A newly designed web application to illustrate food and physical activity choices

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ECDRE REU 2007
Who?

- Type 2 Diabetes, Prediabetes, Obesity
  - Treatment adherence
    - Silent symptoms
    - Accessibility
    - Complex/Overwhelming
- Type 1 Diabetes
  - GlucoSim
- Youth
  - Risk
  - Establish habits early

Why?

- Education
  - Healthy choices add up
  - Lifestyle
  - …teach them to fish…
  - Classroom, clinical
- Prevention
  - Onset
  - Complications
    - Diabetes
    - Geriatric
- Integrate with GlucoSim

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A Web-Based Educational Simulation Package for Glucose-Insulin Levels in the Human Body

Warning:
"The simulator does not differentiate between people regarding their sex, age, race, or BMI (body mass index); instead it represents an average person. Also, GlucoSim does not take into account intra- and inter-personal variations and it should not be used for making medical decisions."

The GlucoSim should only be used for educational purposes.

What is Diabetes?
Click for animation & video

Simulator
- Oral Glucose Tolerance Test
  - Healthy
  - Type 1 Diabetes
    - Multiple Insulin Injections
  - Insulin Pumps
    - Constant Injection Rate
    - Proportional-Integral-Derivative (PID)
    - Internal Model-Control (IMC)
    - Model-Predictive-Control (MPC)
A Web-Based Educational Simulation Package for Glucose-Insulin Levels in the Human Body

Output data file
Blood Glucose (mg/dl)

Blood Insulin (mU/ml)

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The GlucoSim should only be used for educational purposes.

Click on body parts to see the graph on that part.

**In order to see the graphs, turn off the pop-up blocker temporarily.**

ECDRE REU 2007
• Planner
• Journal
• Reports
• Profile
• Info
Welcome to FoodFit, your interactive food and fitness companion. Use this free tool to learn about balancing your daily caloric needs.

**Sign In**
Returning users can continue right where they left off.

- User Name
- Password

**Register**
Creating a free account allows you to save food and activity records, as well as your profile.

**Try It!**
Give FoodFit a try, but remember that you must register to save anything.

ECDRE REU 2007
<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Meal</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 AM</td>
<td>Running, 6mph</td>
<td>Breakfast</td>
</tr>
</tbody>
</table>

USDA National Nutrient Database

### Breakfast
- Coffee, brewed from grounds, prepared with tap water
- Egg, whole, cooked, small
- Milk, nonfat, fluid
- Muffins, blueberry, commercially prepared
- Pork, cured, bacon, cooked, pan-fried

### Lunch
- Soup, egg drop soup, prepared with fish stock

### Dinner
- Green beans, divided into serving pieces

### Snack
- Orange juice, raw
- Yogurt, low-fat, with added vitamins A and D
- Muffins, blueberry, commercially prepared

**Frequent Lists**

- Cereals ready-to-eat, general mills, honey nut cheerios
- Cereals ready-to-eat, kraft, kraft's frosted flake
- Coffee, brewed from grounds, prepared with tap water
- Saved food and activity planners
- Tab organization

<table>
<thead>
<tr>
<th>Food Name</th>
<th>QTY</th>
<th>Unit</th>
<th>Energy(Kcal)</th>
<th>CH(g)</th>
<th>Pr(g)</th>
<th>T.(g)</th>
<th>Chol(mg)</th>
<th>Sod(mg)</th>
<th>Fiber(g)</th>
<th>S.(g) Fat(g)</th>
<th>P.(g) Fat(g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MILK, NONFAT, FLUID, W/ VIT A (FAT FREE OR SKIM)</td>
<td>1</td>
<td>cup</td>
<td>83.3</td>
<td>12.1</td>
<td>0.2</td>
<td>0.1</td>
<td>4.9</td>
<td>102.9</td>
<td>N/A</td>
<td>N/A</td>
<td>0.0</td>
</tr>
<tr>
<td>EGG, WHL, CKD, SCRMBLD</td>
<td>1</td>
<td>cup</td>
<td>365.2</td>
<td>1.8</td>
<td>24.3</td>
<td>26.0</td>
<td>774.4</td>
<td>0.10</td>
<td>N/A</td>
<td>4.7</td>
<td>10.4</td>
</tr>
<tr>
<td>PORK, CURED, BACON, CKD, PAN-FRIED</td>
<td>3</td>
<td>slice cooked</td>
<td>126.3</td>
<td>0.3</td>
<td>9.0</td>
<td>9.5</td>
<td>26.7</td>
<td>575.4</td>
<td>N/A</td>
<td>1.0</td>
<td>4.2</td>
</tr>
<tr>
<td>COFFEE, BREWED FROM GROUNDS, PREP W/ TAP H2O</td>
<td>1</td>
<td>cup (8 fl oz)</td>
<td>2.3</td>
<td>N/A</td>
<td>0.2</td>
<td>0.0</td>
<td>N/A</td>
<td>4.7</td>
<td>N/A</td>
<td>N/A</td>
<td>0.0</td>
</tr>
<tr>
<td>MUFFINS, BLUEBERRY, COMMONLY PREP</td>
<td>1</td>
<td>large</td>
<td>385.0</td>
<td>66.7</td>
<td>7.6</td>
<td>0.0</td>
<td>41.7</td>
<td>621.2</td>
<td>3.6</td>
<td>3.4</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Add Another Food Item</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sub Total</strong></td>
<td></td>
<td></td>
<td>962.2</td>
<td>84.0</td>
<td>49.0</td>
<td>45.0</td>
<td>847.7</td>
<td>1920.4</td>
<td>3.0</td>
<td>9.2</td>
<td>17.5</td>
</tr>
</tbody>
</table>

[Analyze]
• Analyze
  – Macro- and micronutrients
  – Food group distribution
  – Daily caloric balance
    • Game
• Printable, PDFs
• Save
• Physical Description
  – Accurate analysis
• Editable
• FAQs
• Additional resources
• Tutorial
• Contact Information