I would like to begin by making three observations. One, the availability of food is more than plentiful in many nations. Two, the food choices we make are often unhealthy and or inappropriate. Three, physical activity is optional. It is not a requirement. Simply put, many of us are eating more and moving less. The outcome is the growing epidemic of obesity and other chronic diseases worldwide.

People who are obese feel frustrated and helpless. While there are many resources available to them, the information they receive can be confusing and overwhelming. Therefore, they continue to seek clarifications and ask questions. Here are examples of such questions. How do I know if I am overweight or obese? What are the health risks associated with obesity? What factors affect body weight? What can one do to lose a few pounds without having to take drugs or medications? Let us turn to the first couple of questions in this column.

Obesity is defined as an excess of body fat. Grossly obese individuals can be easily identified by their physical appearance. However, for others, the use of precise methods may be necessary to measure their obesity.

Obesity is an epidemic in many developed countries such as the US. Similar trends are becoming apparent in the Middle East. More than 50% of adults, and 70% of married women in oil-rich Gulf Arab nations are considered to be overweight. The problem is also of serious concern among children. It is reported that one in four children (age group 6-12) in Qatar are either overweight or obese.

### Measuring obesity

The most straightforward method of measuring obesity is based on weight and height tables. Such tables provide only an estimate of fatness, and are not based on scientific calculations of ideal weight.

Another common clinical method uses a weight–height index to arrive at what is called the Body Mass Index (BMI). The BMI is reliable, easy to calculate, and correlates well with the body fat. A BMI of 25 and above may present heath risks. To calculate your BMI, follow the method shown in the box.

According to the new guidelines, the grades of overweight/obesity and health risks are classified as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>BMI</th>
<th>Health risk based on BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Less than 25</td>
<td>Average/no risk</td>
</tr>
<tr>
<td>Overweight</td>
<td>25 to 29.9</td>
<td>Low to moderate</td>
</tr>
<tr>
<td>Grade 1 obesity</td>
<td>30 to 34.9</td>
<td>High</td>
</tr>
<tr>
<td>Grade 2 obesity</td>
<td>35 to 39.9</td>
<td>Very high</td>
</tr>
<tr>
<td>Grade 3 obesity</td>
<td>40 or higher</td>
<td>Extremely high</td>
</tr>
</tbody>
</table>
BMI is difficult to assess in individuals with spine problems such as scoliosis and other conditions which hinder accurate height measurements. Also, in some situations BMI may not accurately reflect the body fat content. For example, a higher body weight (and BMI) in a weight lifter with excessive muscle mass may not be indicative of his true body fat content. So, it is possible to be overweight without being obese. Also, it is possible to be obese without being overweight as in the case of a non-active person with little muscle mass.

Waist-hip ratio (WHR) is another measure of obesity. To find out your WHR, use a tape measure to measure the waist circumference at the widest point near the navel. Next, measure the circumference of the hips and buttocks at the widest points. Divide the waist by the hip circumference. A ratio of 1.0 or greater in males and 0.8 or greater in females are indicative of abdominal obesity and increased risk of diabetes, heart disease and stroke—even if the person is considered to be of normal weight.

Health risks associated with obesity

Obesity presents several health risks to the individual. It causes increased death rate among both children and adults. Less severe obesity has also been found to be associated with higher death rates. The prevalence of diabetes, hypertension, and heart disease is significantly higher in obese individuals than in those of normal weight. Being overweight is also associated with chronic diseases such as osteoarthritis, certain types of cancer, sleep apnea, and thrombembolism. Physical endurance and mobility are also affected by obesity.

I should hasten to add that weight bias is common in this day and age. Weight bias refers to negative attitudes which makes overweight / obese people vulnerable to unfair treatment and prejudice.

Obesity is associated with health risks, and requires a medical evaluation. Height, weight, waist and hip measurements are inexpensive and should be performed at periodic intervals. They are used to determine BMI and WHR, which serve as useful measures of overweight/obesity. Consulting your doctor or a licensed health care professional is a good idea.

This article has addressed the first two questions dealing with measurement of obesity and health risks associated with it. Questions concerning factors affecting the body weight and weight loss will be addressed in my next two columns.
Body Mass Index (BMI)

To calculate your BMI follow these steps:

- Multiply your weight (in pounds) by 704.
- Square your height (in inches) by multiplying the number by itself.
- Divide the result of step 1 by the result of step 2:

\[
BMI = \frac{\text{Weight (pounds)} \times 704}{\text{Height squared (inches}^2)}
\]

As an example, the BMI of a person who is 5 feet and 10 inches (70 inches) tall, and weighs 190 pounds can be obtained as follows:

- 190 pounds x 704 = 133760
- 70 inches x 70 inches = 4900 square inches
- 133,760 / 4900 = BMI of 27.2

This puts the person in low to moderate health risk category.

The medical information in this article is provided as an information resource only, and is not to be used or relied on for any diagnostic or treatment purposes. This information is not intended to be patient education, does not create any patient-physician relationship, and should not be used as a substitute for professional diagnosis and treatment. If you have or suspect that you have a medical problem or condition, please contact your physician.