



*Società  
Medico Chirurgica  
di Ferrara*

dal 1846



**Con il Patrocinio di:**

Azienda Ospedaliero Universitaria di Ferrara



Università  
degli Studi  
di Ferrara



SERVIZIO SANITARIO REGIONALE  
EMILIA-ROMAGNA  
Azienda Ospedaliero - Universitaria di Ferrara



SERVIZIO SANITARIO REGIONALE  
EMILIA-ROMAGNA  
Azienda Unità Sanitaria Locale di Ferrara



Ordine dei  
Medici Chirurghi  
e degli Odontoiatri  
della provincia di  
FERRARA

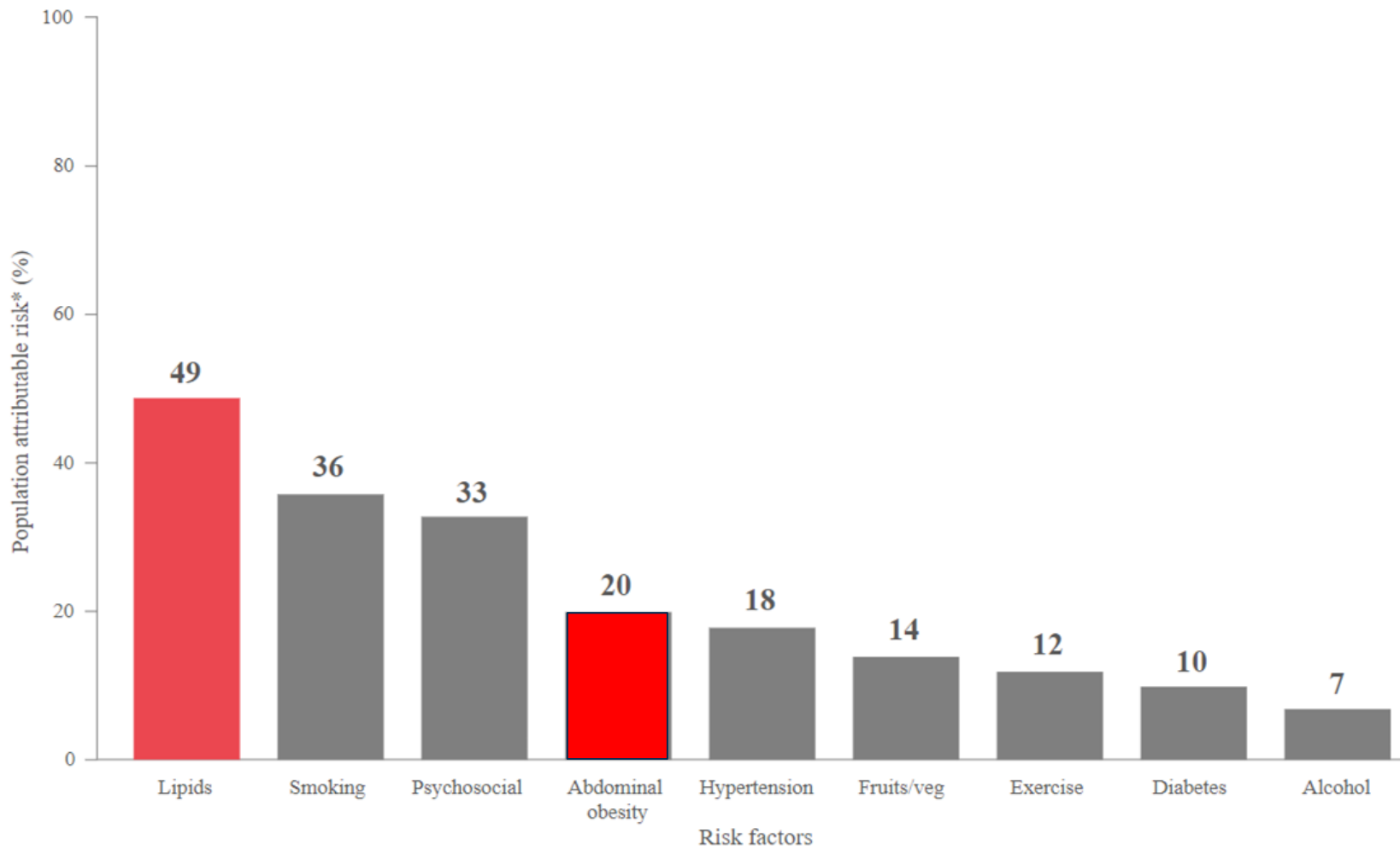
# Obesità: Complicanze Cardiovascolari

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U.O. Medicina Interna Universitaria

Azienda Ospedaliero Universitaria di Ferrara

# Most Critical Modifiable CV Risk Factors

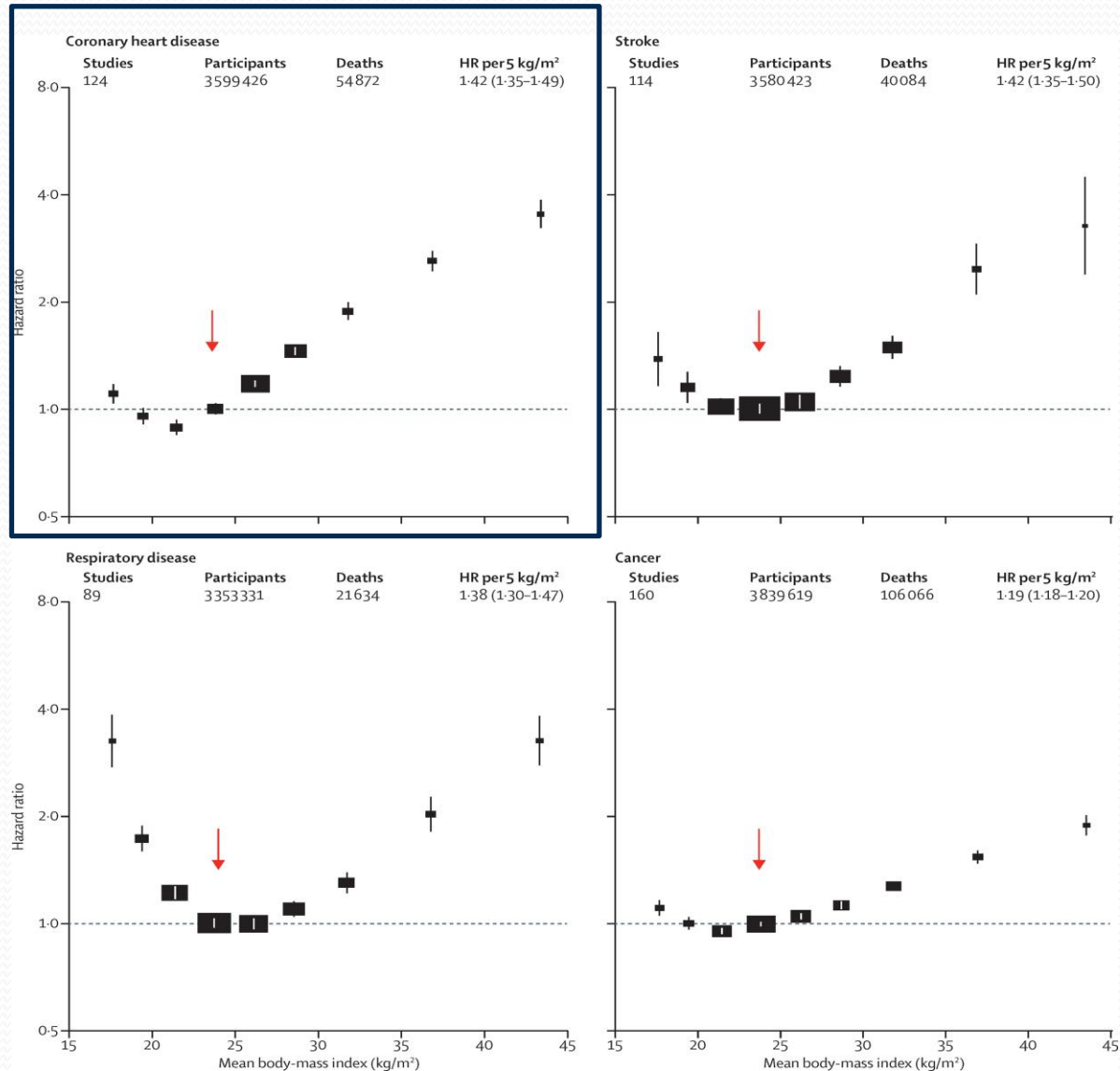


INTERHEART: nine modifiable factors account for 90% of first-MI risk worldwide; n = 15,152 patients and 14,820 controls in 52 countries.

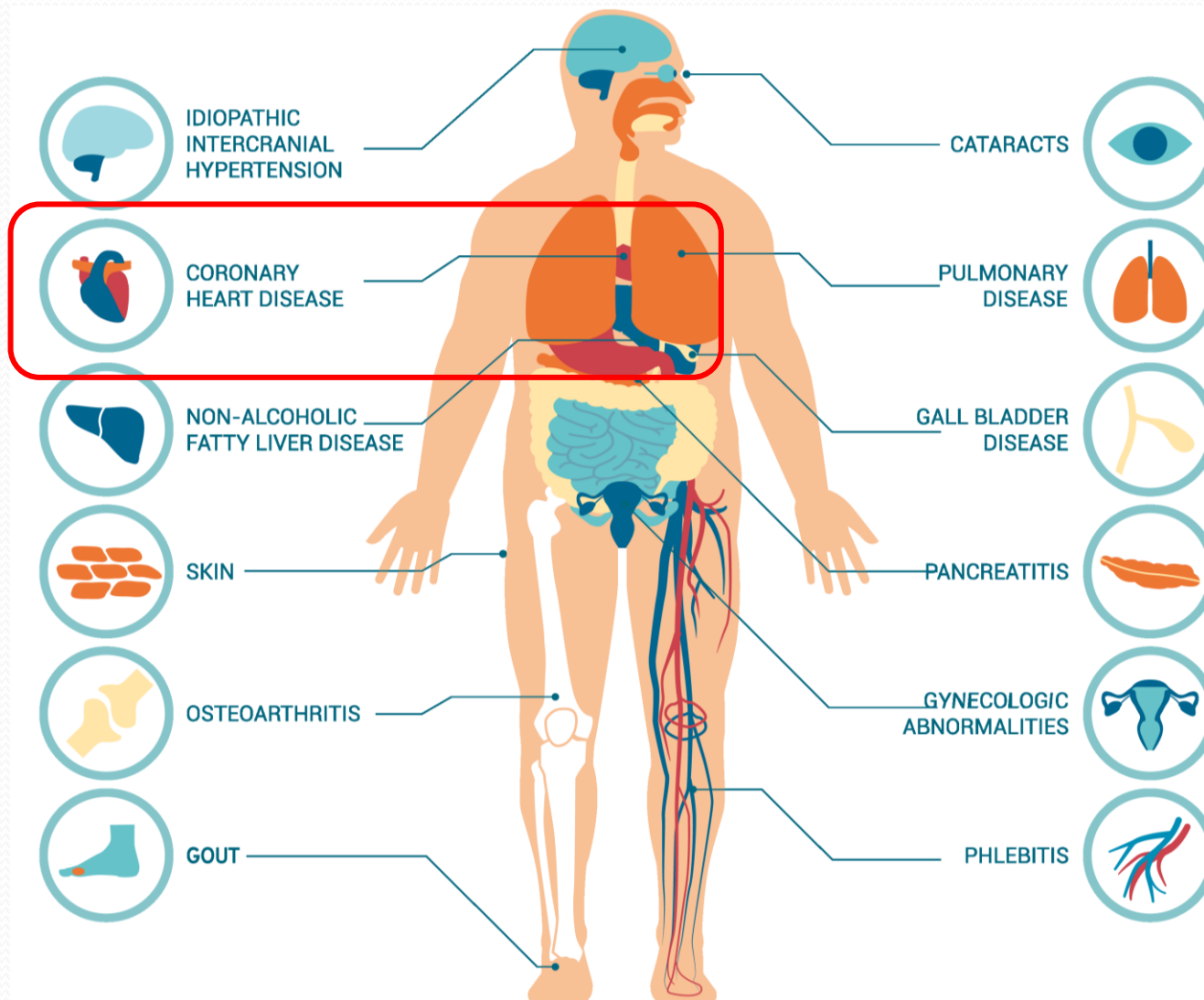
\*Proportional increase in population disease that would occur if exposure to a risk factor was reduced to an alternative ideal exposure scenario (eg, no tobacco use). Adjusted for all risk factors.

CV, cardiovascular; MI, myocardial infarction.

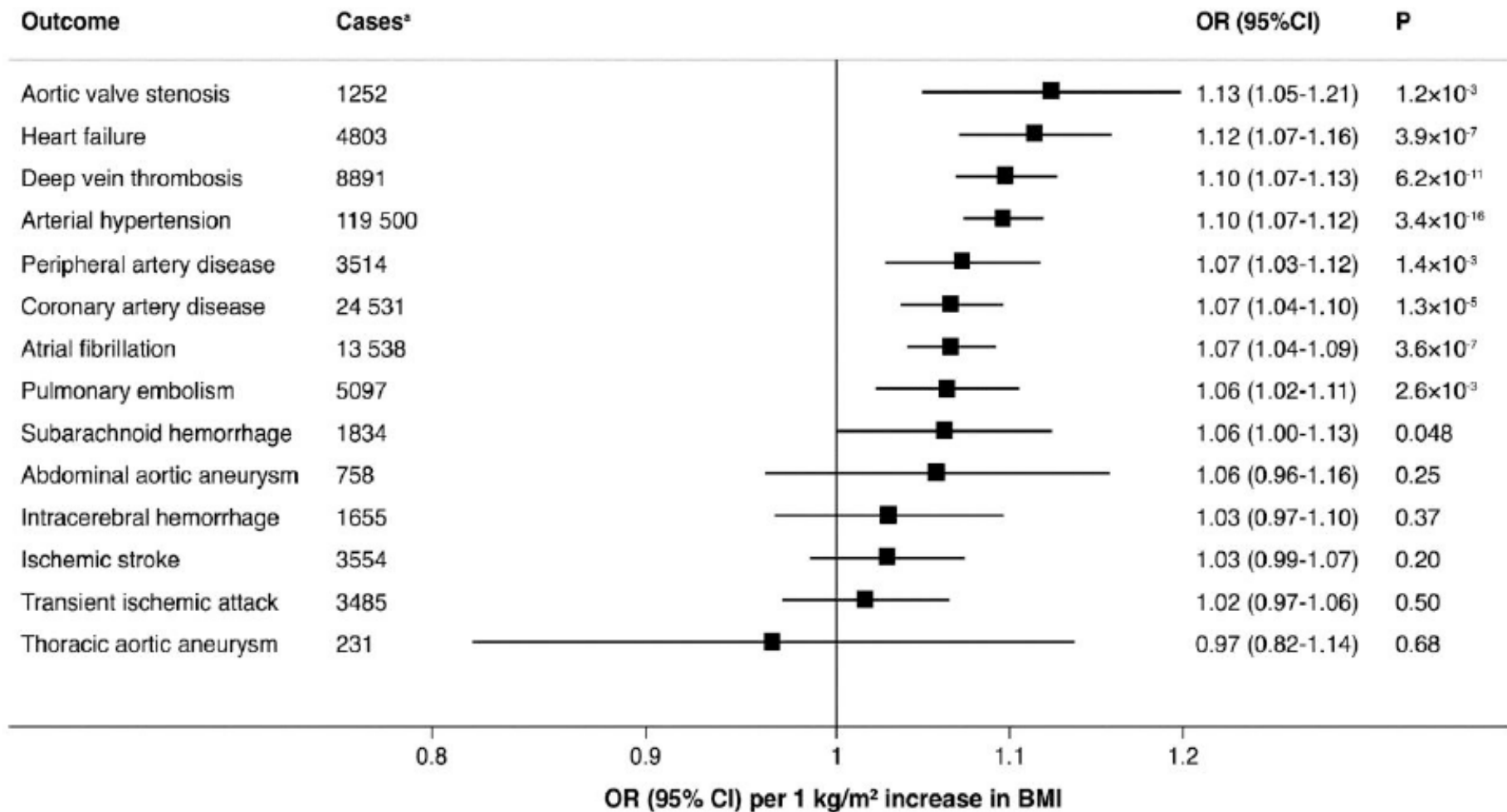
# Association of body-mass index with mortality, by major underlying cause

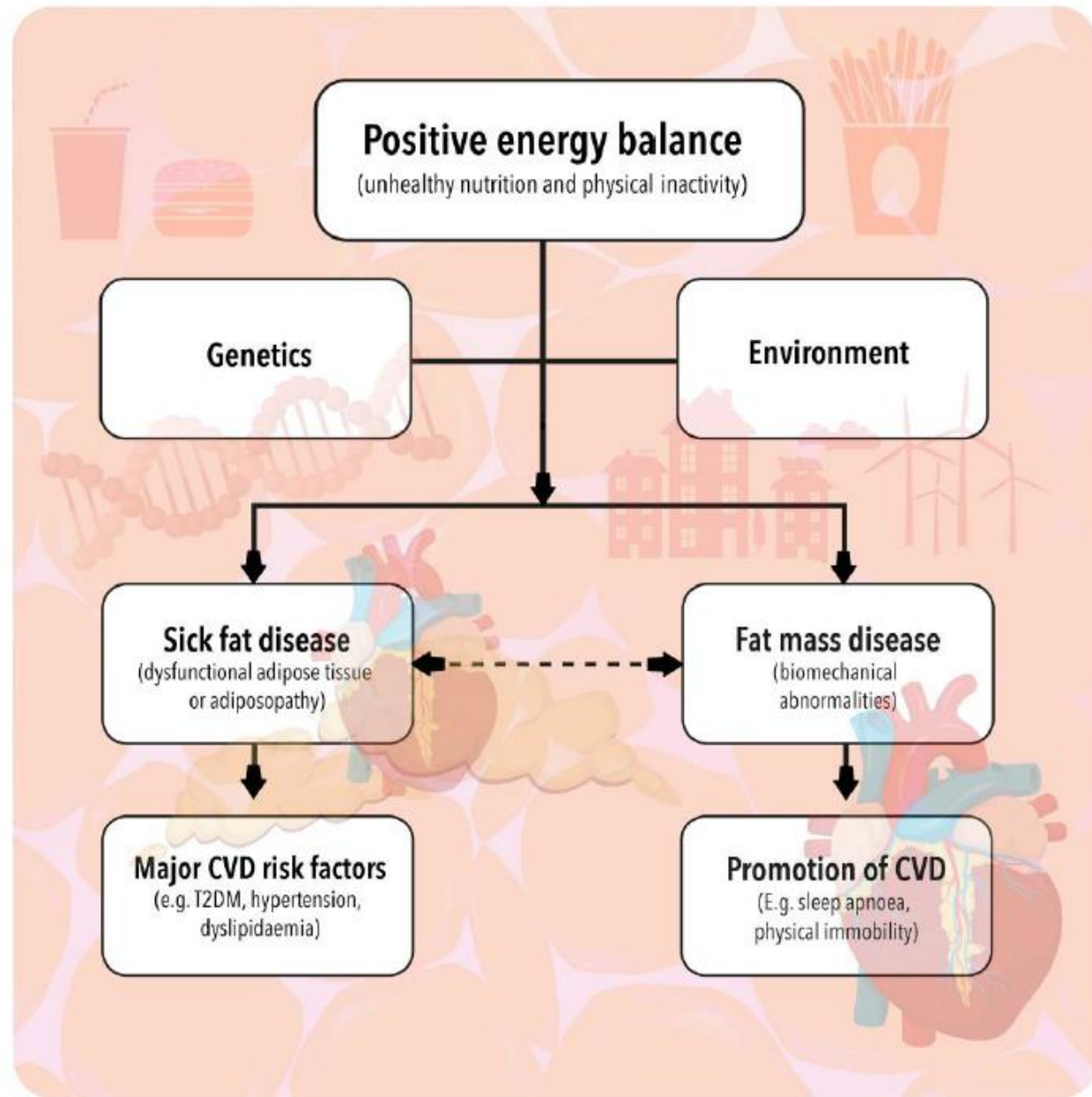


# Obesità e complicanze



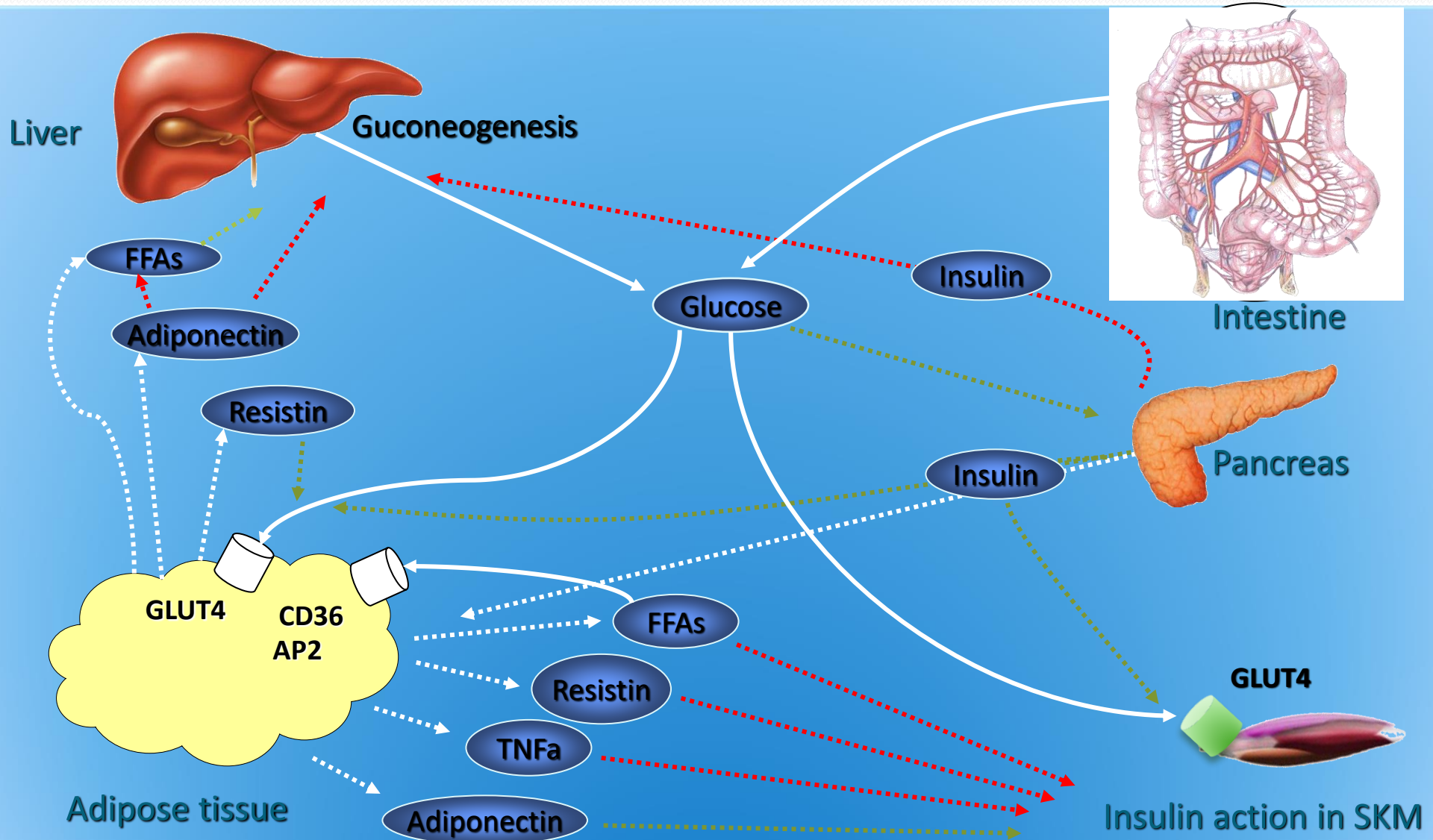
# Obesità e rischio di patologia cardiovascolare



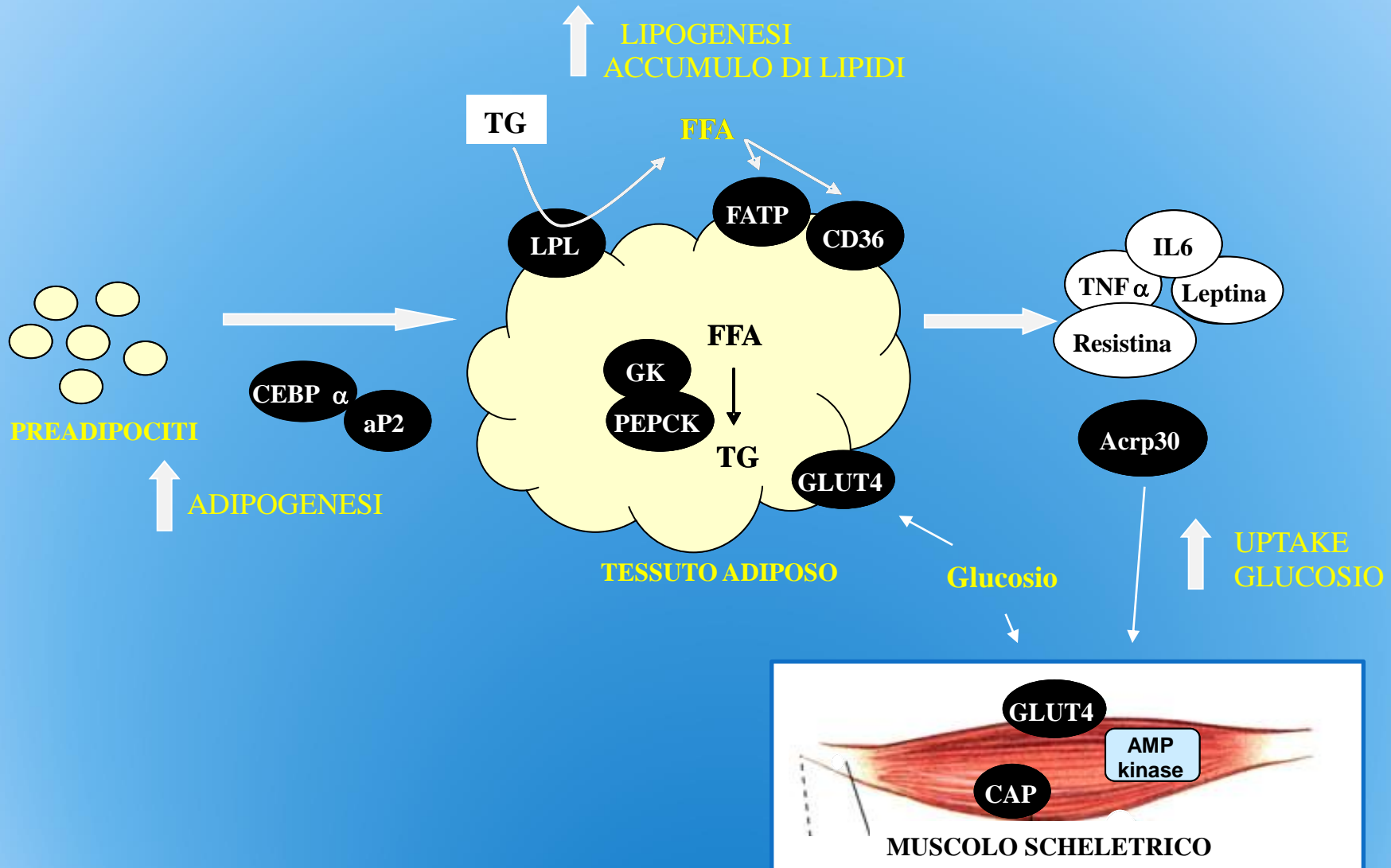




# Il tessuto adiposo al centro di un complesso cross-talk tra organi insulino-sensibili

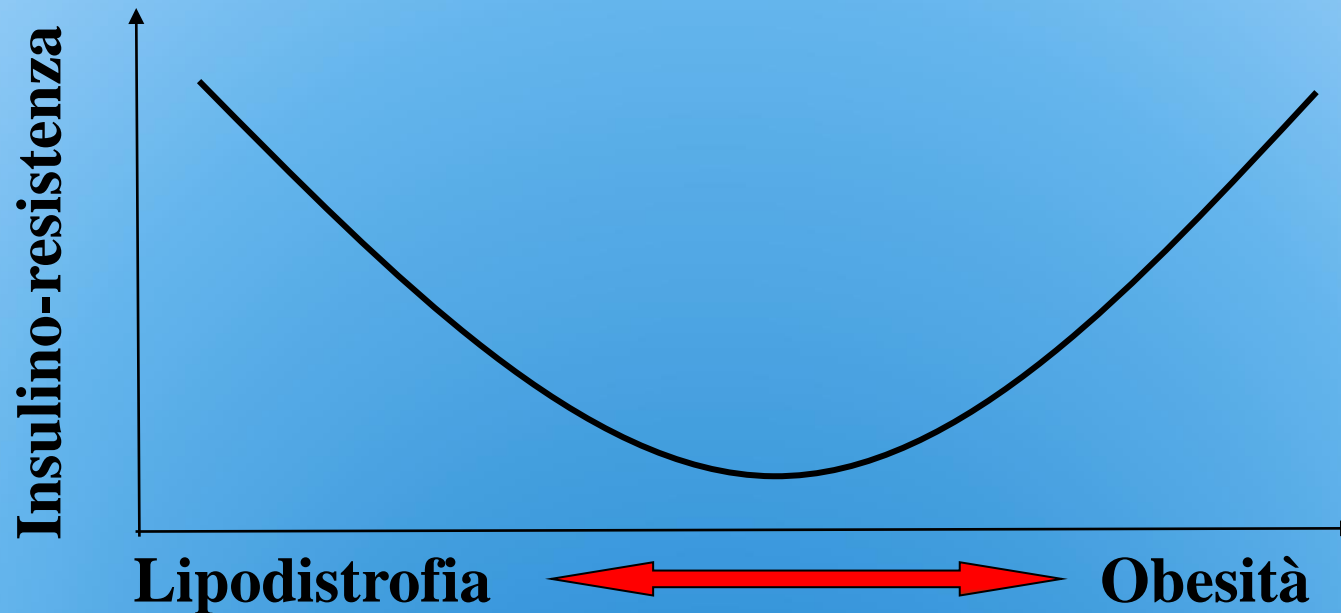


# PPAR $\gamma$ e sensibilità insulinica





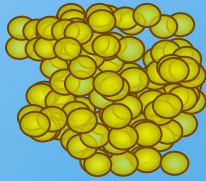
# Tessuto adiposo e sensibilità insulinica



- Lipodistrofia → Insulino-resistenza
- In modelli animali di lipodistrofia, il trapianto di tessuto adiposo ripristina la sensibilità insulinica

## Normal energy intake

WAT



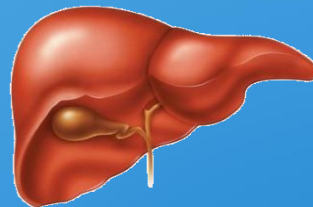
FFA



Pancreas



Muscle



Liver

No insulin resistance

## Impaired fat deposition

WAT



FFA

Lipotoxicity

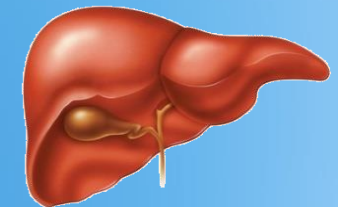
Compensatory FFA  
oxidation



Pancreas



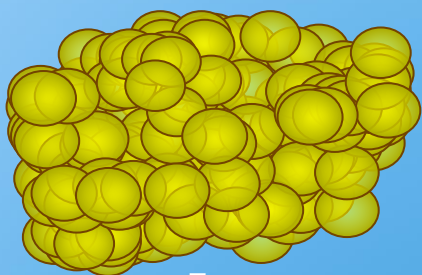
Muscle



Liver

Insulin secretion failure, insulin  
resistance, fatty liver  
"Metabolic Syndrome"

## Hypertrophic WAT



FFA

Variable degrees of  
Lipotoxicity

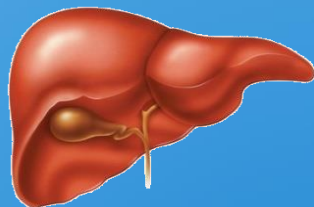
Compensatory FFA  
oxidation



Pancreas



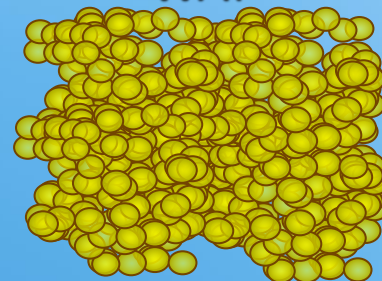
Muscle



Liver

Insulin secretion failure, insulin  
resistance, fatty liver  
"Metabolic Syndrome"

## Hyperplastic WAT



FFA

Protection from  
Lipotoxicity

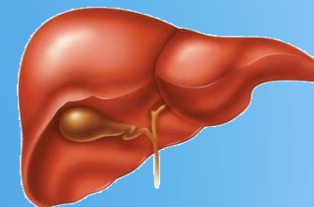
Favourable pattern  
of adipokines



Pancreas



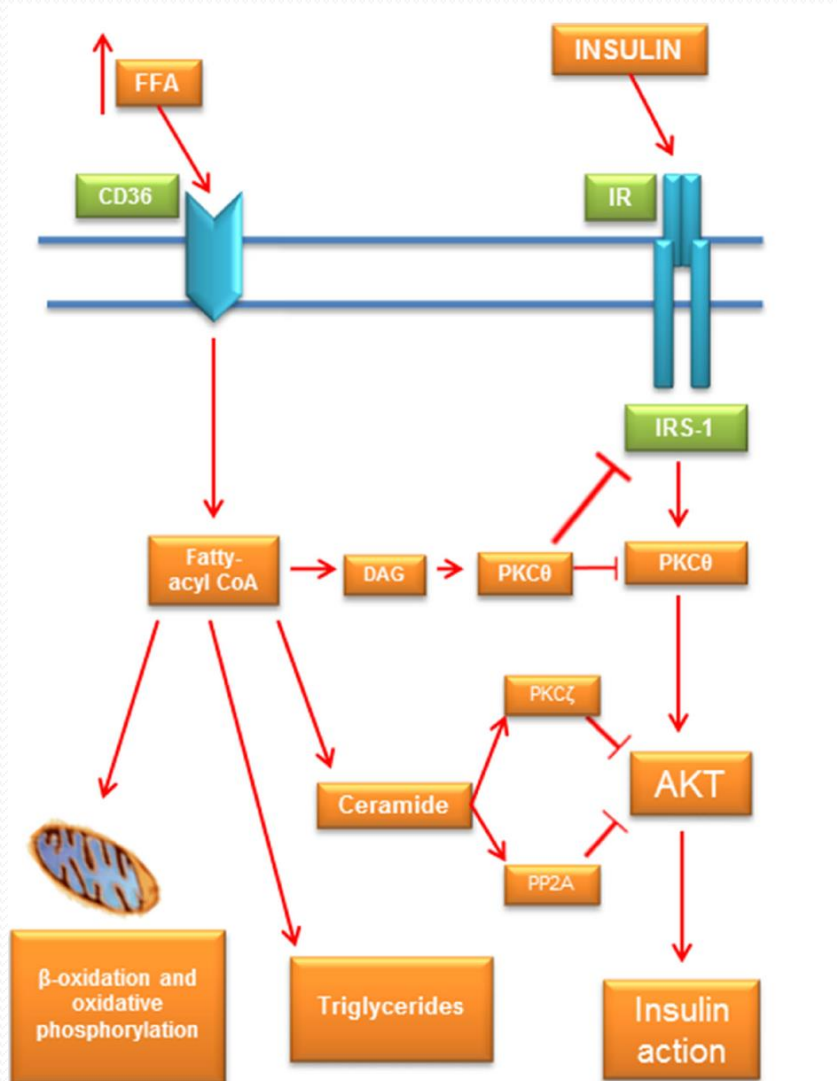
Muscle



Liver

Preserved insulin secretion and  
sensitivity

# Lipotossicità effetto



$\beta$  cellula

- Apoptosi
- Esaurimento b cellula
- Diabete

Fegato

- NASH
- $\uparrow$ Contenuto epatico di trigliceridi con l'età

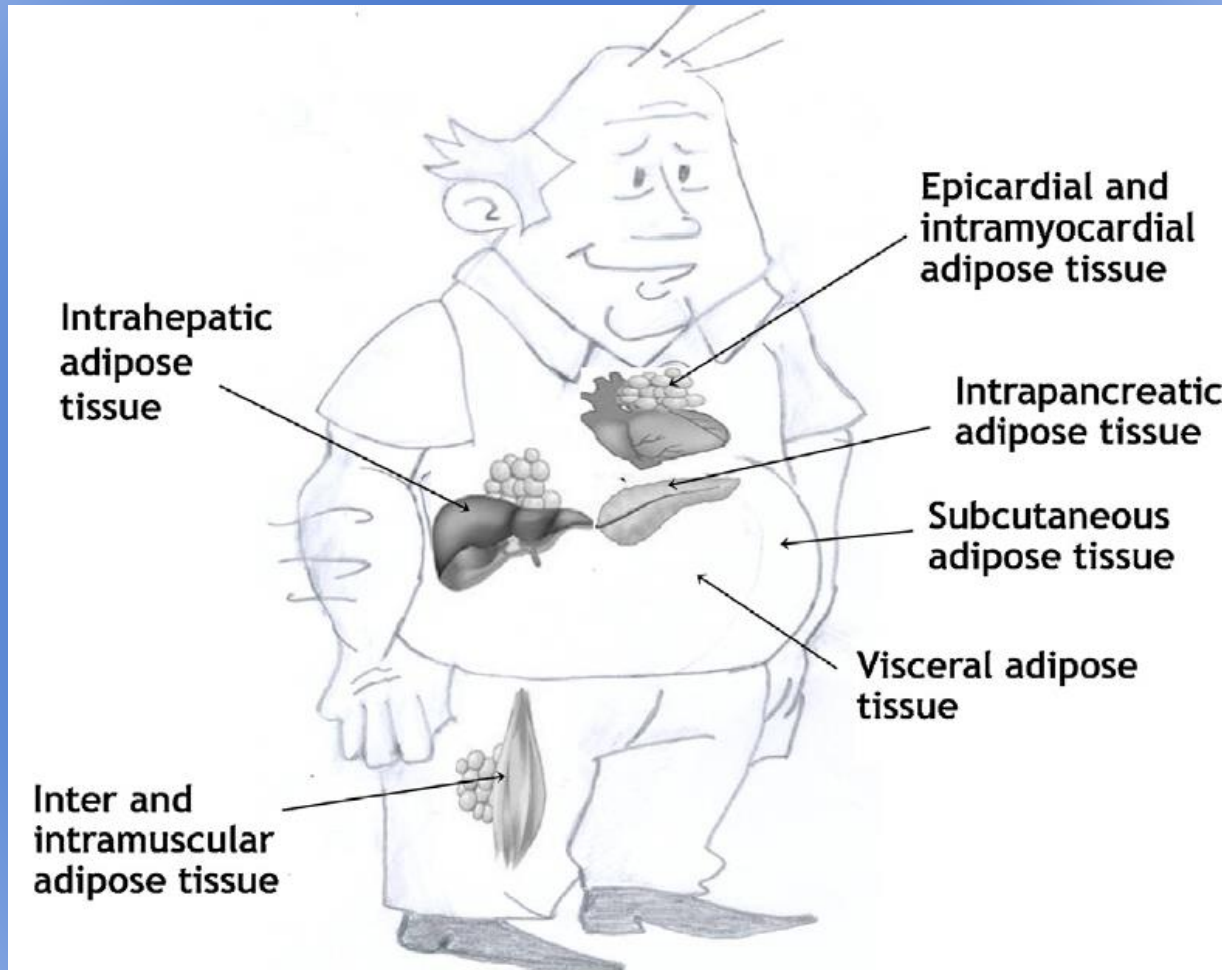
Muscolo

- Capacità ossidativa  $\downarrow$
- Insulino resistenza
- Perdita funzione

Cuore

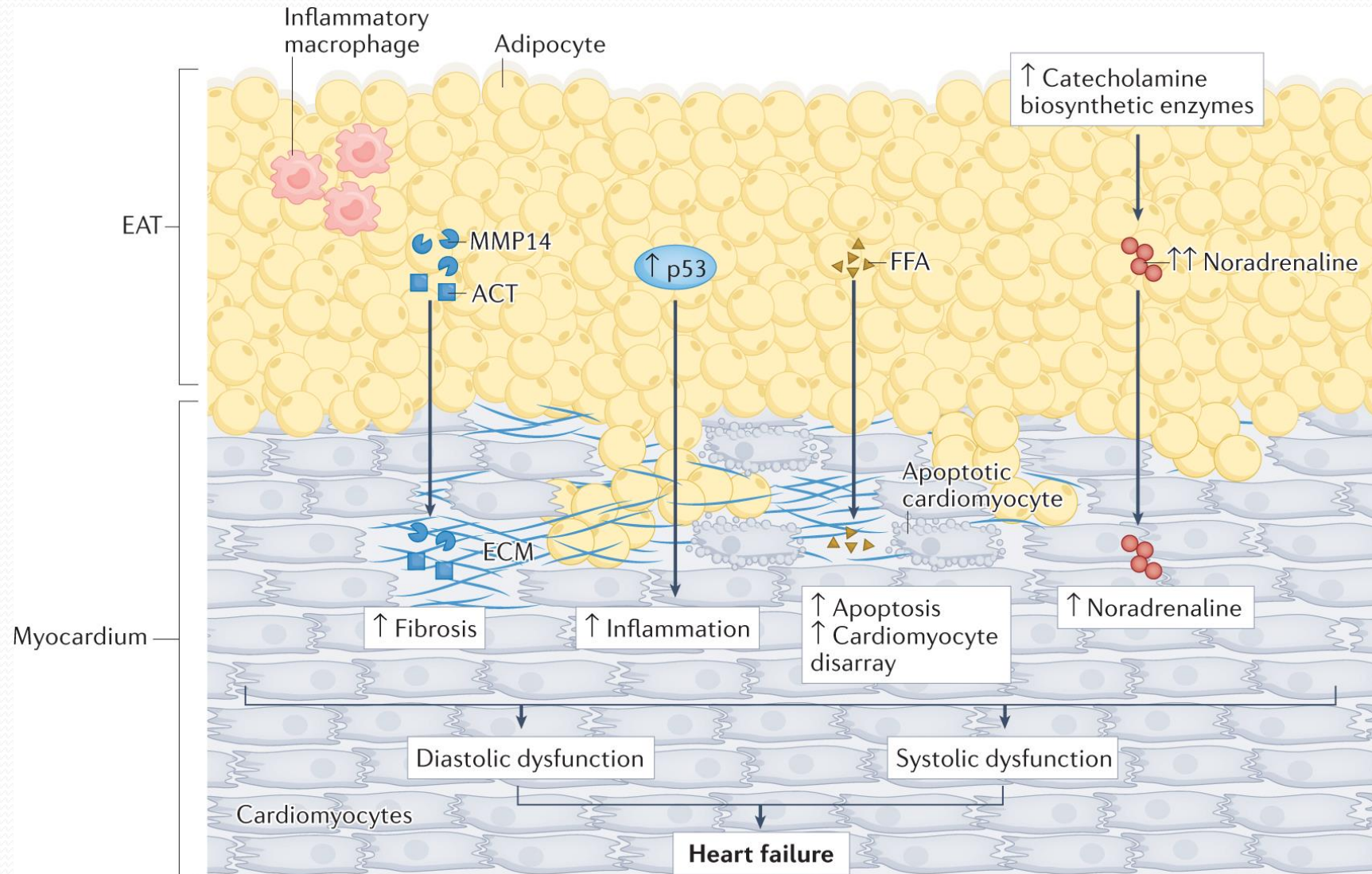
- Contrattilità miocardica  $\downarrow$  età
- Contenuto TG e ceramide  $\uparrow$ età
- Mismatch ossidazione FA/uptake FA

# Ectopic deposition of adipose tissue



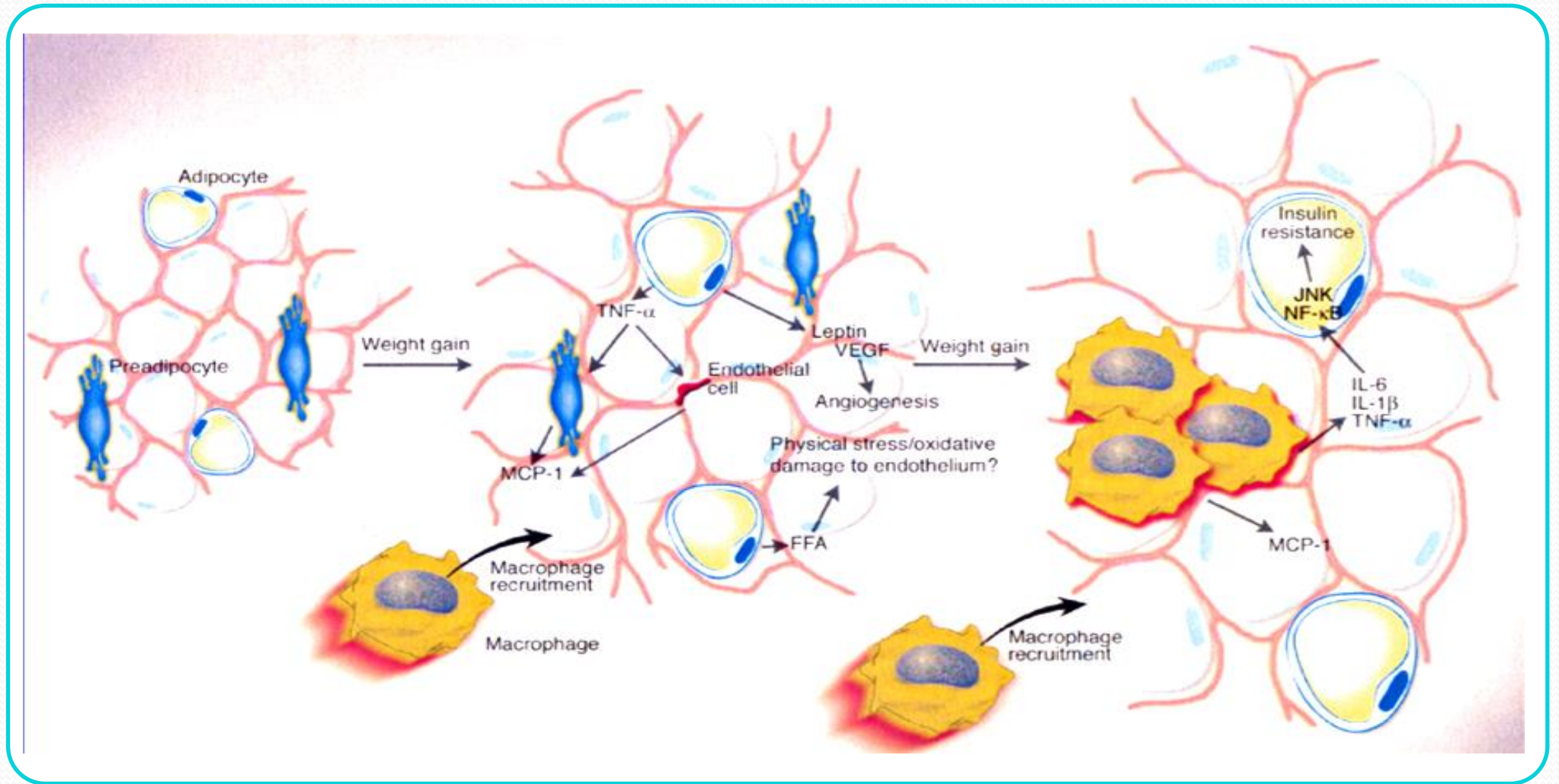


# Ruolo del tessuto adiposo epicaridico nello scompenso

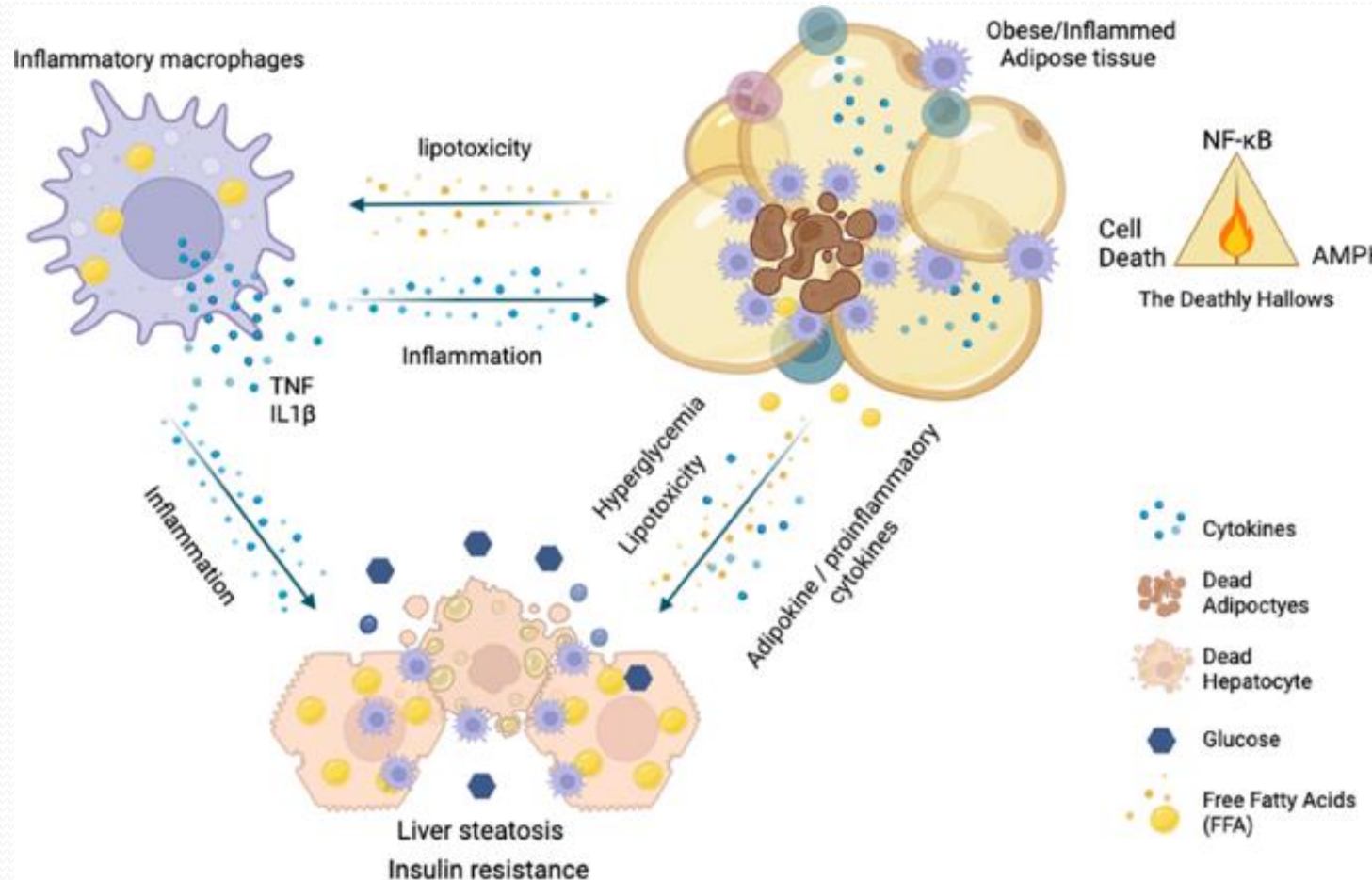




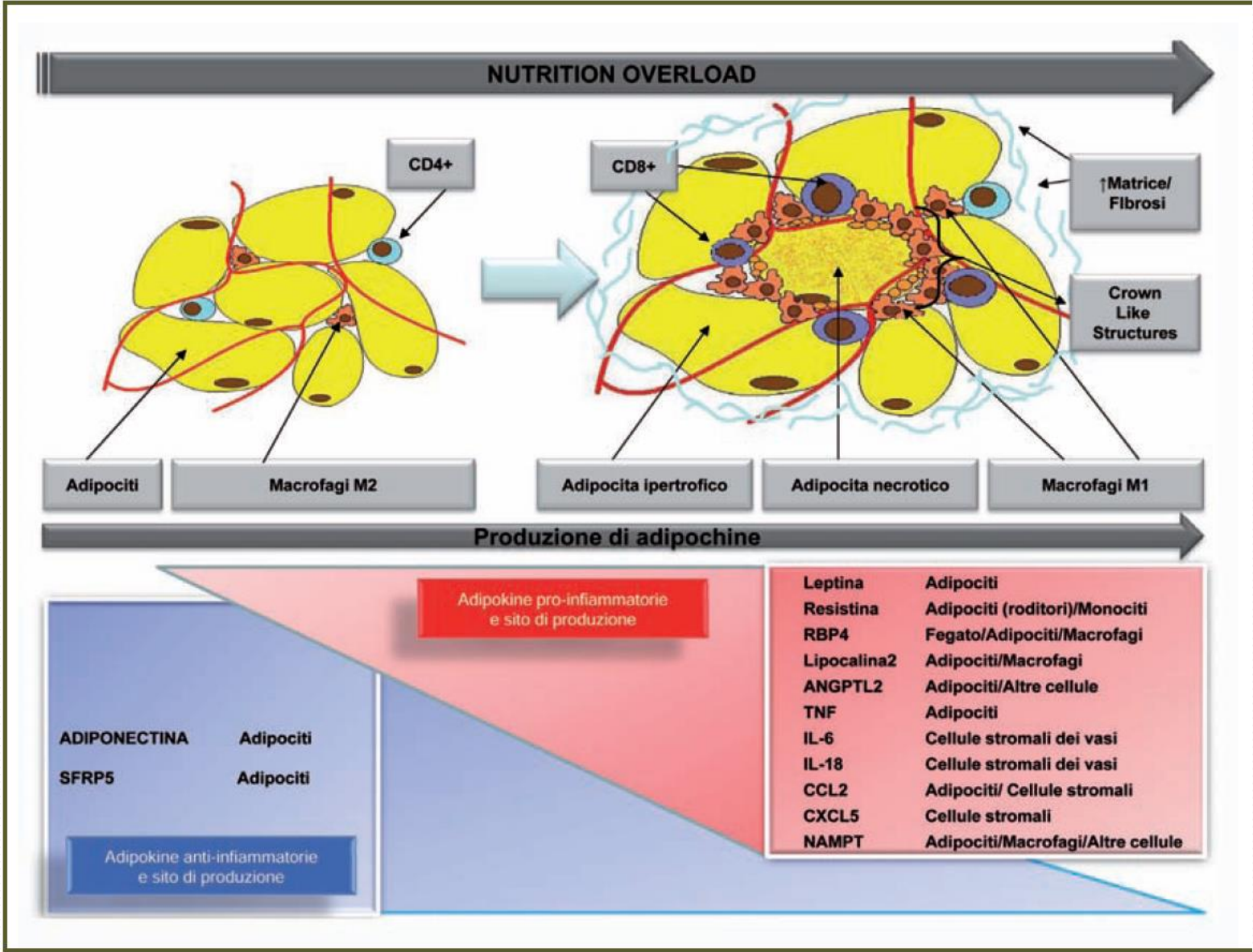
# Tessuto adiposo e infiammazione



# Obesità e infiammazione



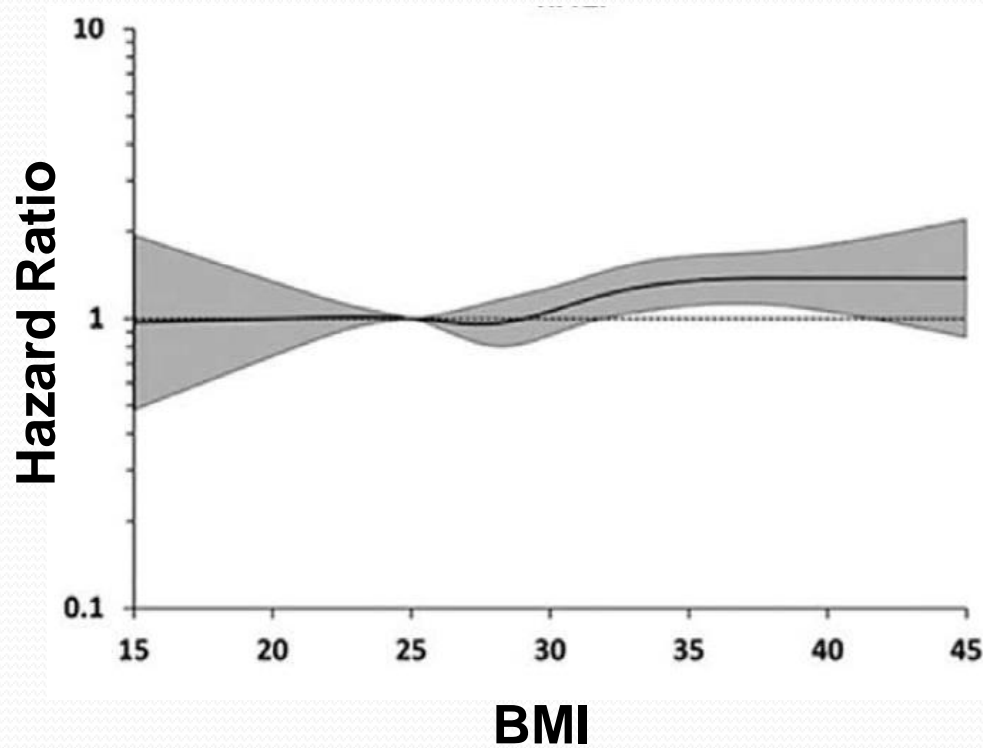
Cell Death & Differentiation volume 30, pages279–292 (2023)



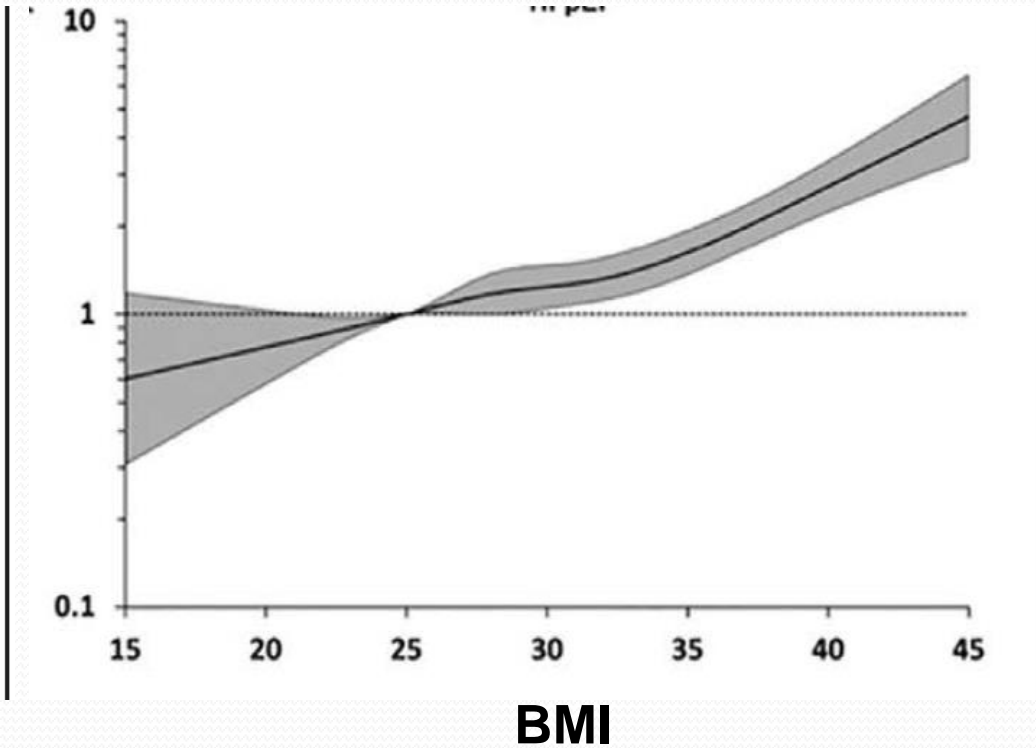
Dalla Nora et al. Tessuto adiposo e infiammazione sistemica. GIA 2012 n2

# Obesità e rischio di scompenso cardiaco

## HFrEF

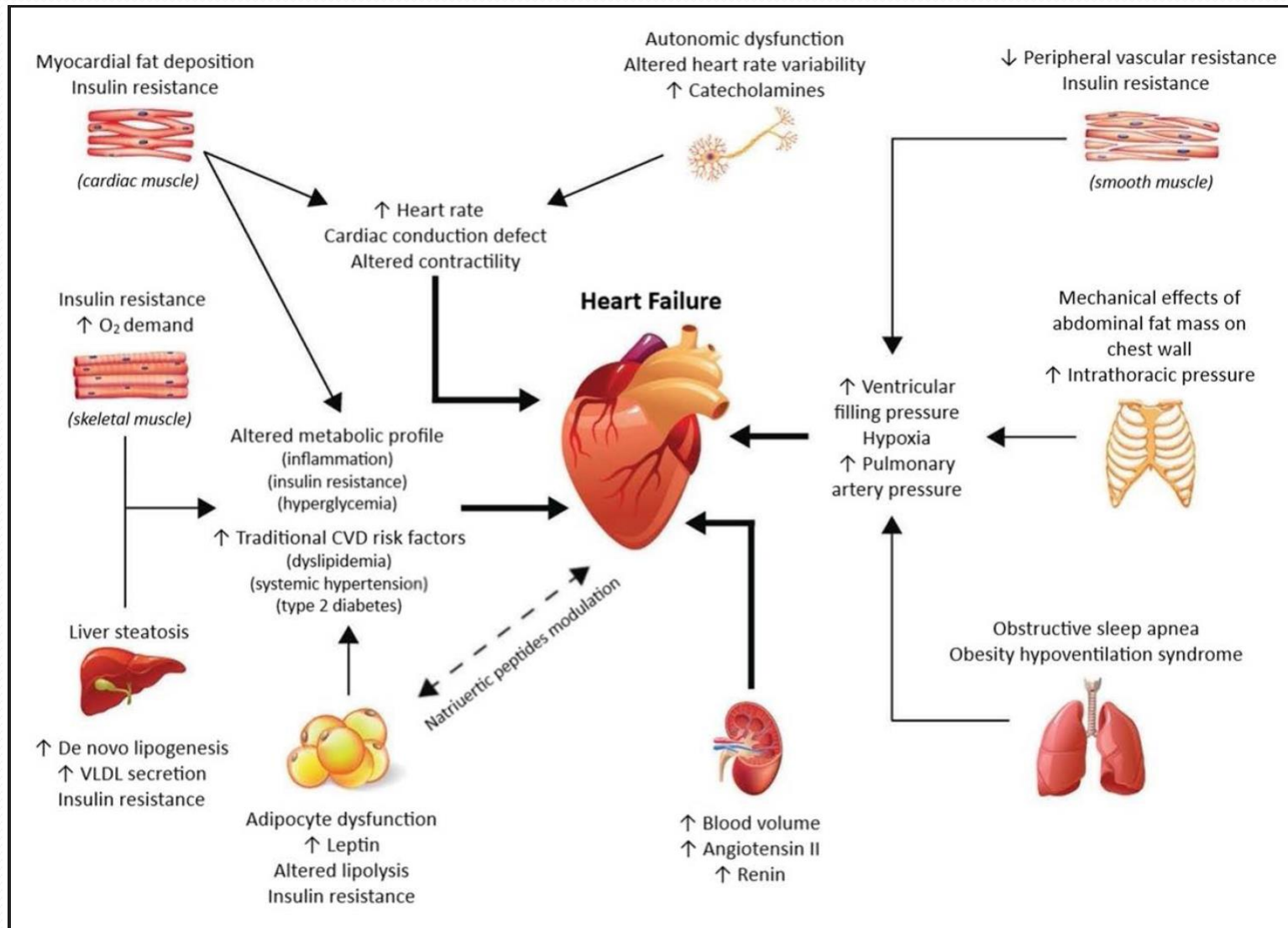


## HFpEF

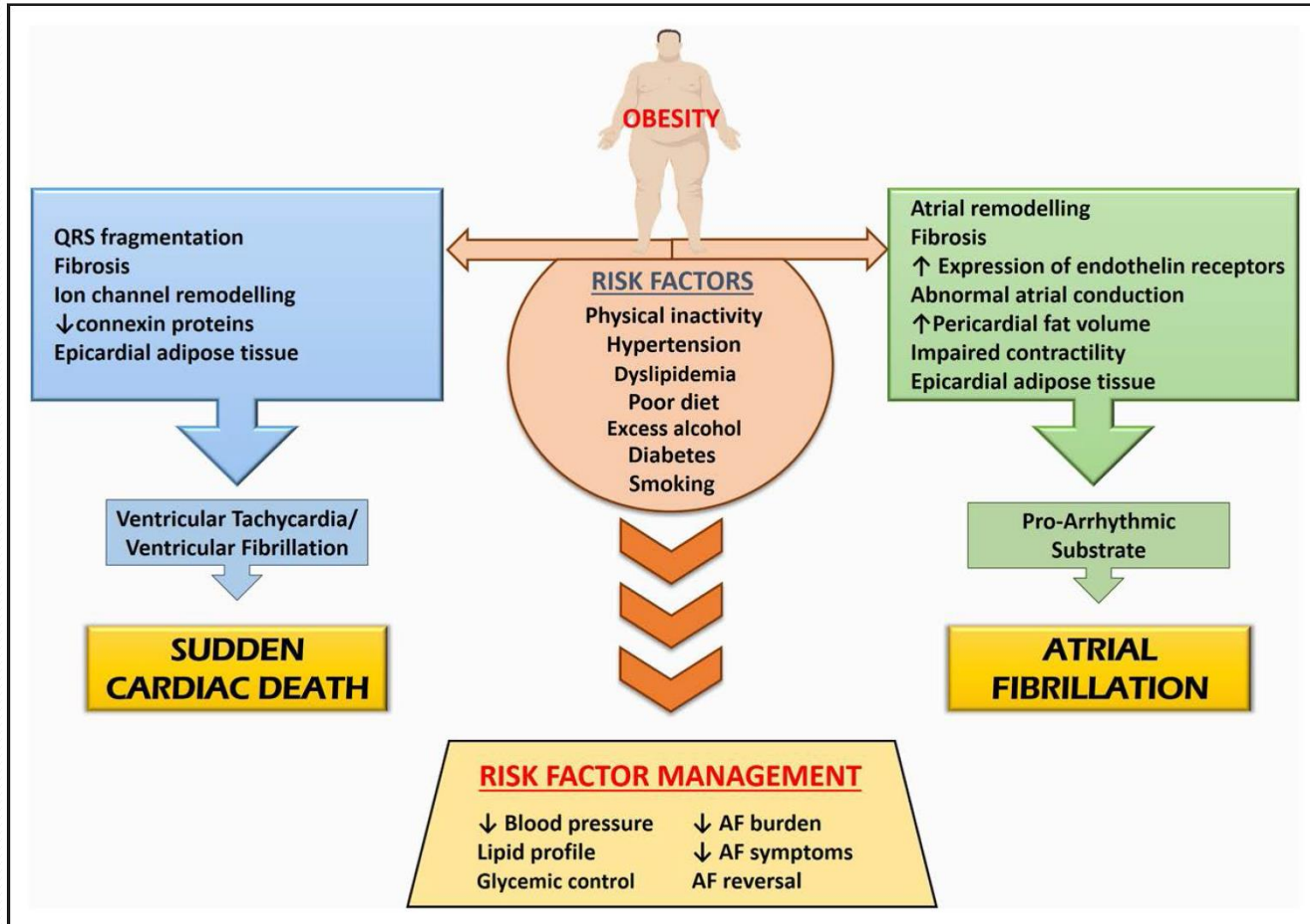




# Obesità e scompenso cardiaco

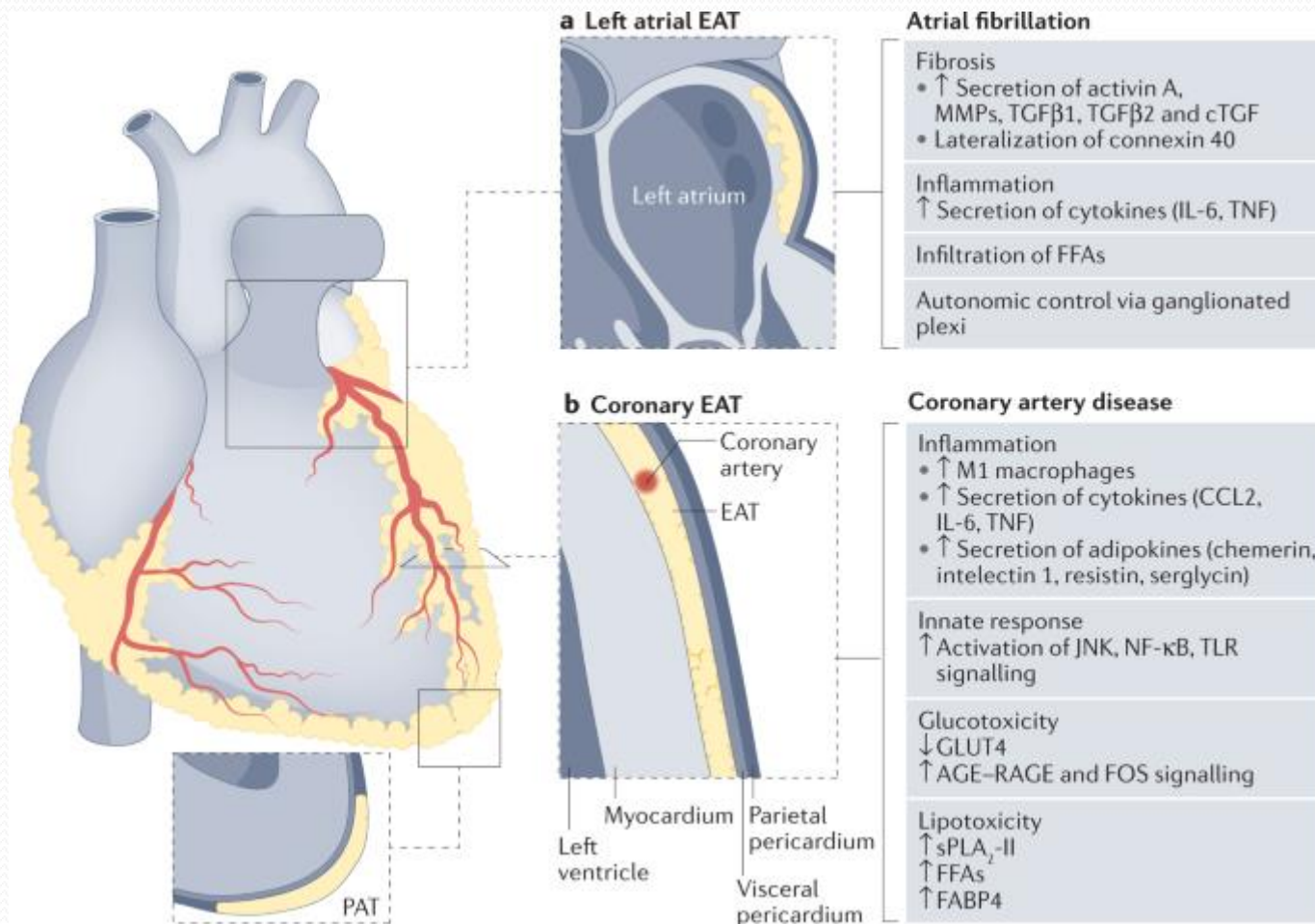


# Obesità e aritmie

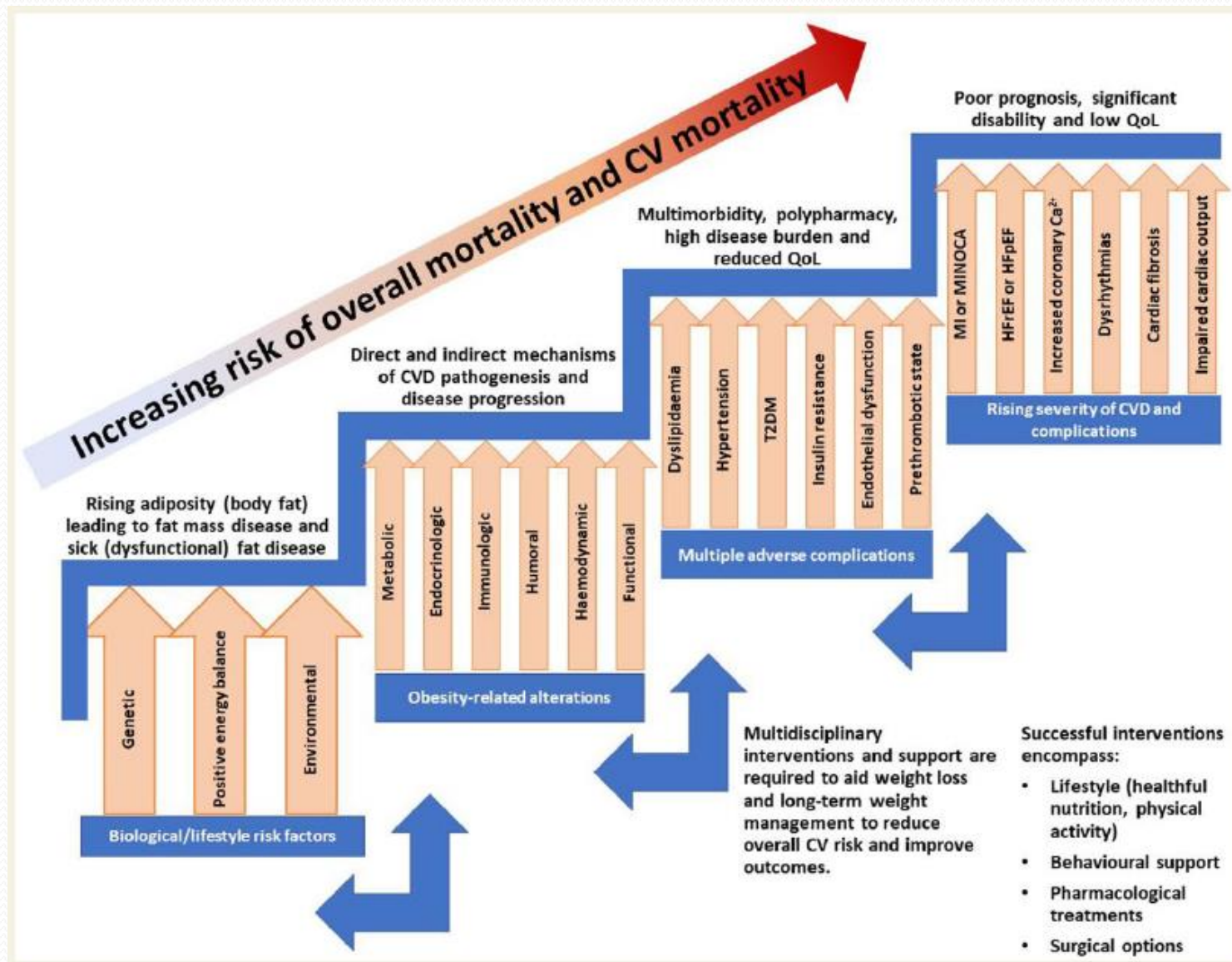




# EAT e aritmie



# Conclusioni



Grazie per l'attenzione