

Figure 16.2
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$$\begin{array}{c} O \\ CH_2OPO_3^{2-} \\ HO \\ CH_2OPO_3^{2-} \\ HO \\ CH_2OPO_3^{2-} \\ \end{array}$$

$$\begin{array}{c} O \\ CH_2OH \\ HO \\ CH_2OPO_3^{2-} \\ \end{array}$$

$$\begin{array}{c} CH_2OH \\ HO \\ CH_2OPO_3^{2-} \\ \end{array}$$

Glucose 6-phosphate (G-6P)

Glucose 6-phosphate (open-chain form)

Fructose 6-phosphate (open-chain form)

Fructose 6-phosphate (F-6P)

Unnumbered 16 p274

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Fructose 6-phosphate (F-6P)

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Fructose 1,6-bisphosphate (F-1, 6-BP)

1,3-Bisphosphoglycerate

(1,3-BPG)

Glyceraldehyde 3-phosphate (GAP)

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9

O OH
$$H \longrightarrow C \longrightarrow OH \longrightarrow OH$$

$$CH_2OPO_3^{2-}$$

$$+ NAD^+ + H_2O \longrightarrow Oxidation$$

$$CH_2OPO_3^{2-}$$

$$+ NAD^+ + H^+$$

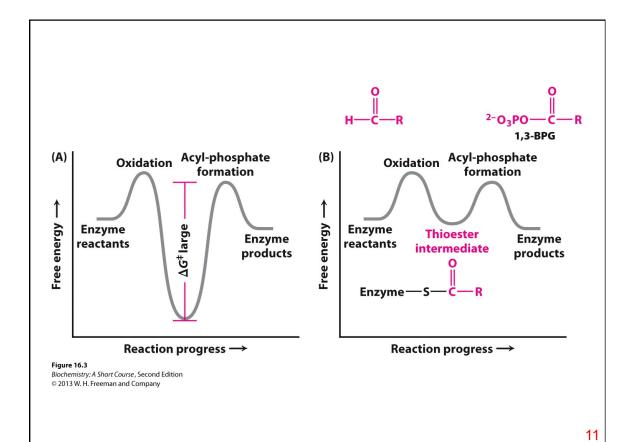
$$+ OH_2OPO_3^{2-}$$

$$+ OH_2OPO_3^{2-}$$

OH Acyl-phosphate O OPO
$$_3^{2-}$$
 formation (dehydration) H—C—OH + P_1 \longrightarrow H—C—OH + H_2O \longrightarrow CH $_2OPO_3^{2-}$ \longrightarrow CH $_2OPO_3^{2-}$

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Phosphoglycerate kinase

H—C—OH + ADP + H+

CH₂OPO₃²⁻

1,3-Bisphosphoglycerate

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3-Phosphoglycerate

2-Phosphoglycerate

Phosphenolpyruvate

Pyruvate

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13

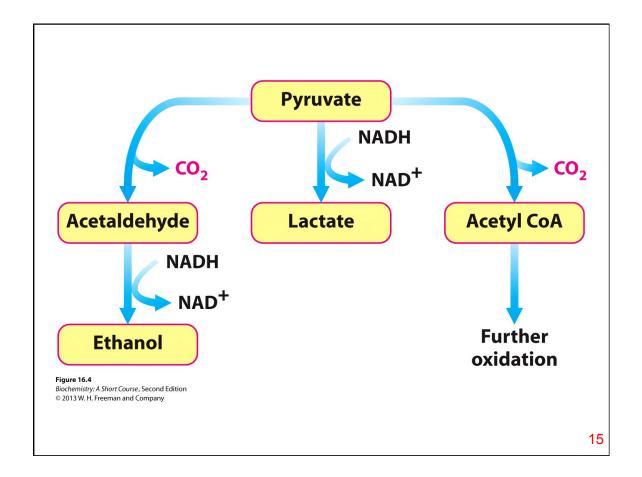
Phosphenolpyruvate

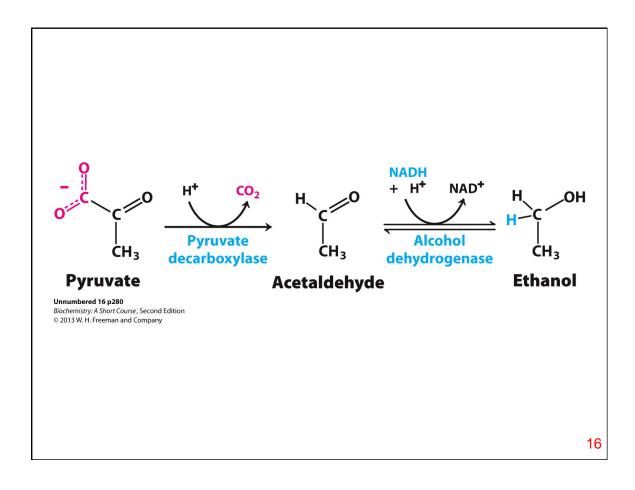
Pyruvate (enol form)

Pyruvate

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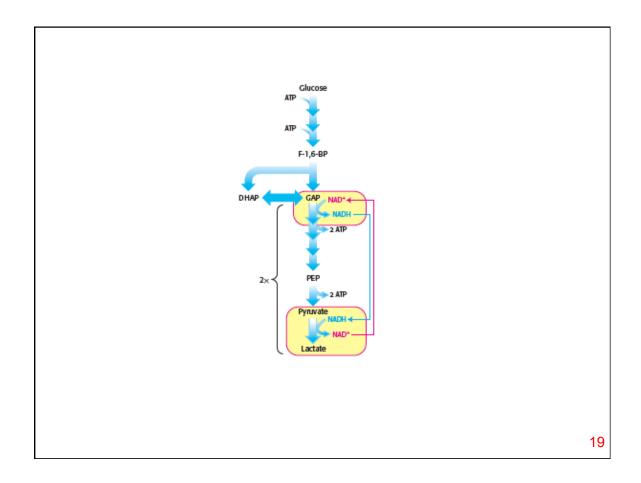
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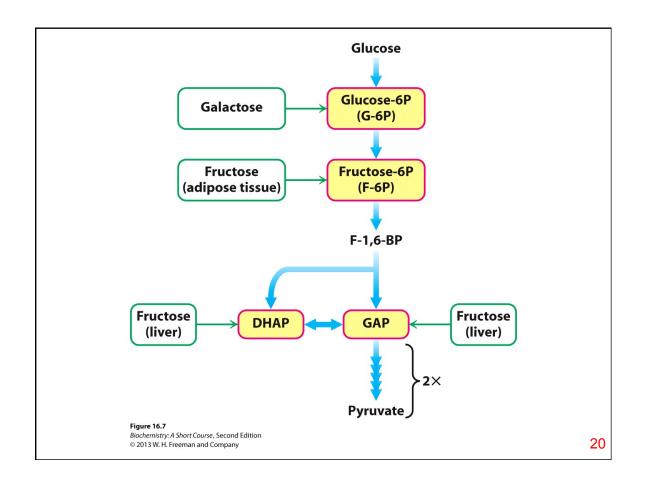


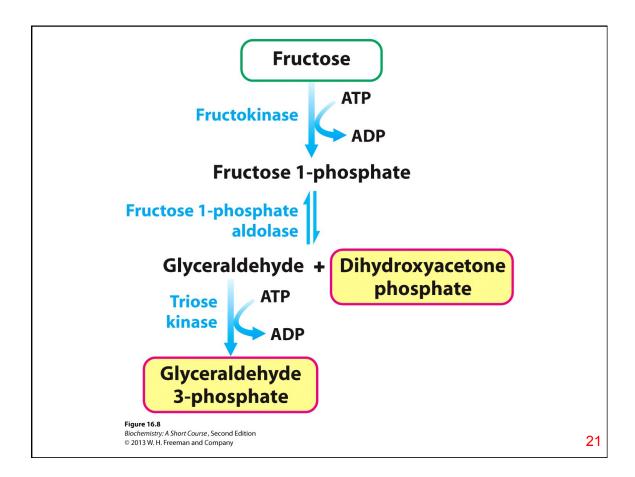


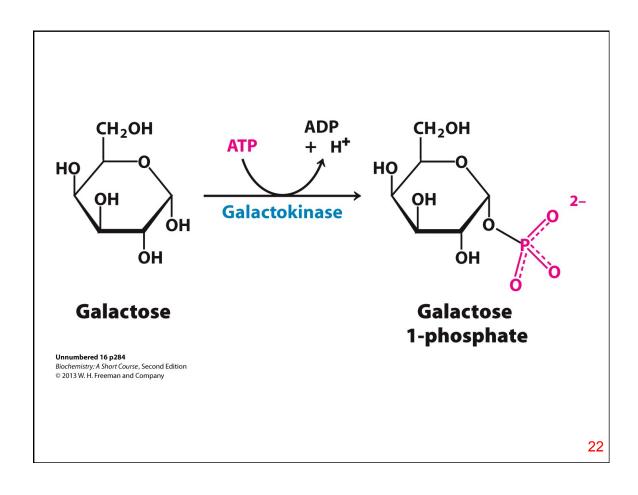
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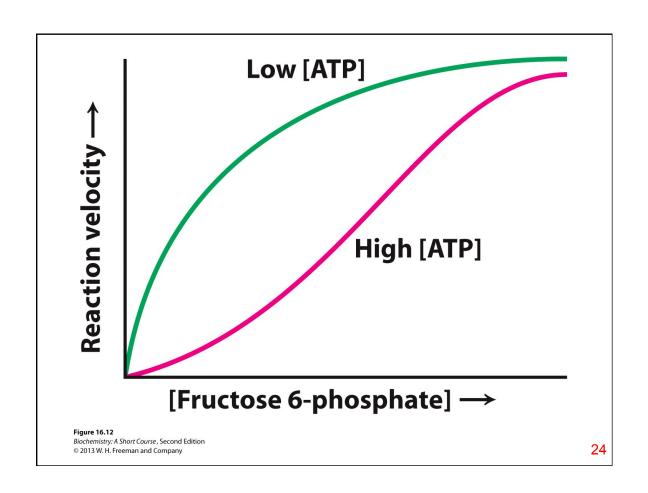
17

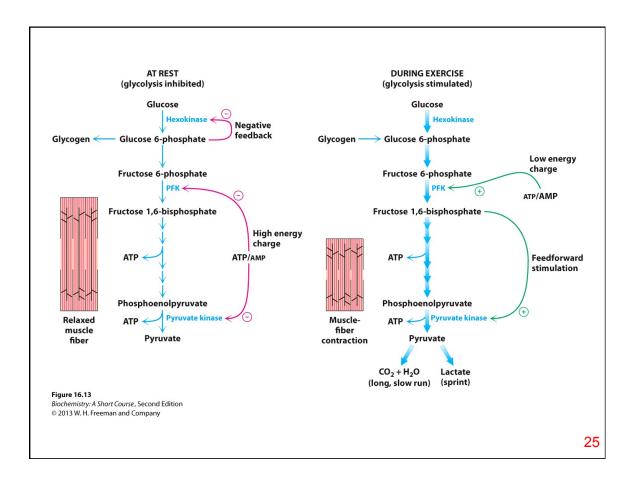


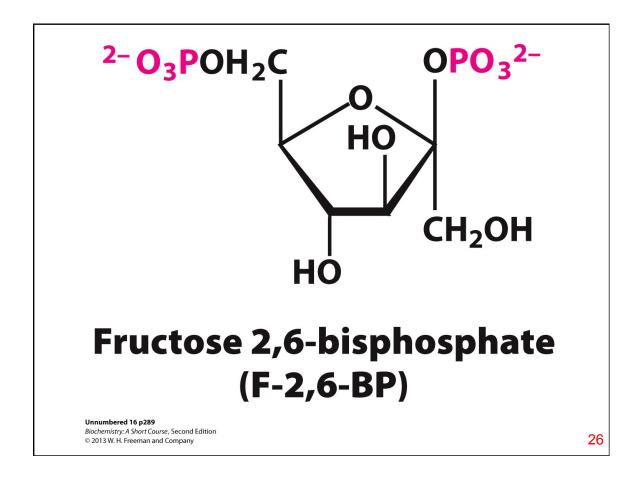


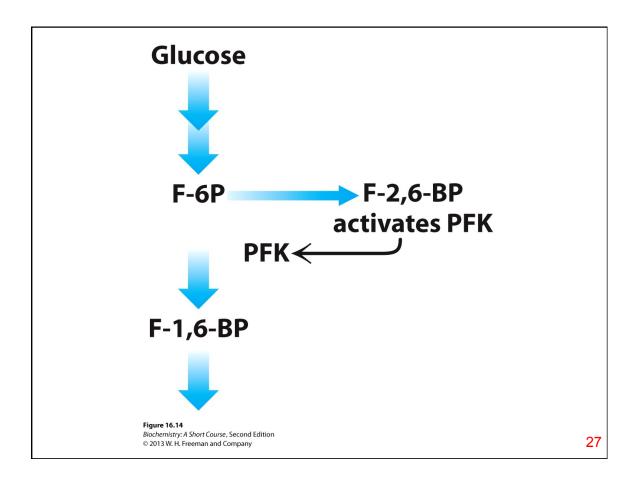












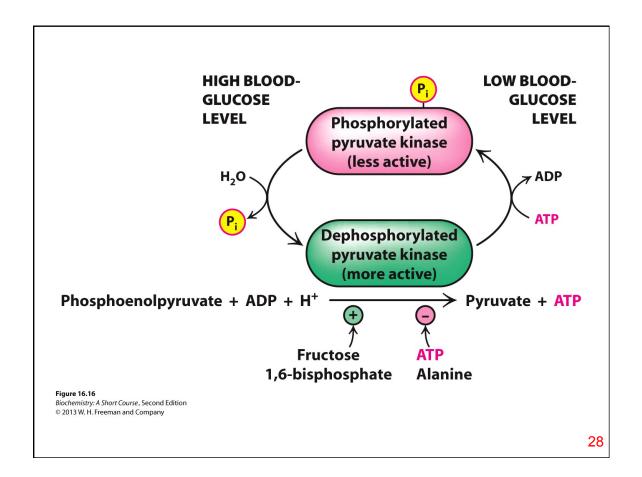


Table 16.3 Family of glucose transporters

Name	Tissue location	K _M	Comments
GLUT1	All mammalian tissues	1 mM	Basal glucose uptake
GLUT2	Liver and pancreatic β cells	15–20 mM	In the pancreas, plays a role in the regulation of insulin In the liver, removes excess glucose from the blood
GLUT3	All mammalian tissues	1 mM	Basal glucose uptake
GLUT4	Muscle and fat cells	5 mM	Amount in muscle plasma membrane increases with endurance training
GLUT5	Small intestine	_	Primarily a fructose transporter

Table 16.3

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29

