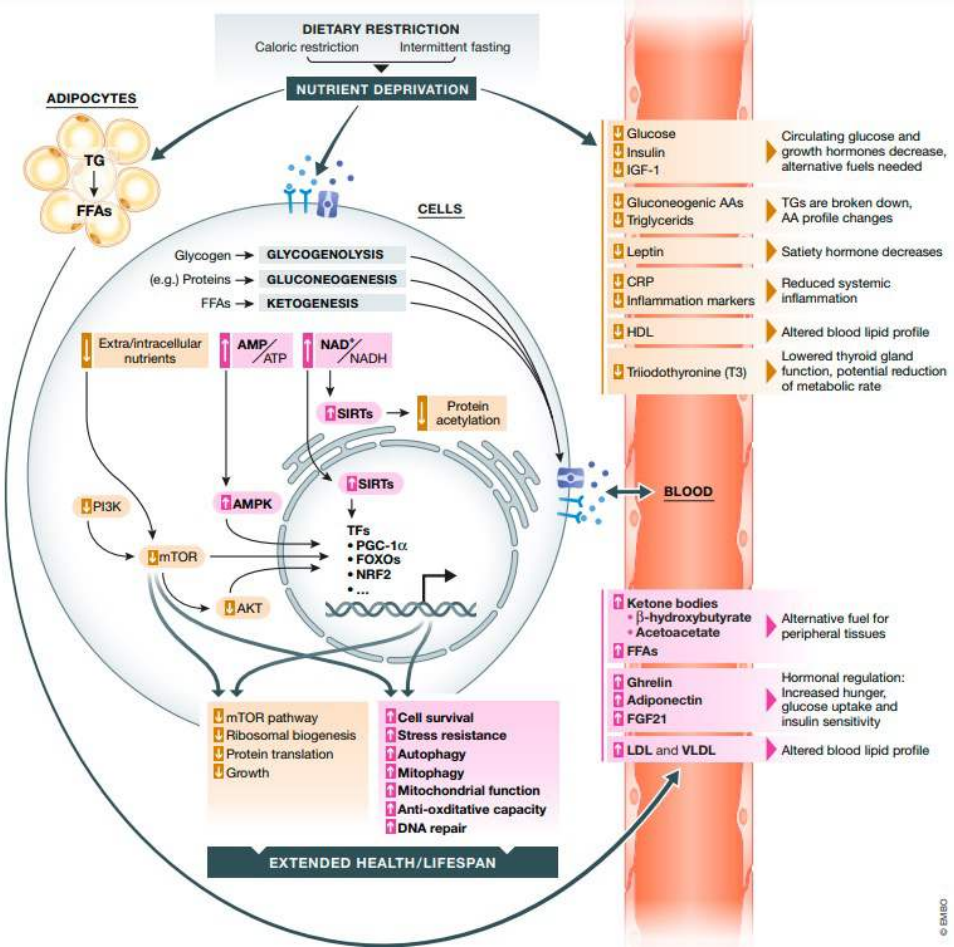
DIETARY RESTRICTION
Caloric restriction
Intermittent fasting
NUTRIENT DEPRIVATION
ADIPOCYTES
TG
FFAs
CELLS
Glycogen → GLYCOGENOLYSIS
(e.g.) Proteins → GLUCONEOGENESIS
FFAs → KETOGENESIS
Extra/intracellular nutrients
AMP/ATP
NAD+/NADH
SIRTs
Protein acetylation
PI3K
AMPK
SIRTs
mTOR
AKT
TFs
• PGC-1α
• FOXOs
• NRF2
• ...
mTOR pathway
Ribosomal biogenesis
Protein translation
Growth
Cell survival
Stress resistance
Autophagy
Mitophagy
Mitochondrial function
Anti-oxditative capacity
DNA repair
EXTENDED HEALTH/LIFESPAN
BLOOD
Glucose
Insulin
IGF-1
Circulating glucose and growth hormones decrease, alternative fuels needed
Gluconeogenic AAs
Triglycerids
TGs are broken down, AA profile changes
Leptin
Satiety hormone decreases
CRP
Inflammation markers
Reduced systemic inflammation
HDL
Altered blood lipid profile
Triiodothyronine (T3)
Lowered thyroid gland function, potential reduction of metabolic rate
Ketone bodies
• β-hydroxybutyrate
• Acetoacetate
FFAs
Alternative fuel for peripheral tissues
Ghrelin
Adiponectin
FGF21
Hormonal regulation: Increased hunger, glucose uptake and insulin sensitivity
LDL and VLDL
Altered blood lipid profile
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