What is physiology to you?

1. Homeostasis
   - Maintaining constancy of the internal environment.
   - Set point
   - Integrating centers
     -
     -
   - Effectors
     -
     -
Feedback Loops

• Negative Feedback loops -
• Positive Feedback loops -

Negative feedback control of insulin secretion and blood glucose concentration.

Eating
Increase in blood glucose
pancreatic islets
Increase in insulin
Increase in cellular uptake of glucose
Decrease in blood glucose

Fig. 1.6

Regulatory Mechanisms

• Intrinsic
• Extrinsic
Why know about different pathways of metabolism?

The importance of metabolic pathways.

- Glycolysis
- Krebs cycle
- Oxidative phosphorylation
The importance of metabolic pathways.

- **Lactic Acid pathway**

  Why do this?
  What tissues do this?
The importance of metabolic pathways.

- Glucogenesis
- Gluconeogenesis
- Glucogenolysis
The importance of metabolic pathways.

- Lipogenesis
- Lipolysis
The importance of metabolic pathways.

- Transamination
- Oxidative Deamination

Figure 5.14

Transamination Reactions
Glucose is not the only source that feeds into the Krebs cycle.

- See figures 5.16 and 5.17 to get a good overview of all the ways in which the substances you eat are converted into energy.

Relative Importance of Different Molecules in the Blood with Respect to the Energy Requirements of Different Organs

<table>
<thead>
<tr>
<th>Organ</th>
<th>Glucose</th>
<th>Fatty Acids</th>
<th>Ketone Bodies</th>
<th>Lactic Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain</td>
<td>+++</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Skeletal Muscles</td>
<td>+</td>
<td>+++</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>(Resting)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liver</td>
<td>+</td>
<td>+++</td>
<td>++</td>
<td>+</td>
</tr>
<tr>
<td>Heart</td>
<td>+</td>
<td>++</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>