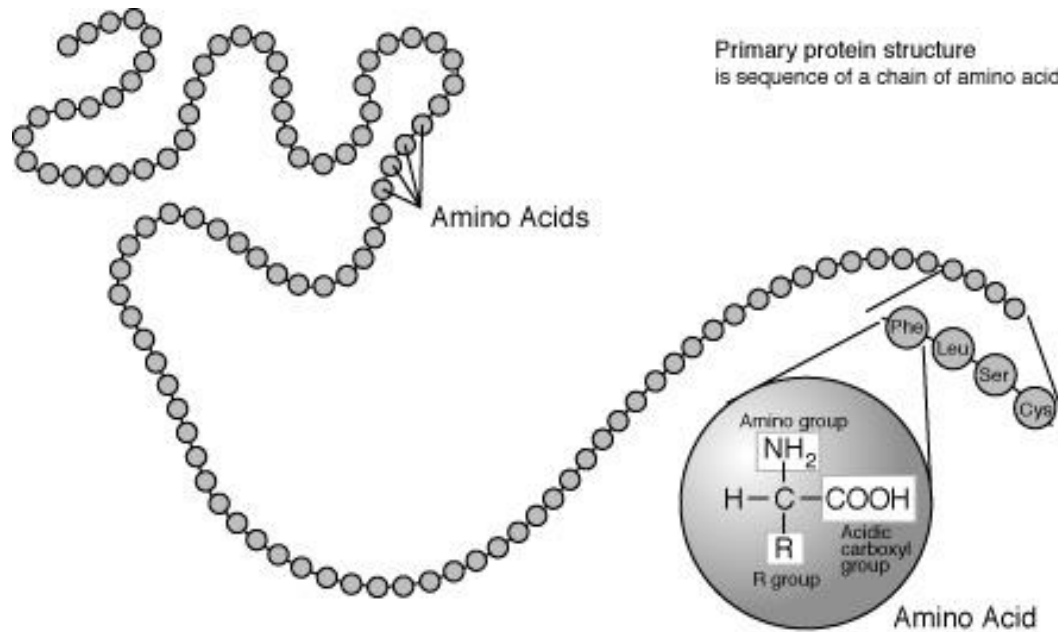


3.1 Nutrients - Macronutrients

■ Proteins

- Proteins are made up of amino acids,

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3.1 Nutrients - Macronutrients

- Fats

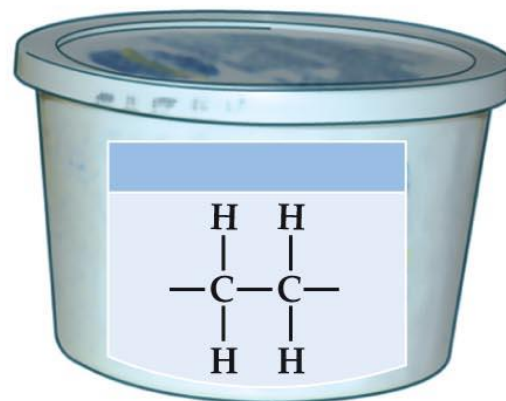
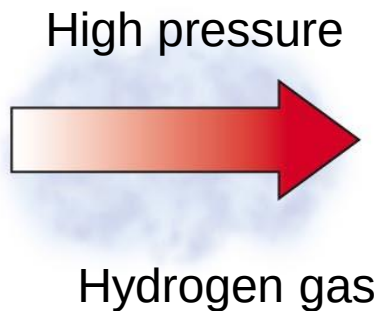
- **Hydrogenate:** Hydrogen is added to vegetable oils under pressure to make solid fat (e.g., shortening and margarine) Some of the hydrogens are added in a “trans” form (not normal) – Trans fats
- **Trans fats:** artificially produced fats, They are produced by incomplete hydration, oils with double bonds are changed into solid fats by making the double bonds flat
 - May be linked to an increased risk of clogged arteries, heart disease and diabetes

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Figure 3.5 Hydrogenation

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Hydrogenation – the double bonds are broken to add more H



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Some of the hydrogenated fats may contain **trans fats**

3.1 Nutrients - Micronutrients

- **Micronutrients:** nutrients that are needed in small quantities such as:
 - Vitamins
 - Minerals



Table 3.1

Vitamins		Food sources	Notes
B12		Chicken, fish, red meat, dairy	Because this vitamin is found in meat and dairy, some vegetarians and vegans are advised to supplement.
C		Most fruits, vegetables, and meats	Some people supplement vitamin C during cold season, although not much evidence supports this practice.
D		Milk, egg yolk, and soy	Because sunlight is required for the synthesis of this vitamin, people living in northern climates may be advised to supplement.
E		Almonds, many cooking oils, mangoes, broccoli, and nuts	Supplementing with high doses of vitamin E may increase risk of prostate cancer or stroke.
Folic Acid		Dark green vegetables, nuts, legumes (dried beans, peas, and lentils), and whole grains	Because deficiencies during pregnancy can lead to impaired spinal cord development in the fetus some women who are pregnant or planning on becoming pregnant are advised to supplement.

3.1 Nutrients - Antioxidants

- Processing can remove much of a food's nutrition
- **Whole foods:** foods not stripped of nutrition by processing
 - Rich in complex carbohydrates, vitamins, minerals, and **antioxidants**
- Foods rich in antioxidants are: fruits, vegetables, nuts, grains, dark chocolate and some meats. See table 3.3