



Medical Committee
The University of Jordan



SLIDE



SHEET



SLIDE :

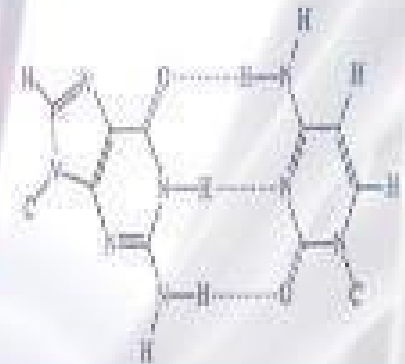
15



DR.NAME:

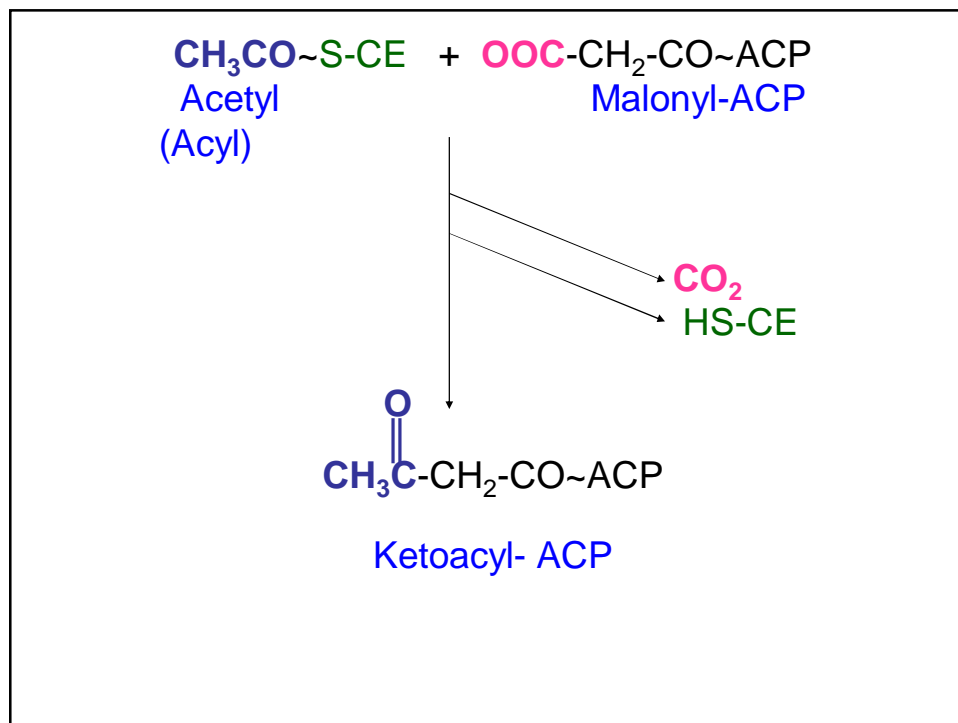
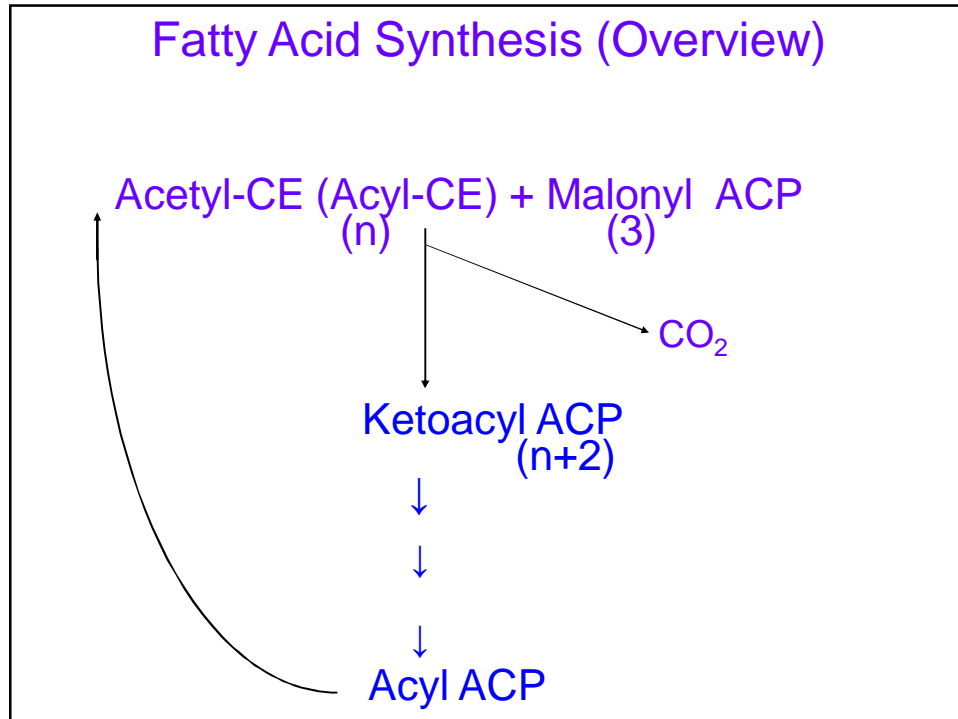
Dr. Faisal

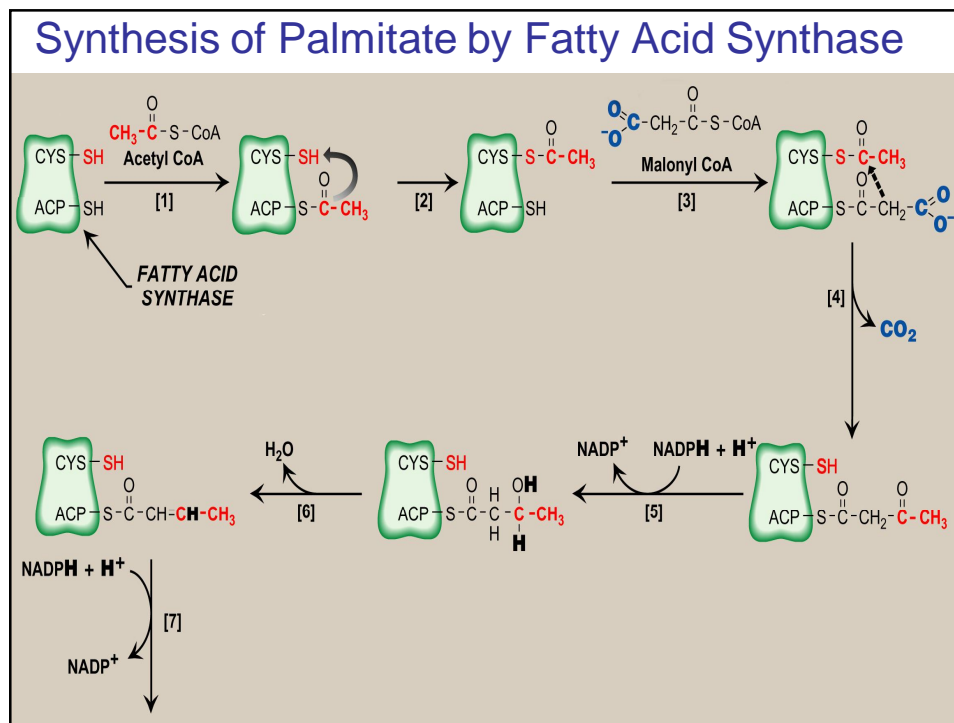
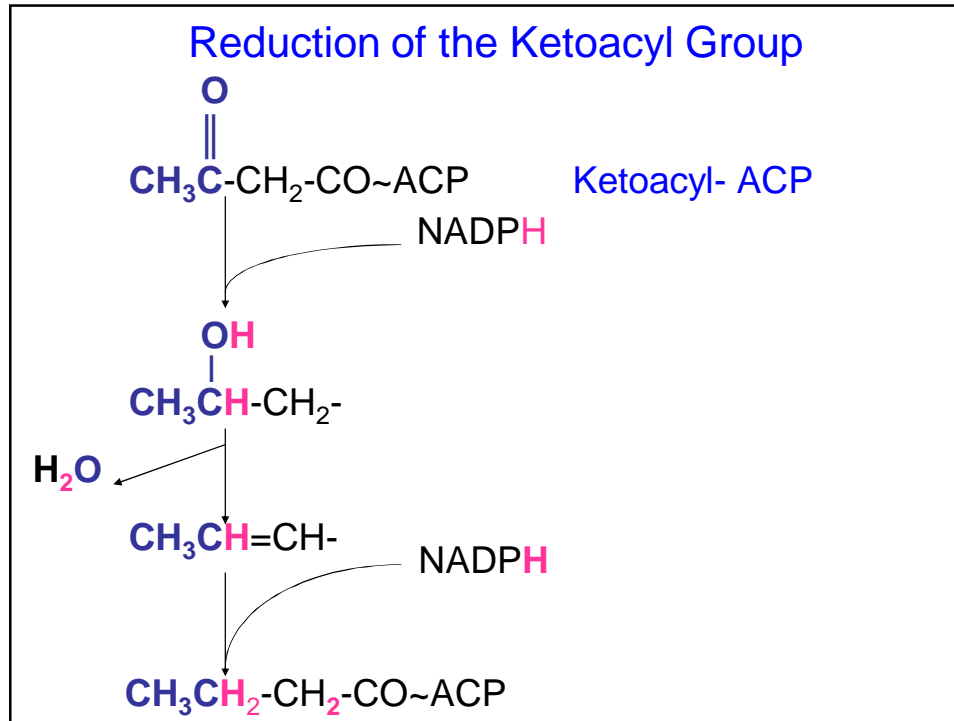
Biochemistry



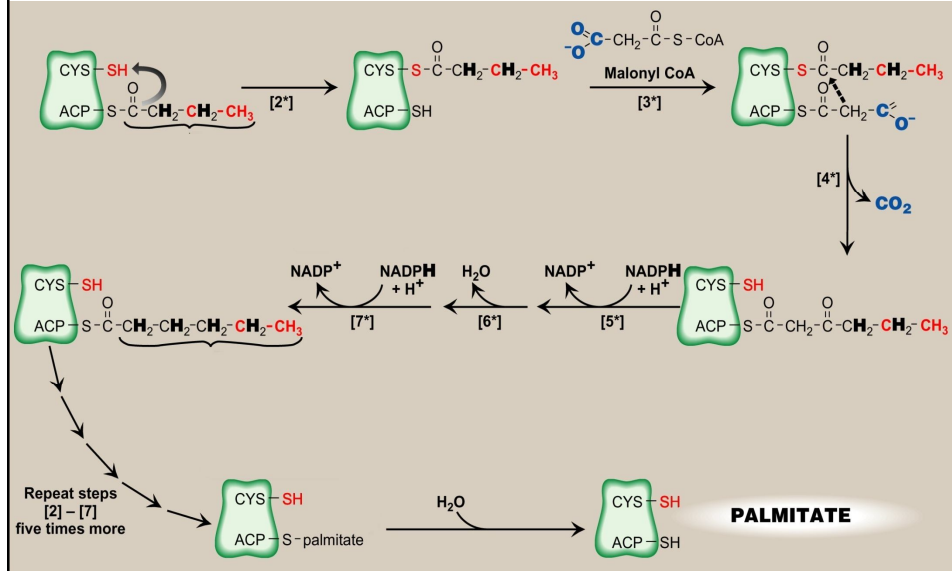
Majida Al-Foqaraa'

Fatty Acid Synthesis (Overview)





Synthesis of Palmitate by Fatty Acid Synthase (Cont.)



Synthesis of Palmitate (net reaction)

How many cycles of synthesis (Condensation)?

* 7

How many Malonyl CoA?

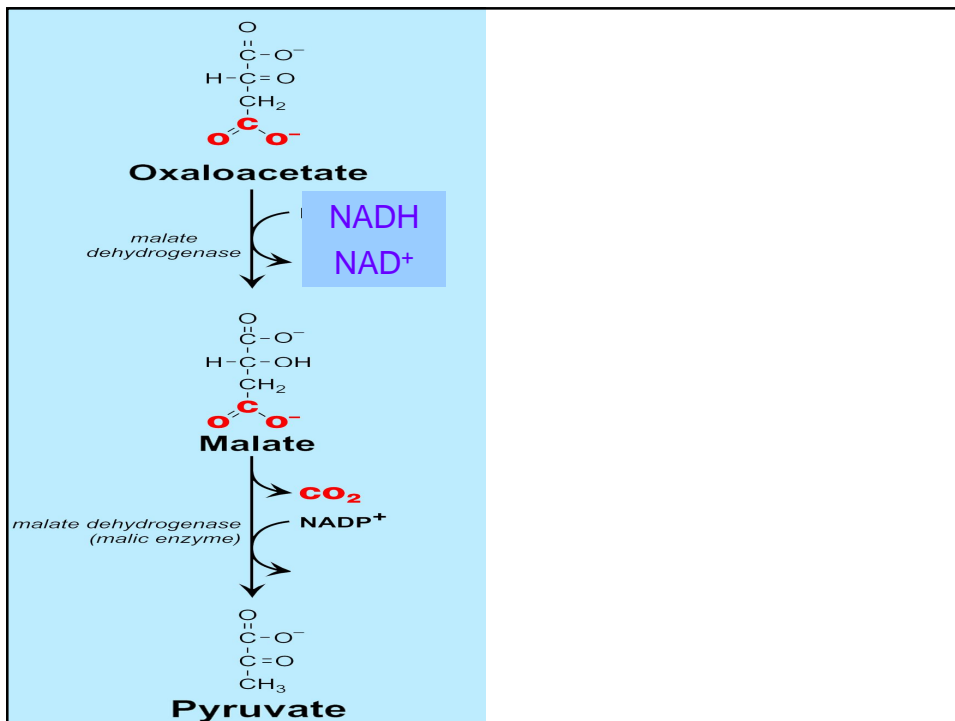
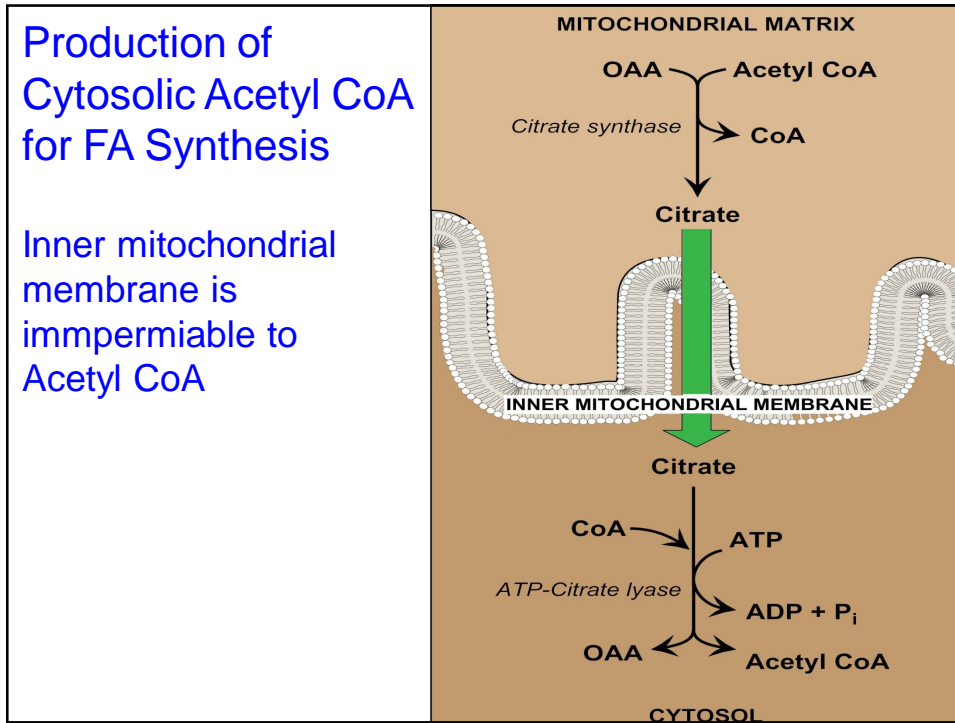
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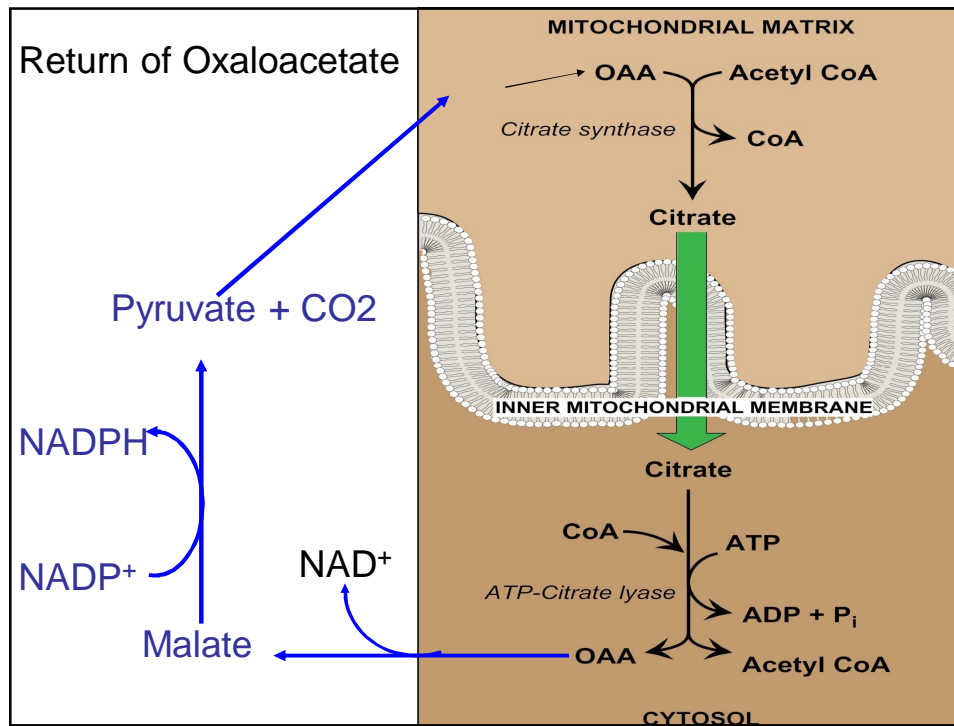
How many Acetyl CoA?

* 1

How Many NADPH?

* 14





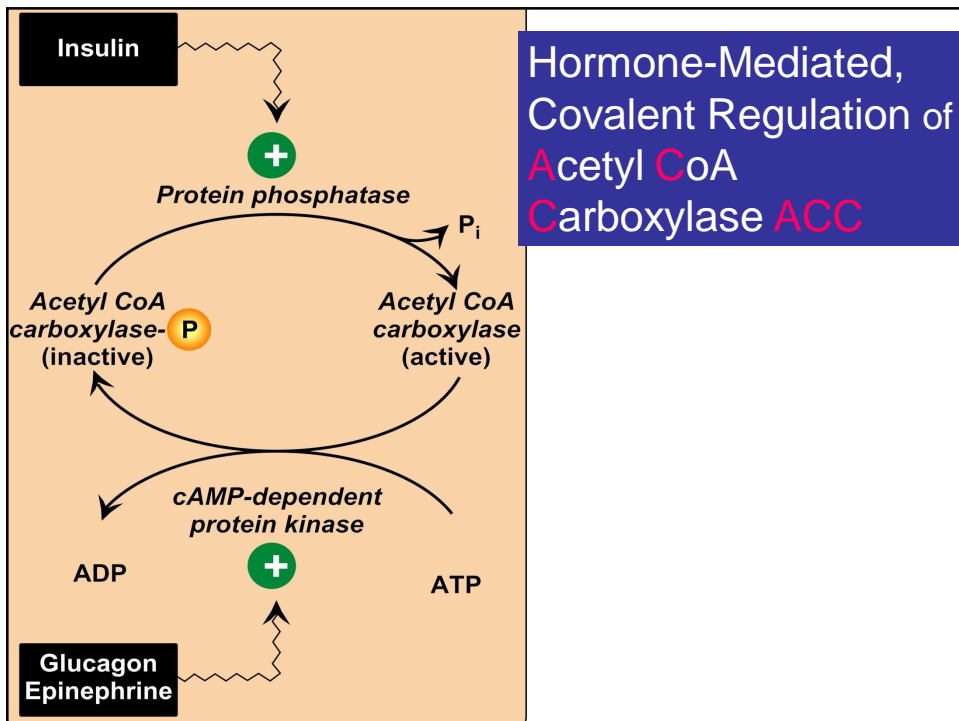
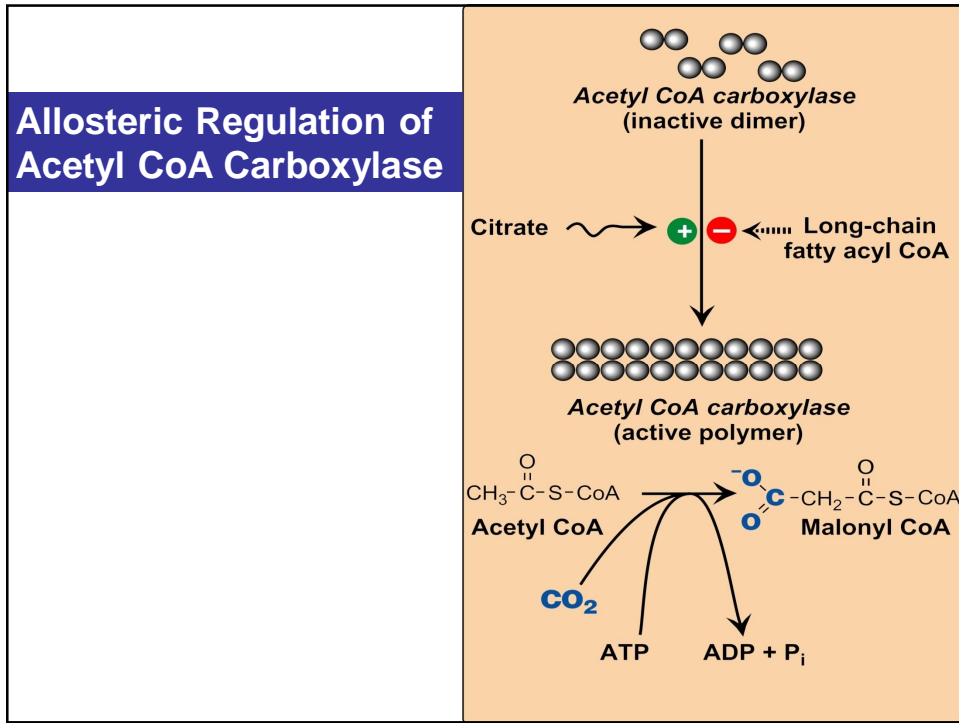
Regulation of FA Oxidation & Synthesis

OXIDATION

- Supply of Fatty Acids
 - Hormonal Control
- Entry into Mitochondria
- Availability of NAD⁺

SYNTHESIS

- Regulation of AcCoA Carboxylase
 - Allosteric Mechanism
 - Phosphorylation
- Amounts of Enzymes



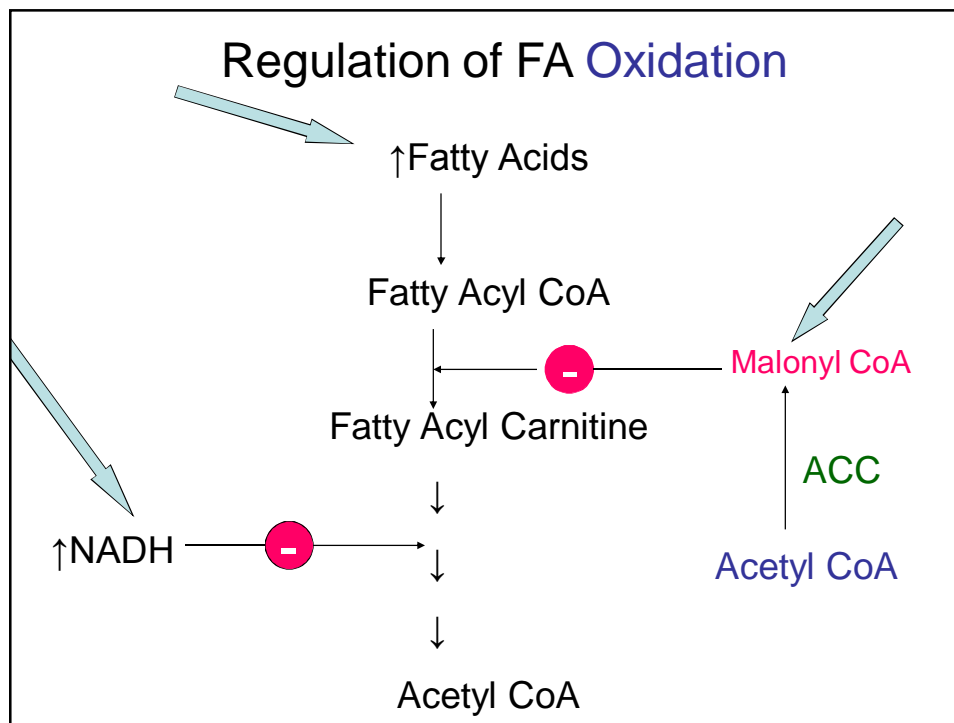
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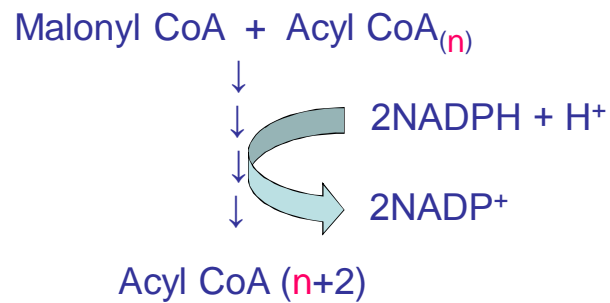
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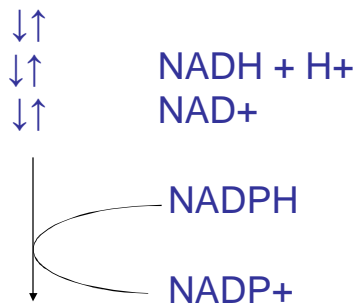
Elongation of Fatty Acids

- in Endoplasmic Reticulum
- Similar Sequence of Reactions
- Different Enzymes



$n = 16$ or more carbons

Elongation of Fatty Acids in Mitochondria



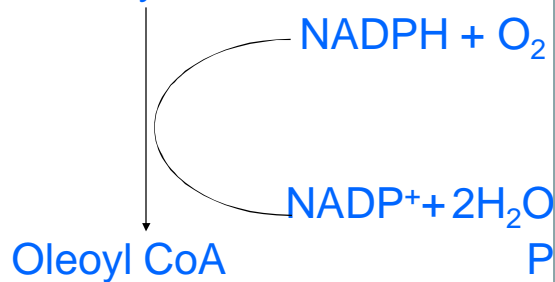
$n = \text{less than } 16$ carbons

Introduction of Double Bonds

- Synthesis of Monounsaturated FA
 - Oleic Acid 18: Δ^9
 - Palmitoleic 16: Δ^9
- In endoplasmic reticulum
- No double bond can be introduced beyond carbon 9 in human

Introduction of Double Bonds (Cont.)

Stearoyl CoA



Δ^9 Desaturase; Cytochrome b_5