Lab Work

Your height = _______________  Your weight = _________________

Blood pressure _______________________

BMI (from web calculator) = _______________________

BSA (from web calculator) = _______________________

Conclusion from calculations/tables is:

________________________________________________________________________________

For calculations see: CDC BMI calculator,
http://www.cdc.gov/nccdphp/dnpa/bmi/calc-bmi.htm
see also, Online Clinical Calculator,
http://www.intmed.mcw.edu/clincalc/body.html

Glucose Meter Reading = ____________

Fasting: yes  no

Time taken ________________  Normal Fasting level ~ 75 - 110 mg/dL

BSA, Body Surface Area

See pages 105 -110 of dosage text for equations, calculations and adult nomogram
See pages 270 -273 of dosage calculation text for pediatric nomogram and calculations

BMI, Body Mass Index

From WEB Calculator page

Body Mass Index = Weight(kg) / Height(m)^2
BMI/BSA reference:

Fad Diets and Obesity -- Part I: Measuring Weight in a Clinical Setting, see:
http://www.medscape.com/viewarticle/473630?src=mp  from this article

Body Mass Index (BMI) – Also Known as ‘Quetelet’s Index’

BMI is one of the better methods to determine who is potentially overweight or obese (Kuczmarski, Carroll, Flegal, & Troiano, 1997). It can be performed rapidly in the clinical setting just by measuring the weight and height of the individual. It is best not to have the patient self-report his or her weight and height because this lacks accuracy. However, the definition of overweight and obesity in relation to BMI may differ slightly according to different medical organizations.

BMI is defined as the weight (in kilograms) divided by the square of the height in meters (kg/m$^2$). Another method of determining BMI is to take the weight of the patient in pounds and divide this number by the square of the height in inches and to multiply this value by 704 (pounds/inches$^2$ x 704) (Moyad, 2003). A BMI less than 25 is considered normal by the World Health Organization, while 25 to 29.9 is overweight, and 30 or greater is defined as obese. There are three classes of obesity: Class I is a BMI of 30 to 34.9 kg per m,$^2$ Class II is a BMI of 35 to 39.9, and Class III is a BMI equal or greater than 40. There has been a substantial increase in the prevalence of all three of these obesity classes over the past decade. Most statistics reported in the media on the percentage of overweight and obese individuals in a population actually are derived from medical studies that use the BMI as a measurement. BMI is arguably the most widely reported current measurement of obesity in medical studies. Some organizations define a BMI of 35 or 40 or more as "morbidly obese" and these are the BMI's that are generally needed in order to qualify for more serious conventional medical therapy such as gastric bypass surgery if no other treatments have been helpful.

BMI does not take into account more muscular frames at different heights, as is the case with measuring crude weight (mentioned later in the article). Thus, a patient who lifts weights or engages in resistance exercises may actually experience a slight increase in BMI due to an increase in lean body mass which weighs more than fat tissue. However, patients with BMI values equal to or greater than 30 generally have an excess of adipose tissue.

In a recent article, Combination Approaches to Weight Management, see:
http://www.medscape.com/viewarticle/488157, Dr. J. W. Anderson provides the following statement in the introduction.

The prevalence of overweight and obesity is increasing at an alarming rate in the United States and in most other countries.[1,2] Almost two thirds of US adults are overweight, [1] and the prevalence of extreme or morbid obesity has almost tripled
in the last 10 years.\textsuperscript{[3]} The percentage of overweight adolescents in the United States has increased 3-fold in the past 30 years.\textsuperscript{[4]} Unfortunately, many obese individuals have difficulty losing weight, and most have even greater difficulty maintaining weight loss in the long term.\textsuperscript{[5,6]} However, approaches that combine low-energy diets and behavioral management have been shown in studies conducted over the past 5 years to significantly improve weight loss and maintenance.\textsuperscript{[7]}

Further, Dr. Anderson provides the following table for consideration.

**Table 2. Guidelines for Management of Overweight or Obese Individuals**

<table>
<thead>
<tr>
<th>Weight/Risk Assessment</th>
<th>Preferred Treatment\textsuperscript{†}</th>
<th>More Intense Treatment</th>
<th>Less Intense Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI 25-30 kg/m\textsuperscript{2} without risk factors</td>
<td>Meal replacements</td>
<td>Physician counseling</td>
<td>Self-help</td>
</tr>
<tr>
<td>BMI 25-30 kg/m\textsuperscript{2} with risk factors</td>
<td>Physician counseling</td>
<td>Community program</td>
<td>Meal replacements</td>
</tr>
<tr>
<td>BMI 30-35 kg/m\textsuperscript{2}</td>
<td>LED\textsuperscript{‡} behavioral program</td>
<td>LED\textsuperscript{‡} behavioral program</td>
<td>Dietetic counseling</td>
</tr>
<tr>
<td>BMI 35-40 kg/m\textsuperscript{2}</td>
<td>LED\textsuperscript{‡} behavioral program</td>
<td>LED\textsuperscript{‡} behavioral program</td>
<td>Dietetic counseling</td>
</tr>
<tr>
<td>BMI 40-50 kg/m\textsuperscript{2}</td>
<td>LED\textsuperscript{‡} behavioral program</td>
<td>Bariatric surgery</td>
<td>Not recommended</td>
</tr>
<tr>
<td>BMI &gt; 50 kg/m\textsuperscript{2}</td>
<td>Bariatric surgery</td>
<td>Bariatric surgery</td>
<td>LED\textsuperscript{‡} behavioral program</td>
</tr>
</tbody>
</table>

\*Modified from Anderson and Wadden.\textsuperscript{[31]} Behavioral programs are not included because effective programs are not widely available.\textsuperscript{[10]}

\†Pharmacotherapy can be used for all groups except the top group with no risk factors.

\‡LED - low-energy diet (800-1200 kcal/day)
**Metabolic Syndrome:**


Metabolic syndrome is a complex disorder and an emerging clinical challenge. It is considered a "multiplex" cardiovascular risk factor, in that each component of the cluster of abnormalities is a risk factor in its own right. Introduced as Syndrome X by Reaven in 1988[1] and also termed *insulin resistance syndrome*, metabolic syndrome is recognized clinically by the findings of abdominal obesity, elevated triglycerides, atherogenic dyslipidemia – ie, low levels of high-density lipoprotein cholesterol (HDL-C), elevated blood pressure, high blood glucose and/or insulin resistance. Metabolic syndrome is also characterized by a prothrombotic state and a proinflammatory state.

Further, Dr. Scott notes:

Metabolic syndrome affects approximately 24% of the US adult population; according to the Third National Health and Nutrition Examination Survey (NHANES III) criteria, about 47 million people have metabolic syndrome,[16] including 44% of those in the >/= 50-year age group.[17] Metabolic syndrome is present in 10% of women and 15% of men with normal glucose tolerance; 42% and 64% of those with impaired fasting glucose; and 78% and 84% of those with type 2 diabetes.[18] Most patients (> 80%) with type 2 diabetes have metabolic syndrome, but the converse is not necessarily true.

From: [http://www.samed.com/sample/T101553.HTM](http://www.samed.com/sample/T101553.HTM)

<table>
<thead>
<tr>
<th>Table 2 - Criteria for Metabolic Syndrome[^6]</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Any Three of the following:</strong></td>
</tr>
<tr>
<td>Increased waist circumference</td>
</tr>
<tr>
<td>Men: &gt; 102 cm (40 in)</td>
</tr>
<tr>
<td>Women: &gt; 88 cm (35 in)</td>
</tr>
<tr>
<td>Fasting plasma glucose ≥ 110 mg/dl</td>
</tr>
<tr>
<td>Elevated blood pressure</td>
</tr>
<tr>
<td>Systolic ≥ 130 mm Hg</td>
</tr>
<tr>
<td>Diastolic ≥ 85 mm Hg</td>
</tr>
<tr>
<td>Serum triglyceride level ≥ 150 mg/dl</td>
</tr>
<tr>
<td>Decreased high-density lipoprotein (HDL) cholesterol level</td>
</tr>
<tr>
<td>Men &lt; 40 mg/dl</td>
</tr>
<tr>
<td>Women &lt; 50 mg/dl</td>
</tr>
</tbody>
</table>

[^6]: © 2003 WebMD Inc. All Rights Reserved.

Also, see: *New Definition For Metabolic Syndrome Predicts Coronary Heart Disease and Type 2 Diabetes*, from [www.docguide.com](http://www.docguide.com) (July 2003) In stead of waist circumference in above table use BMI greater than 28.8 kg/m$^2$. For men, having four or more baseline abnormalities had a 3.7-fold increased risk for CHD and a 24-fold increased risk for diabetes.

Diabetes and Blood Glucose

There are two broad classifications for diabetes – Type I Diabetes (Juvenile-Onset Diabetes or insulin-dependent diabetes mellitus) and Type II Diabetes (Adult-Onset Diabetes or non-insulin dependent diabetes mellitus). In general, Type I diabetes is defect in insulin production in the pancreas. Type II diabetes is often a mixed problem - a defect in insulin production and/or a problem of insulin resistance. A third diabetes classification is Gestational Diabetes. Gestational diabetes generally resolves itself after the pregnancy.
A separate presentation on Diabetes will be given.

Some diabetes reference sites:

5. Online Diabetes Resources, see: [http://www.mendosa.com/meters.htm](http://www.mendosa.com/meters.htm)