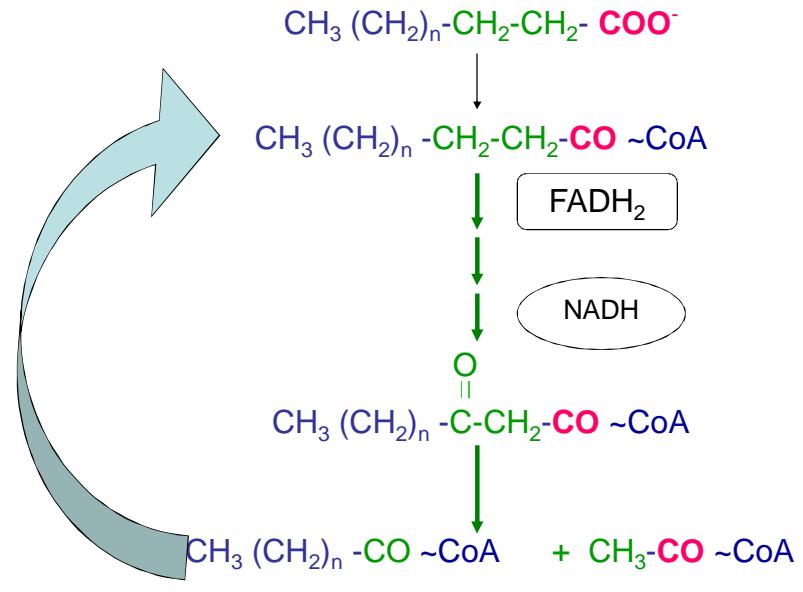
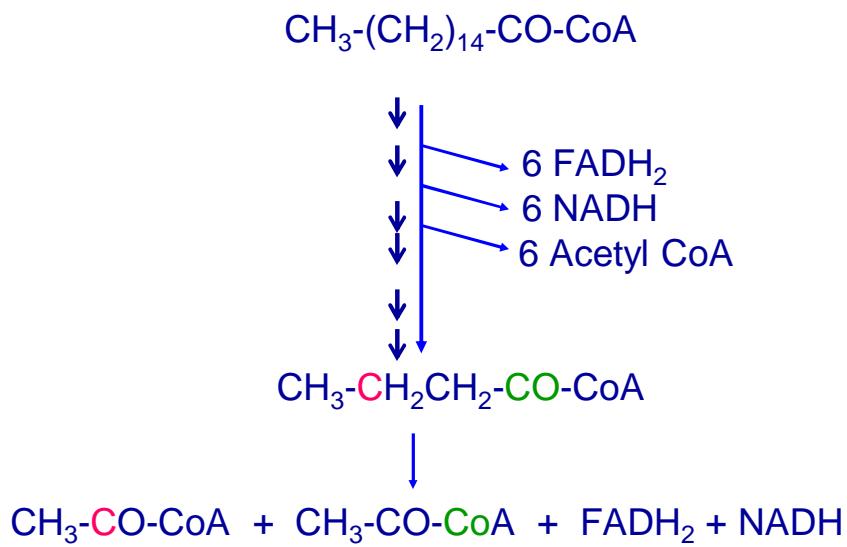


## $\beta$ Oxidation of Fatty Acids (overview)



## Energy Yield from FA Oxidation



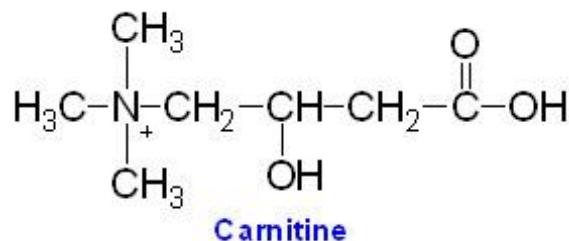
## Energy Yield from FA Oxidation (cont.)

- Oxidation of C 16 FATTY ACID

- 7 FADH<sub>2</sub> → 14 ATP
- 7 NADH → 21 ATP
- 8 Acetyl CoA → 96 ATP

- Activation of the Acid consumes 2 ATP
- Net 129 ATP mole per mole of C16 Fatty Acid

## Carnitine



- \* Other functions:

- Export of branched chain acyl groups from mitochondria
- Excretion of acyl groups that cannot be metabolized in the body

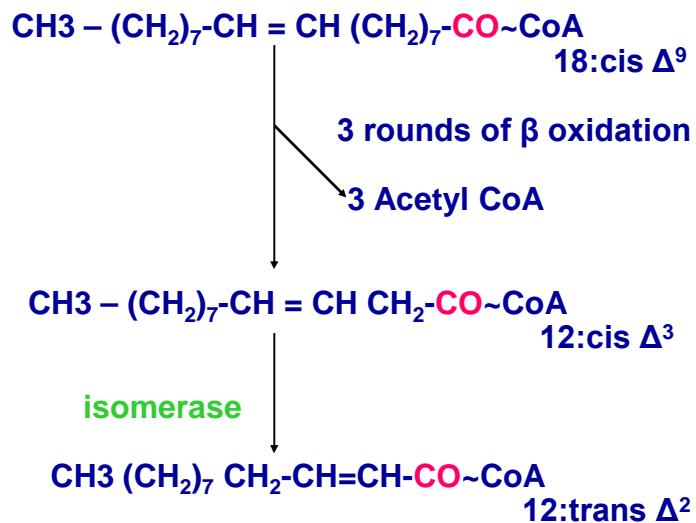
## Carnitine Deficiencies

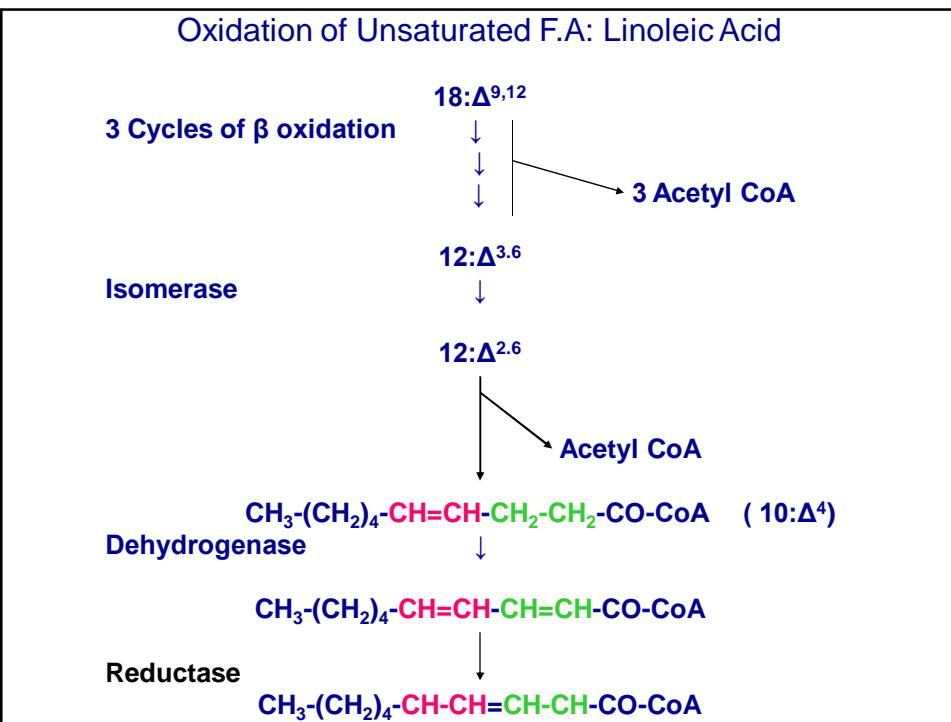
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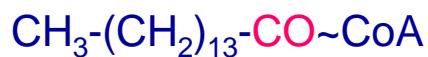
- ↓ Ability to use FA as a fuel
- Accumulation of F.A and branched Acyl groups in cells

## Oxidation of unsaturated F.A: Oleic Acid

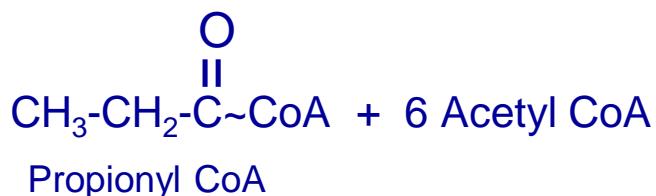


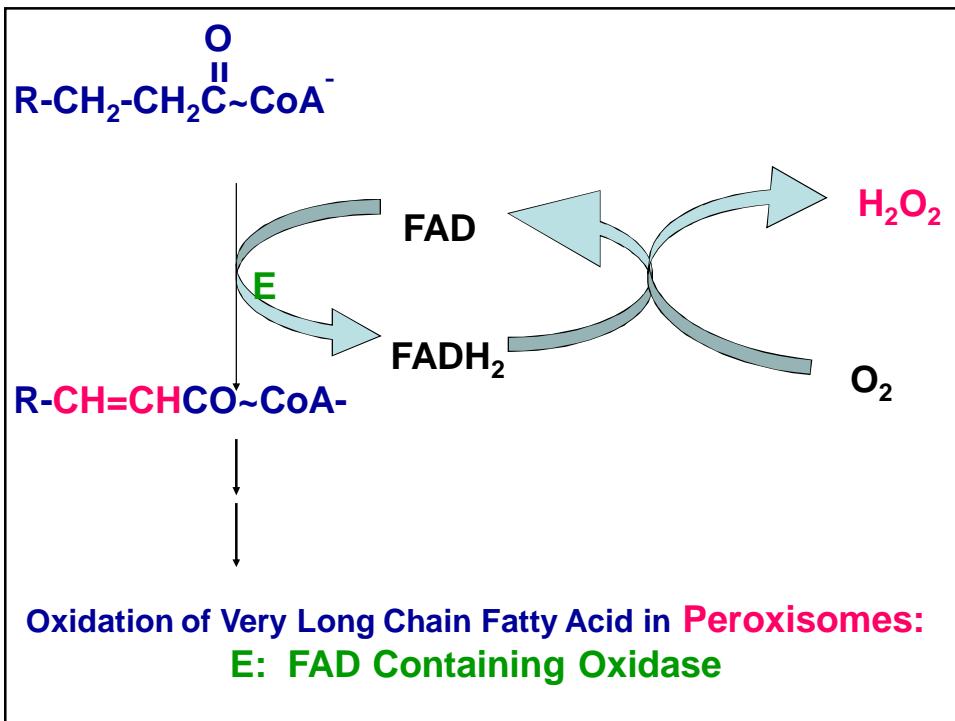
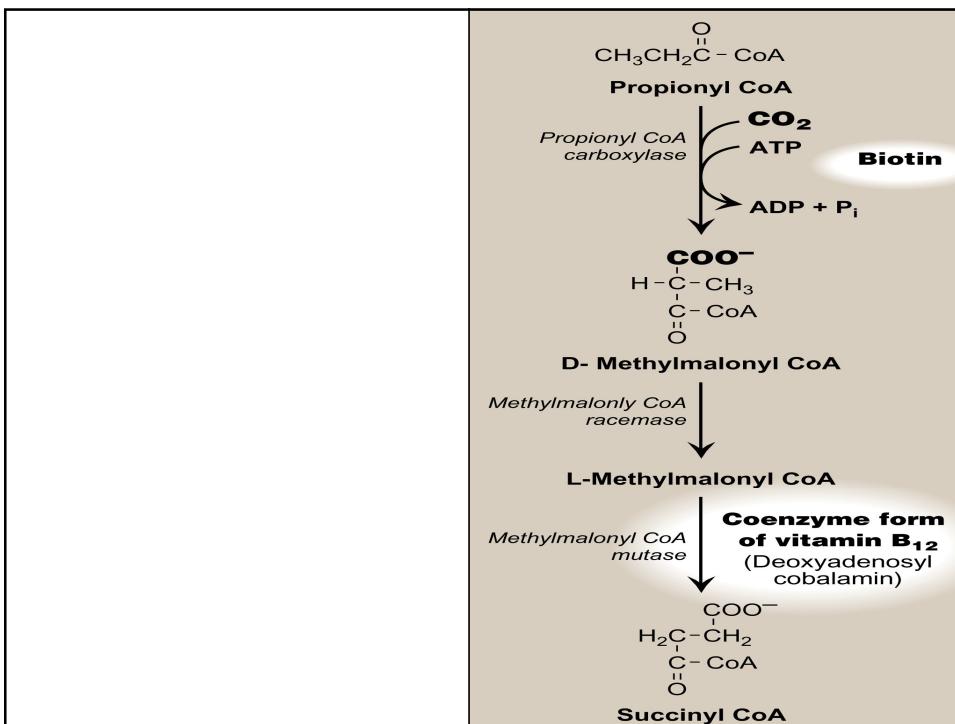


## Oxidation of FA with odd number of carbons



Six Cycles of  $\beta$  oxidation ↓





## $\alpha$ Oxidation of Fatty Acids

