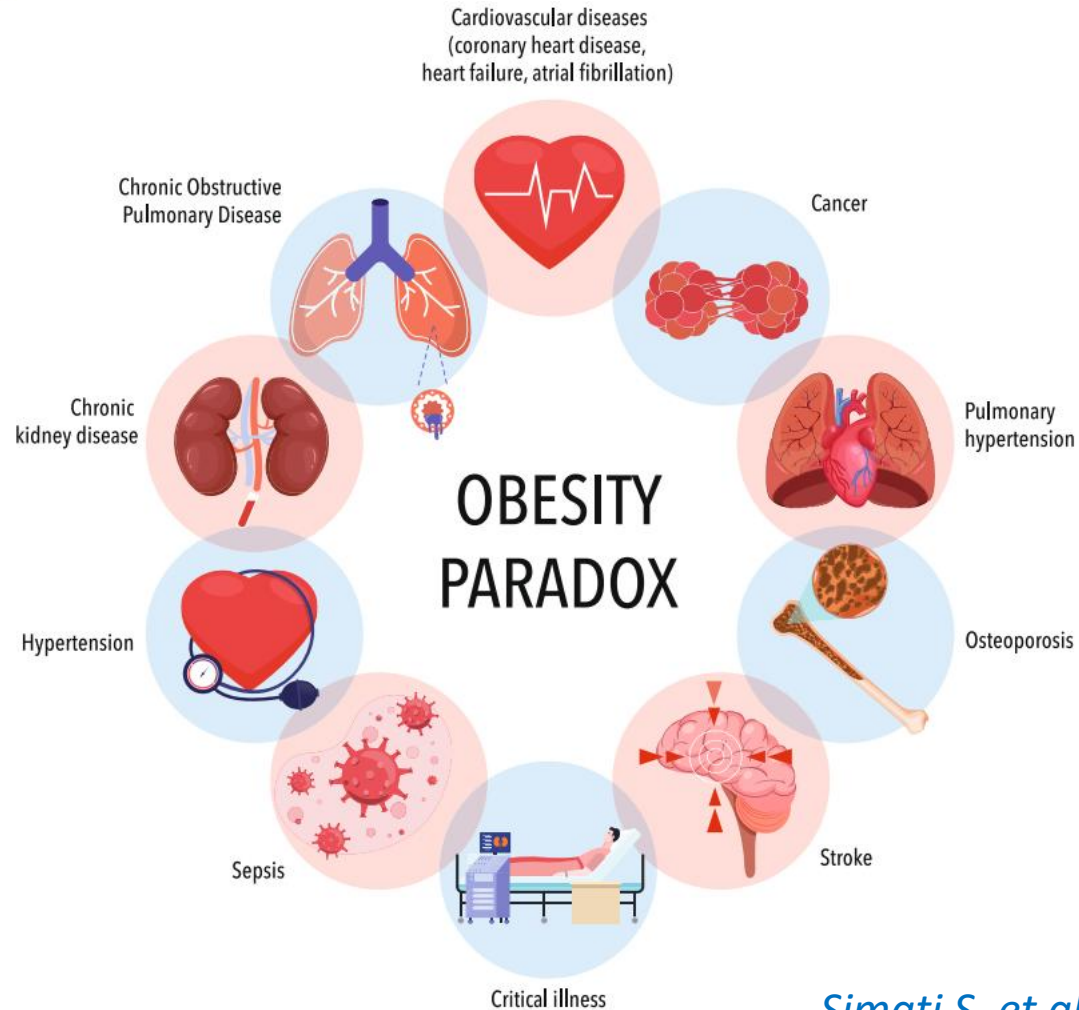


Figure 1. Relative risk of all-cause mortality across BMI categories, stratified by age group, based on NHANES I, II and III data. Adapted from Flegal *et al. JAMA*. 2005;293(15):1861–1867.

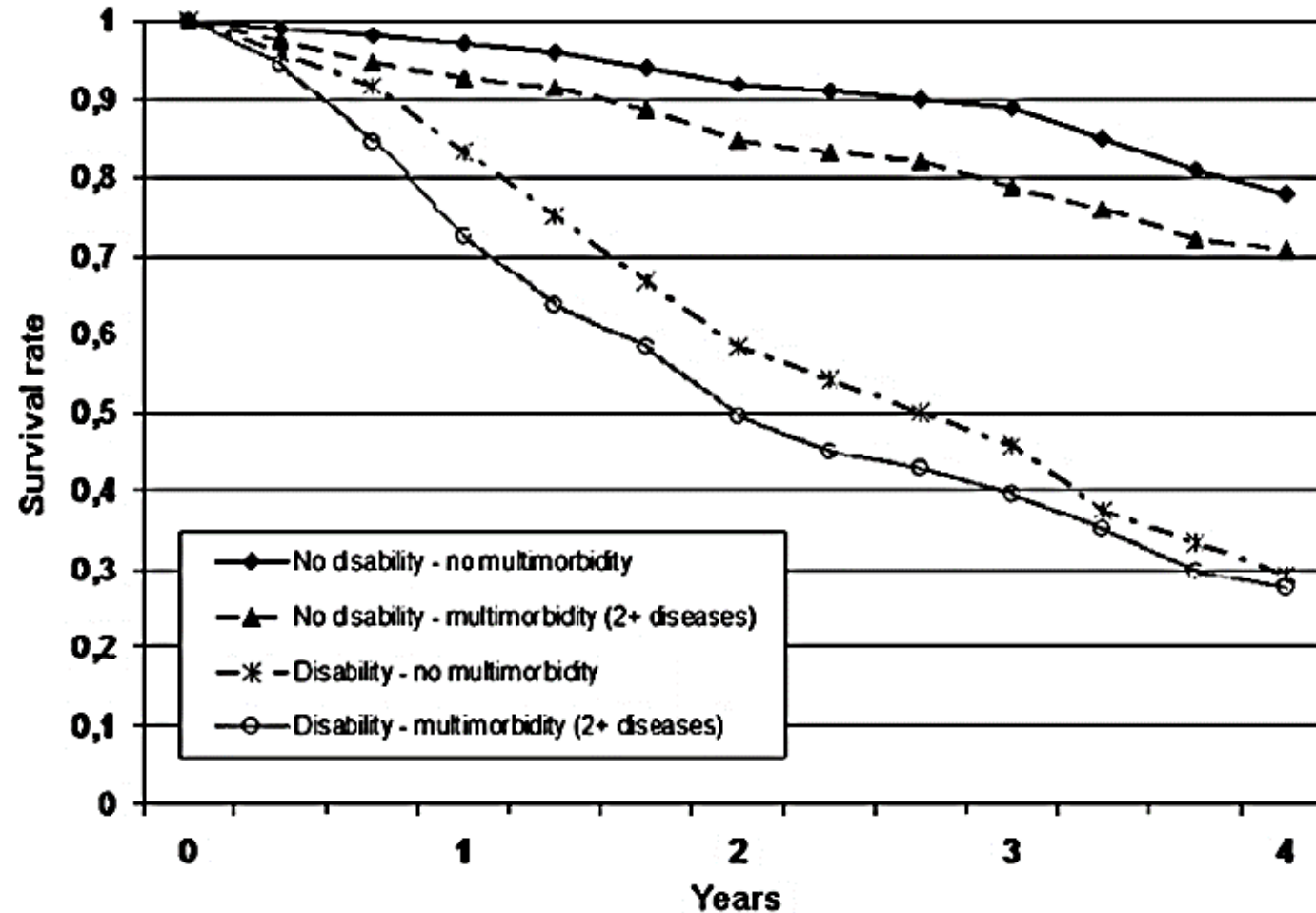
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Landi F et al. J Clin Epidemiol 2010;63:752-9



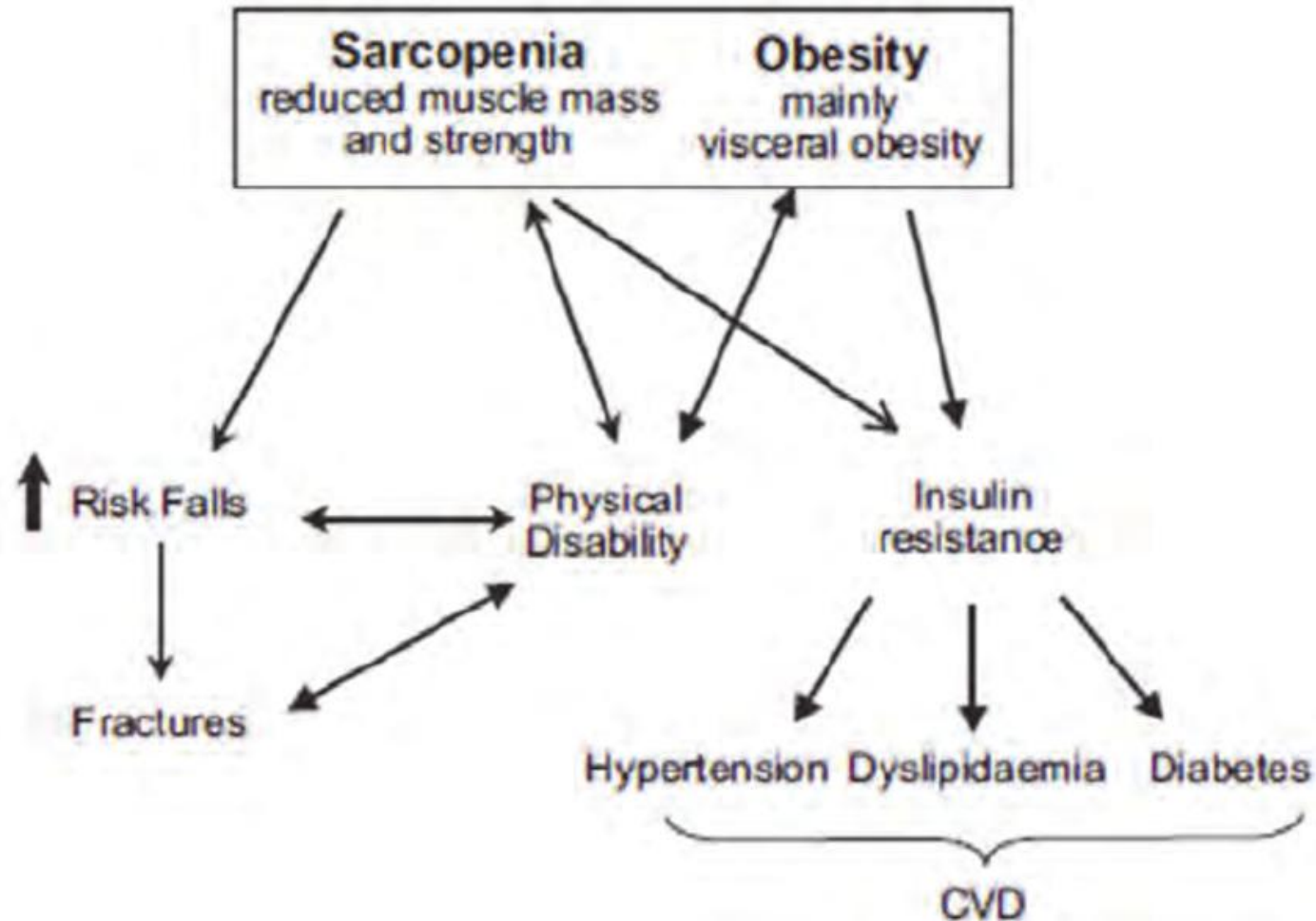
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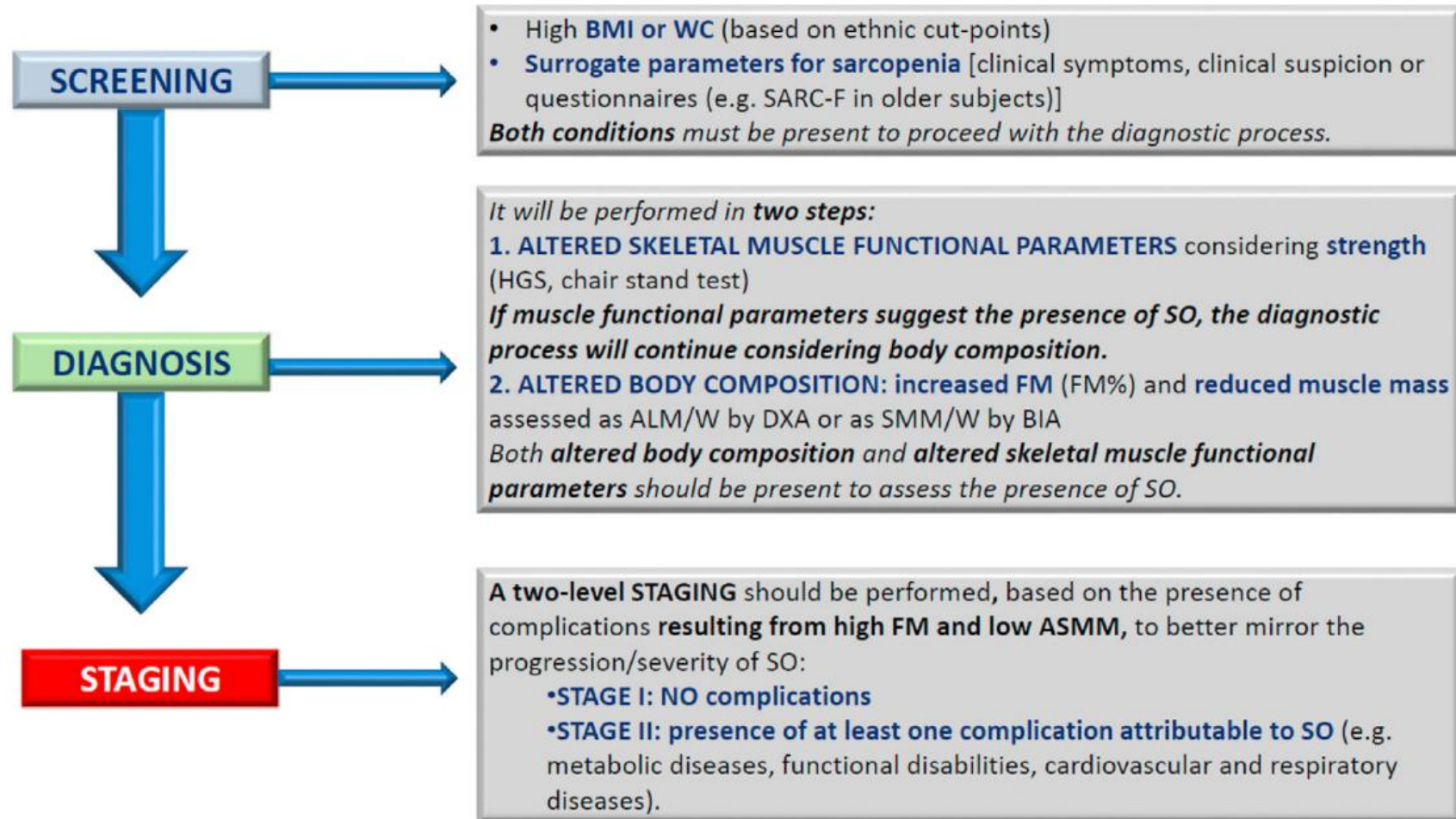
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**ALM/W
Not Sarcopenia
Diagnosis**

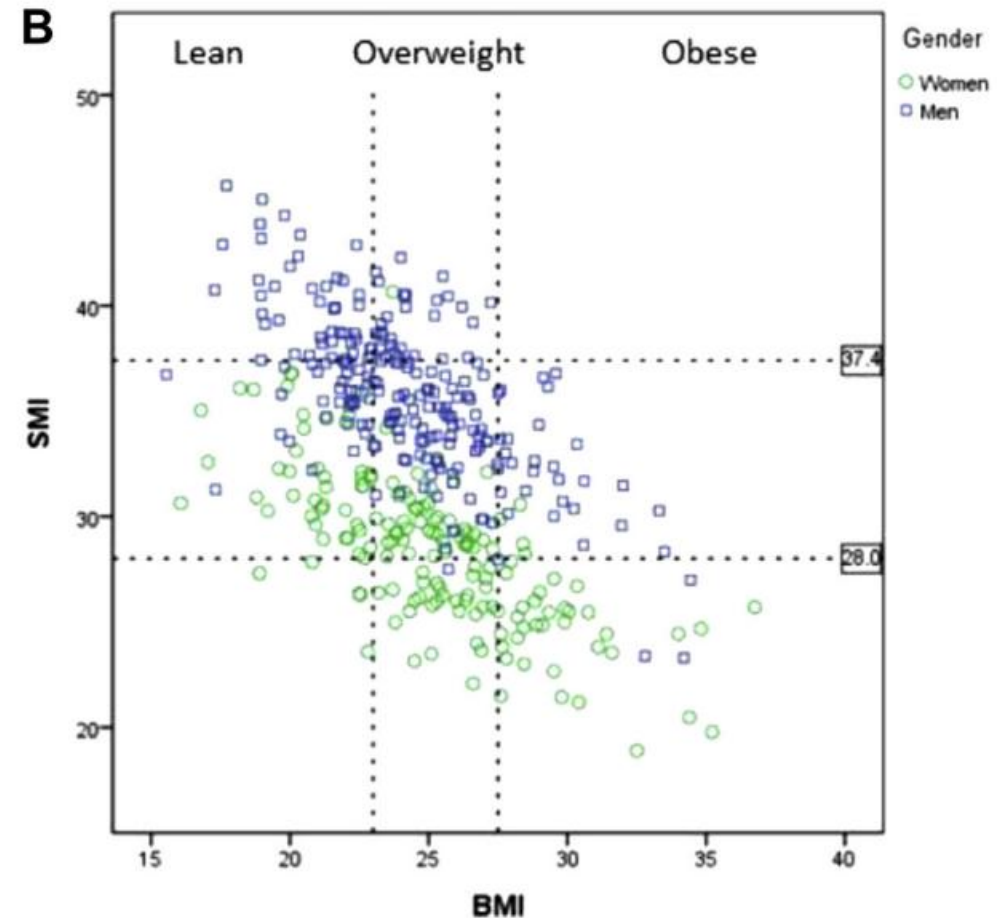
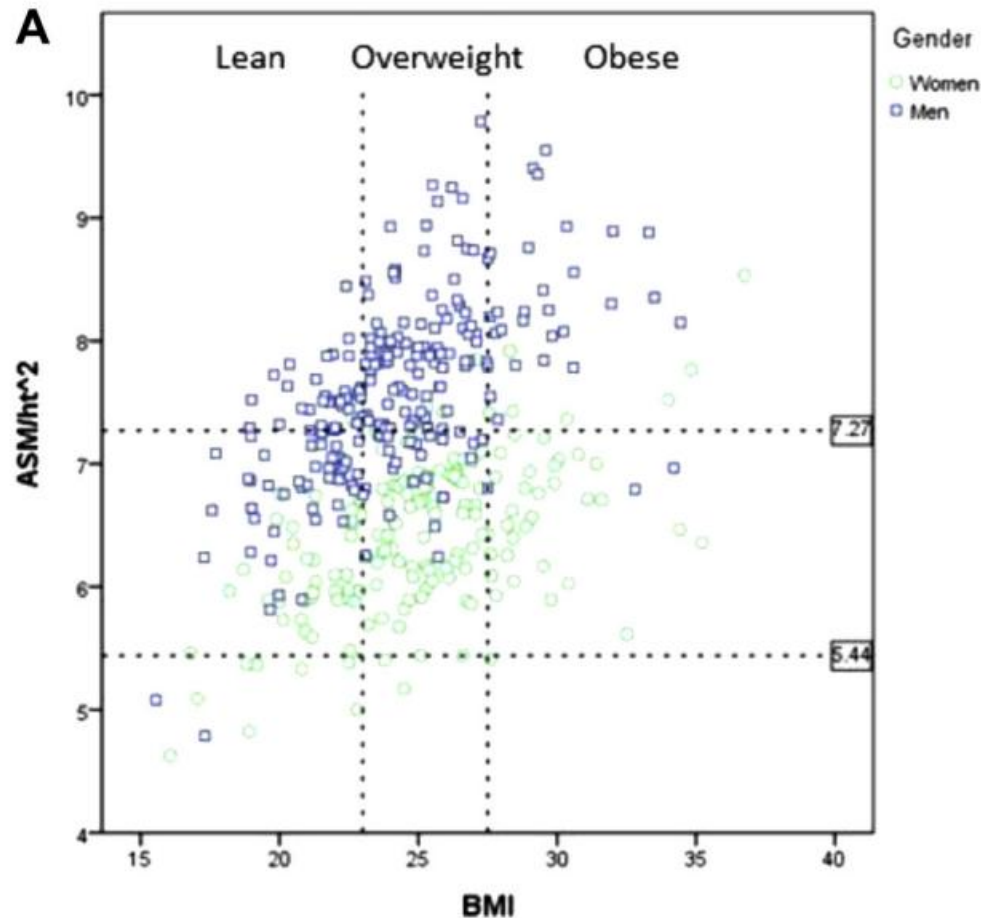
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Lee WJ, et al. *J Am Med Dir Assoc.* 2013;14(7):528.e1-528.e5287.

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Asia Oceania
Association for
the Study of
Obesity

Sarcopenia

Falls

Fractures

Disability

Dementia

Mortality



Obesity

Diabetes

Hyperlipidemia

Stroke

CHD

Osteoarthritis

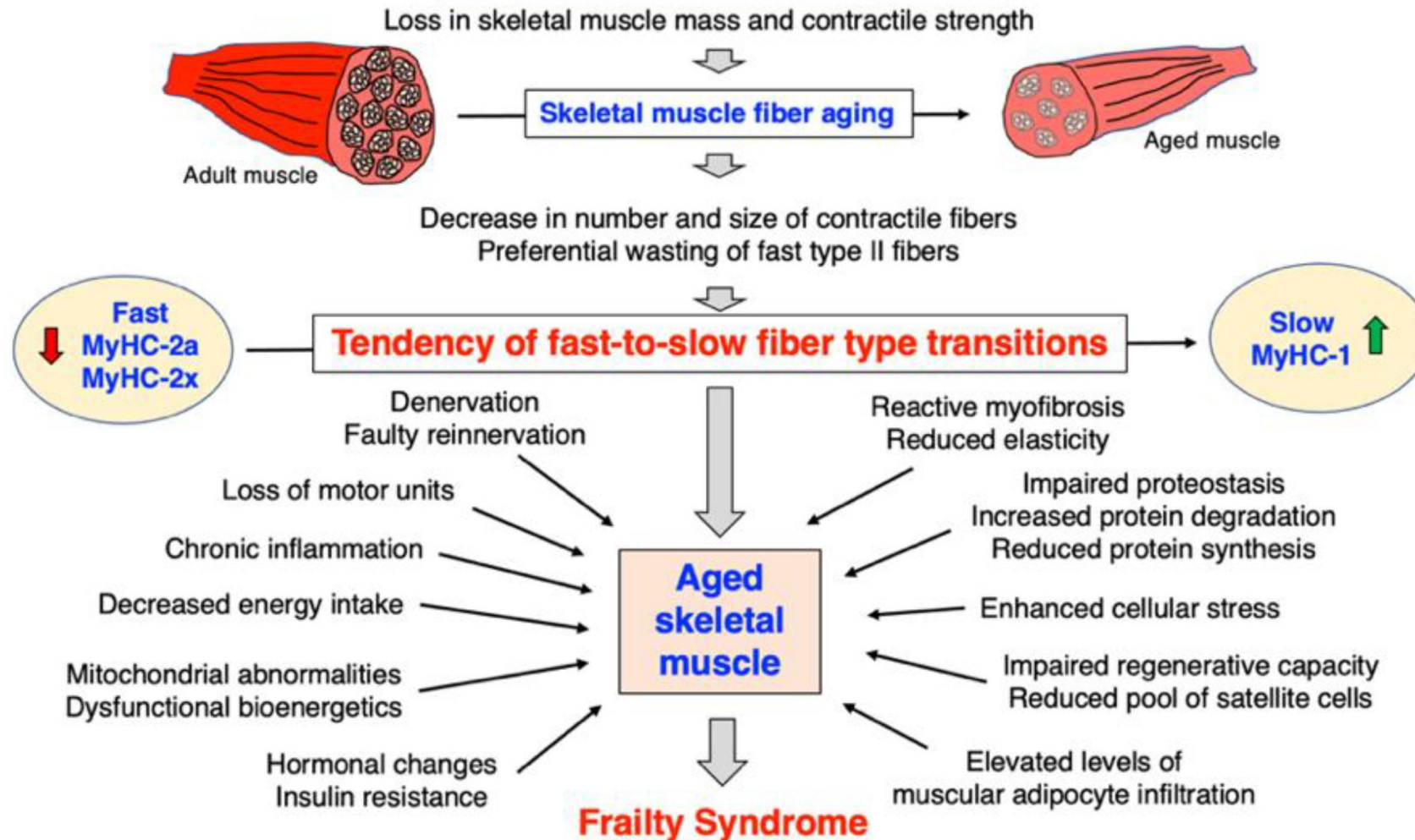
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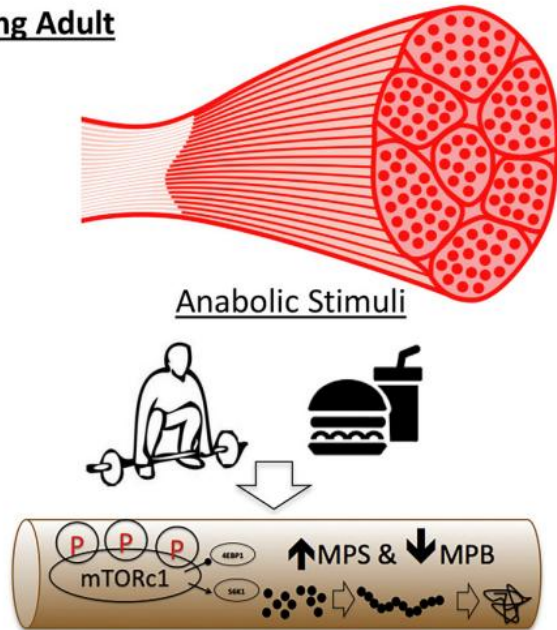
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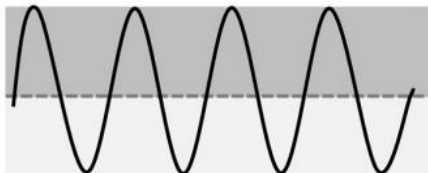
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Young Adult

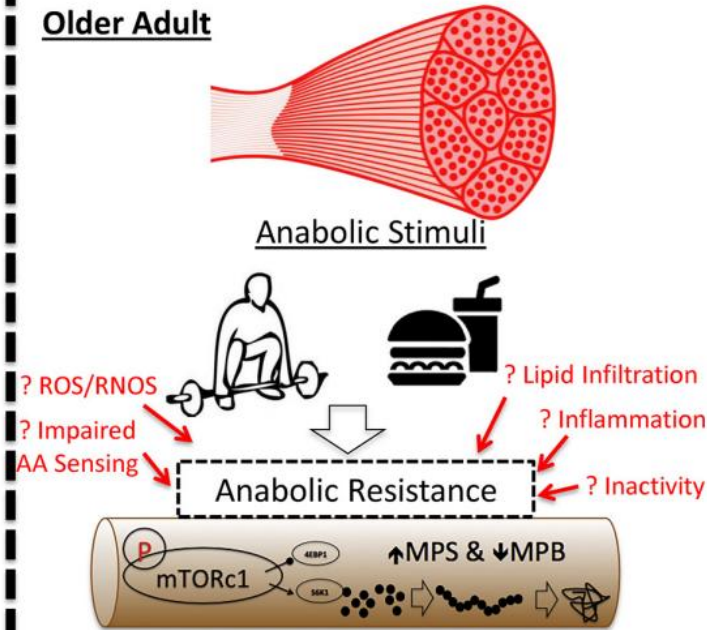


MPS
=
MPB

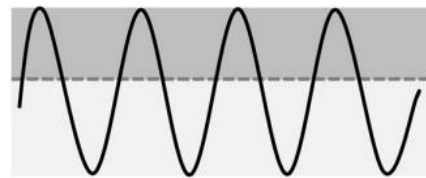


Muscle Mass Maintained

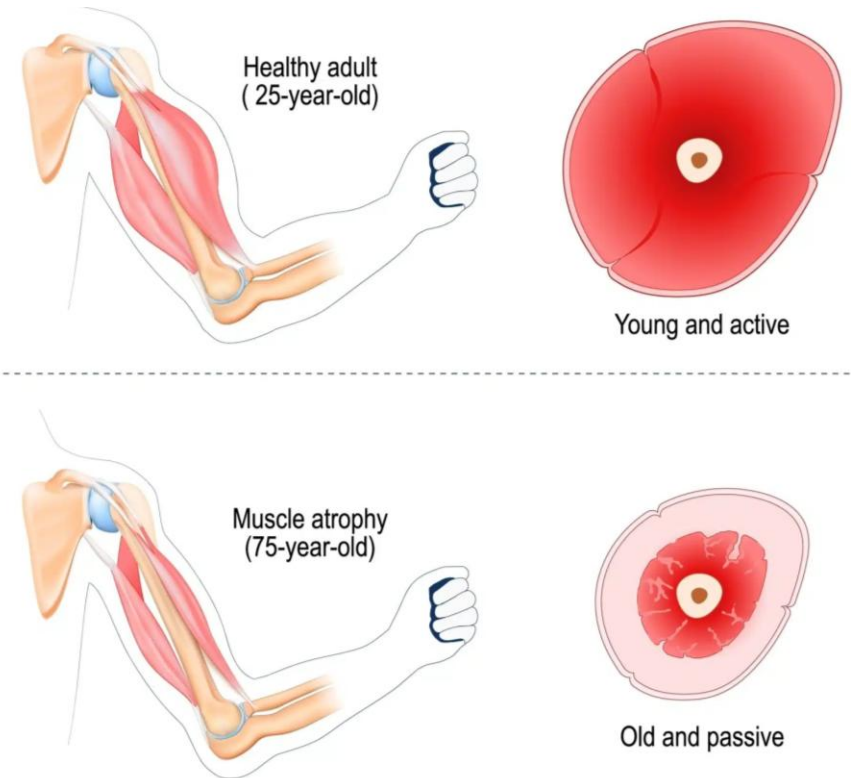
Older Adult



MPS
<
MPB



Muscle Atrophy



Wilkinson DJ, et al. Ageing Res Rev. 2018;47:123-132.

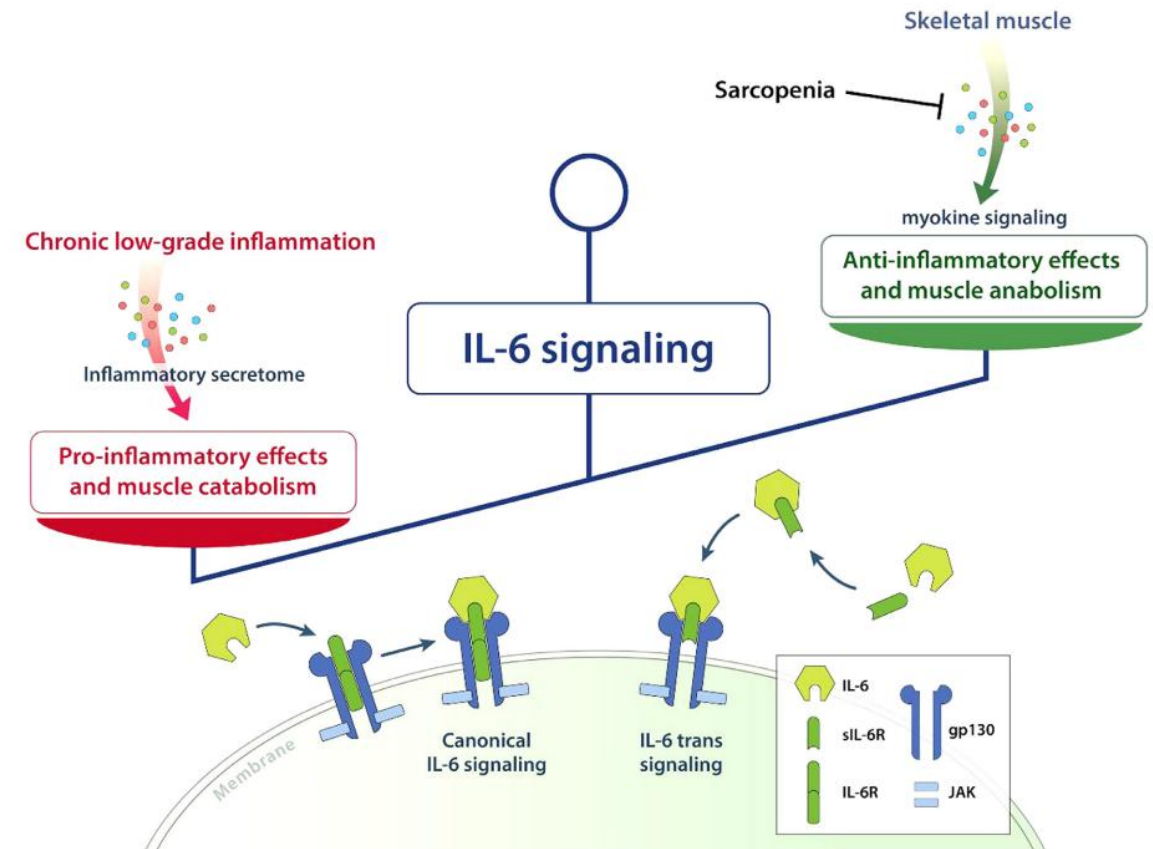
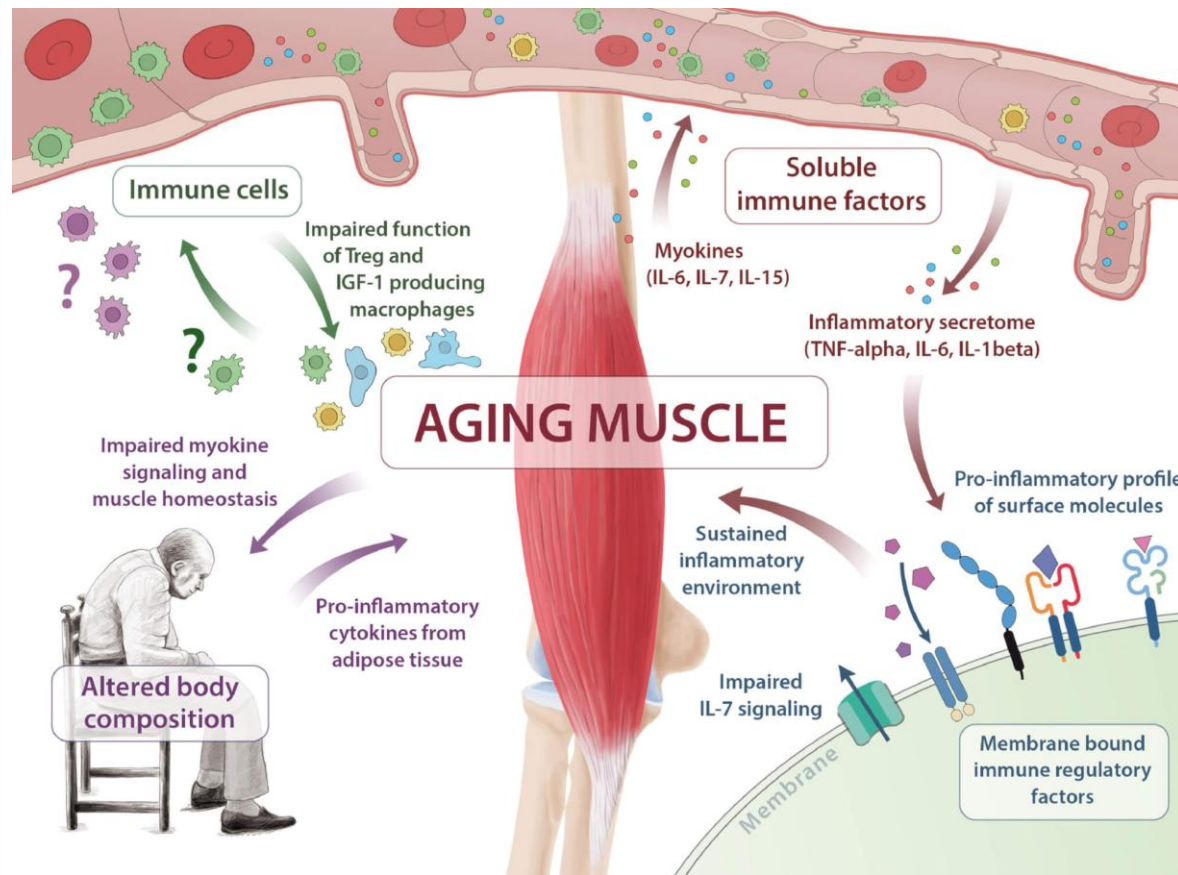
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Nelke C, et al. EBioMedicine. 2019;49:381-388

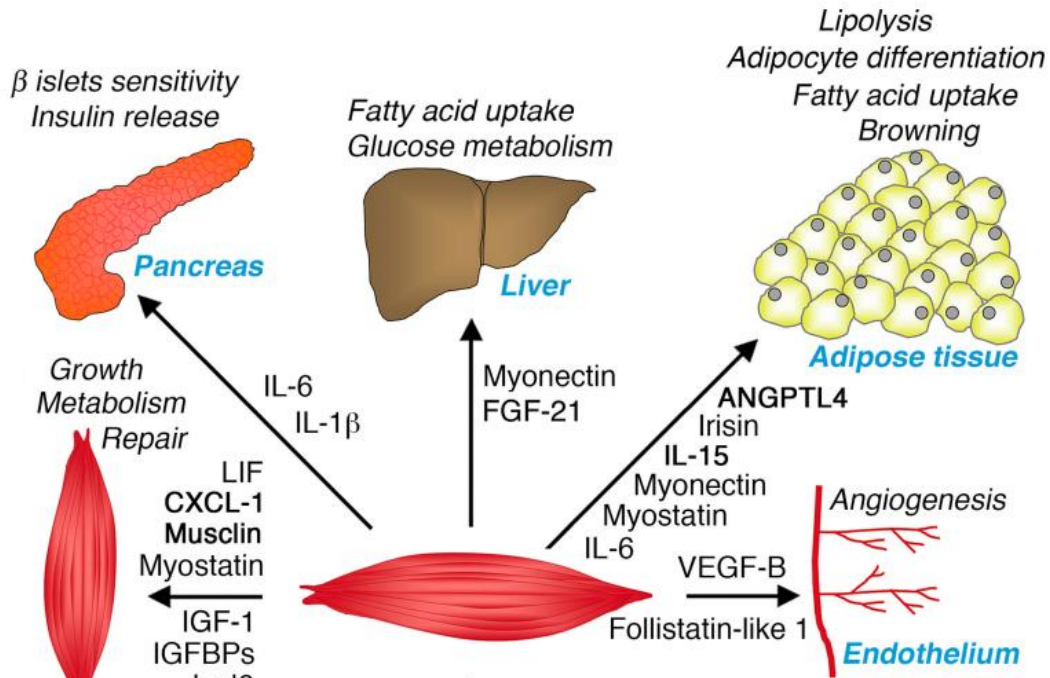
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MYOKINES ↓ **METABOLITES**
EXERCISE ↓ **METABOLIC DEMAND OF MUSCLES**
OTHERS ? ↓ **MUSCLE-TO-NERVES INTERACTION**

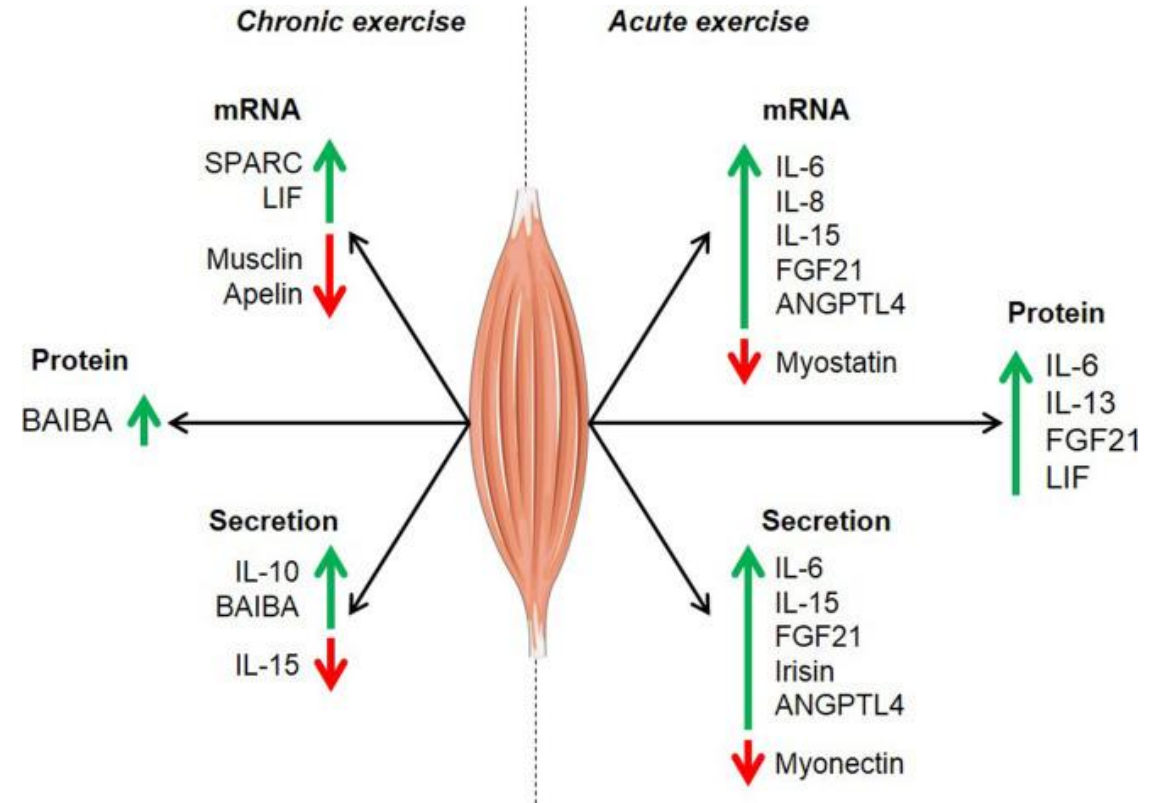
Metabolic homeostasis

Age-related mortality and lifespan

Aging and age-related diseases in non-muscle tissues

Organism's response to oxidative stress

Organism's response to dietary restriction



Garneau & Aguer. *Diabetes Metab.* 2019;45(6):505-516.
Demontis F, et al. *Aging Cell.* 2013;12(6):943-949.

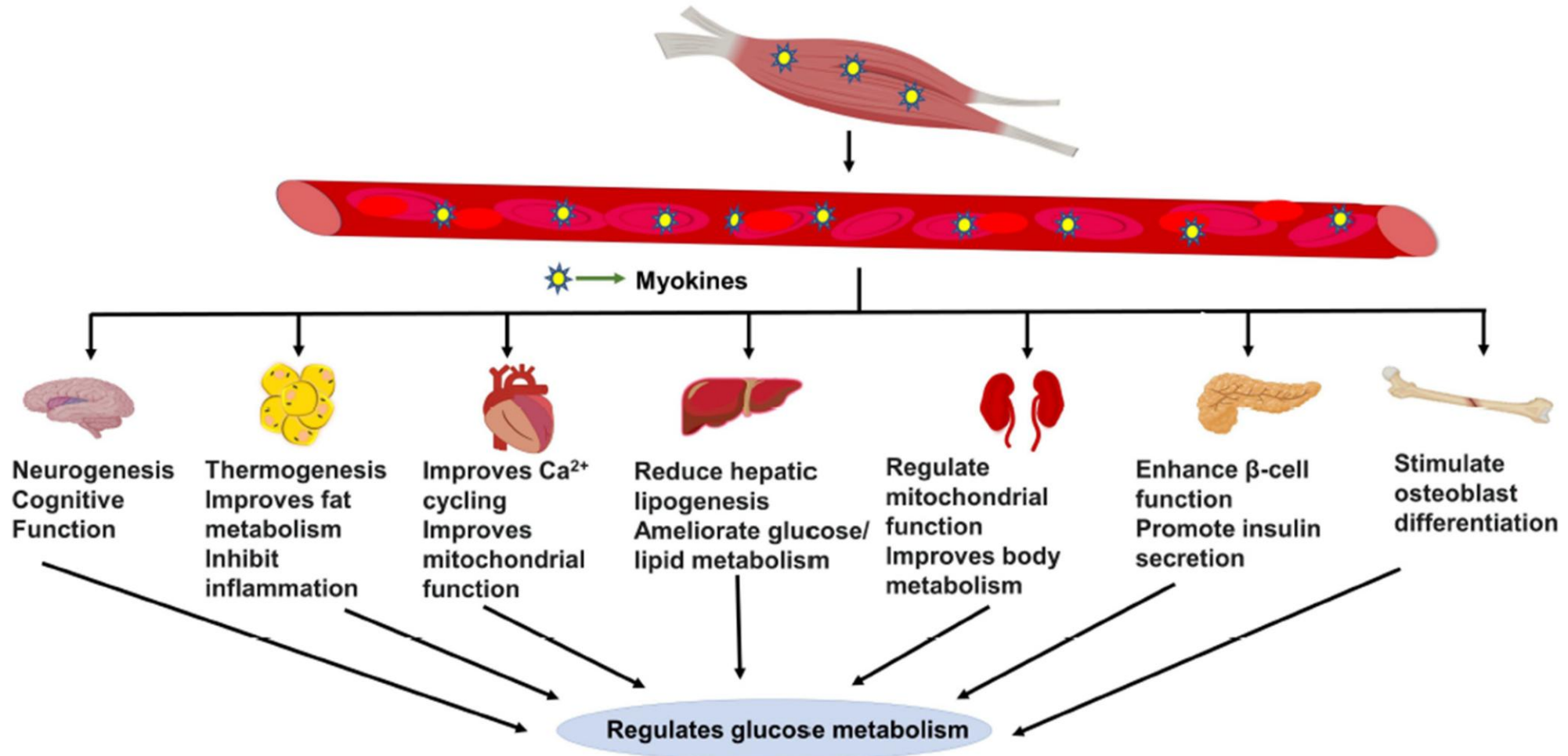
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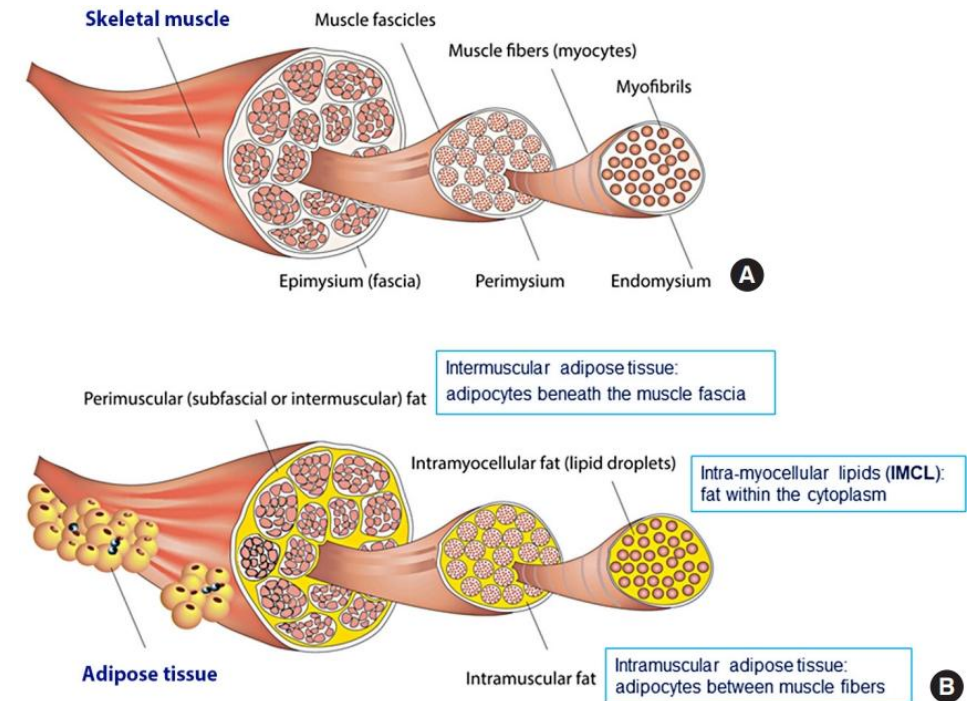
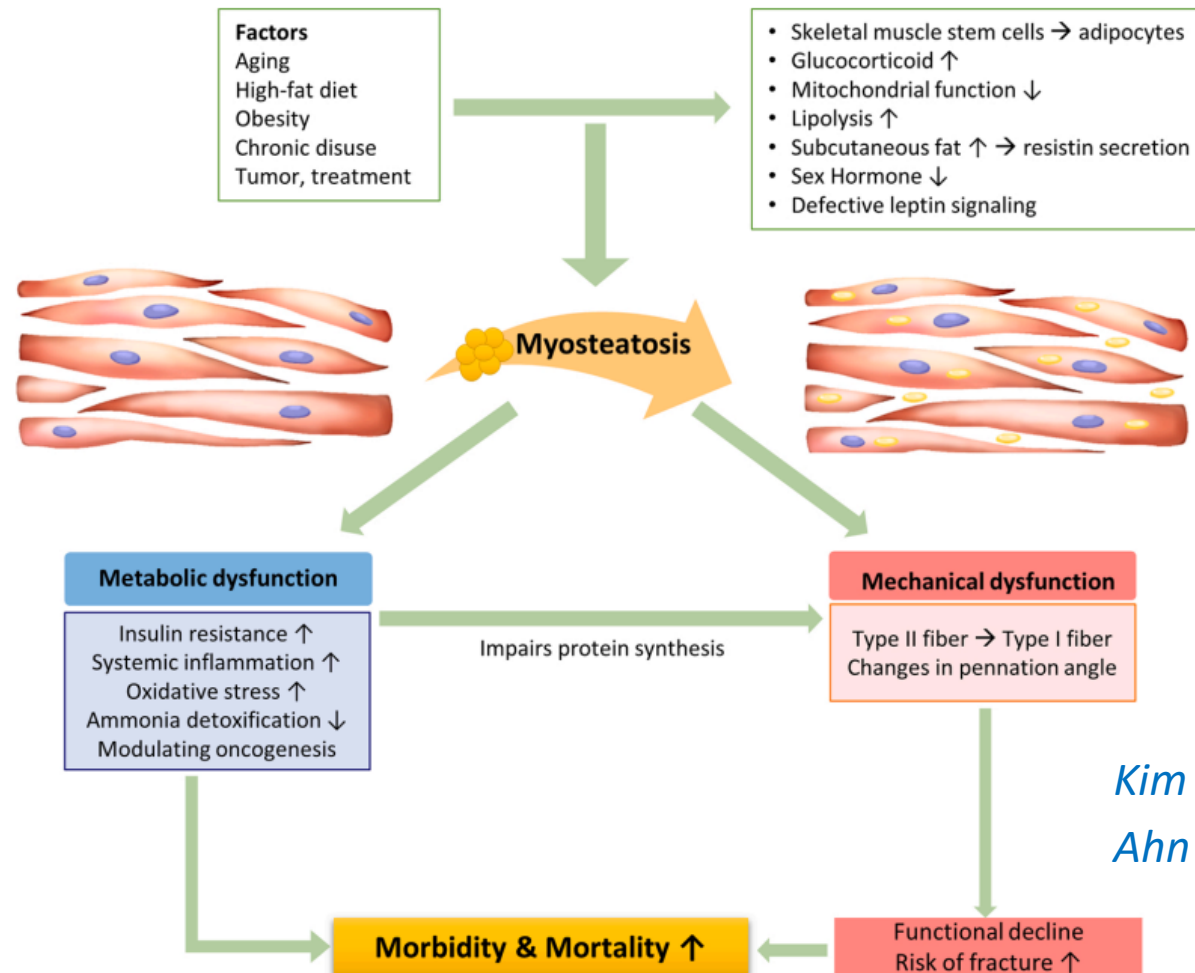
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Kim & Kim. Endocrinol Metab (Seoul). 2021;36(6):1161-1174.
Ahn H., et al. Ageing Res Rev. 2021;70:101398

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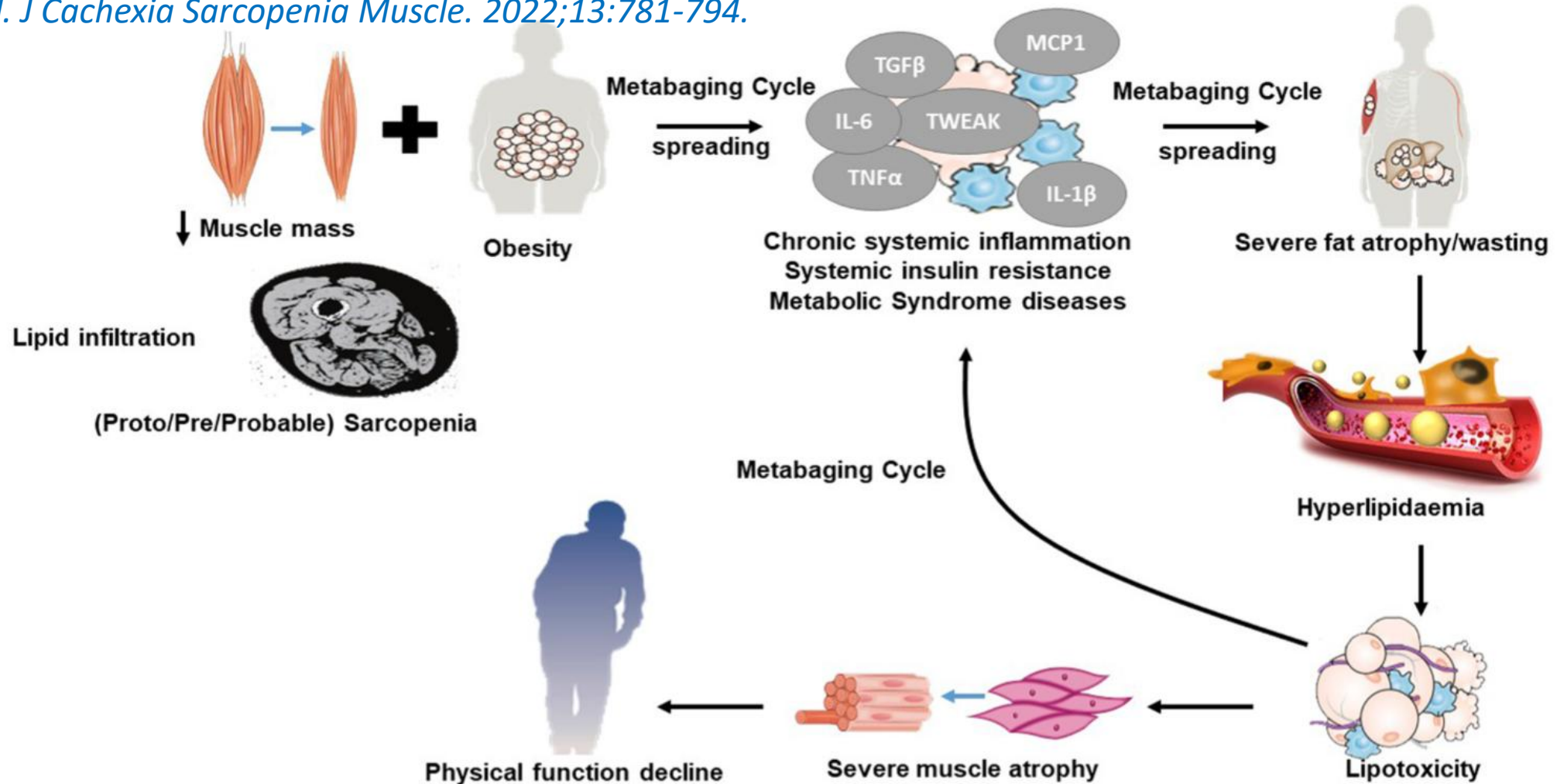
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Li CW, et al. J Cachexia Sarcopenia Muscle. 2022;13:781-794.



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Myosteatorosis

Fat infiltration
Preserved mass
Muscle atrophy

Muscle atrophy
Fat infiltration
Impaired function



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Fat infiltration
Metabaging
Satellite cell senescence
Muscle atrophy
Impaired muscle function



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Significant fat
infiltration with
impaired function
but not obese

Significant fat
accumulation with
reduced muscle
mass and function

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**A distinct entity in muscle
aging with mechanistic
insights rather than the
combination of the two**

