Nutrition 101
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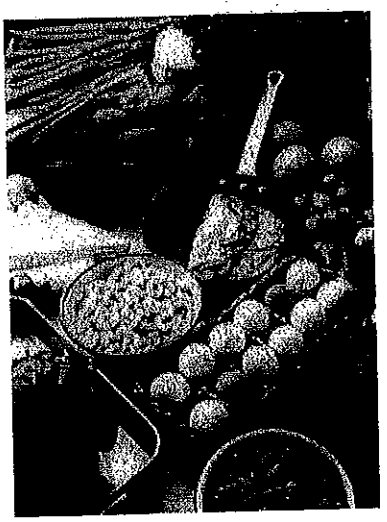

If you are like most people, at one time or another you have probably admired someone else's physique. Your physique is a combination of genetics, your physical activity level and your food intake. The shape your diet is in largely determines the shape you are in. Whether you are a walker, a marathon runner, or a competitive athlete, how you fuel your body is as important as your fitness program. No matter how much time you invest in your fitness program, if you do not invest the same amount of time in planning your food intake, you will not reach your optimal potential.

As a Registered Dietitian and an ACE-certified Personal Trainer, I have encountered many individuals who believe they can eat whatever they want, because they will burn off the extra calories with exercise. This ideology is partially true; however too much of anything on a regular basis can have an unhealthy outcome. Many individuals and athletes as well, are always looking for the "magic diet" that will give them the winning edge. It is these individuals that are the targets for nutrition misinformation.

Good eating habits are not a substitute for physical activity; however, proper nutrition is essential for top-notch fitness performance. Nutrition knowledge is the key that opens the door to optimal health and performance. Your ability to engage in regular physical activity requires that you are in good health. To be in good health requires a balanced nutritional intake that supplies all the necessary nutrients. Being healthy is not a spectator sport; it takes proactive involvement on a daily basis.

It is important to understand how food impacts your body's ability to function properly. The human body is so forgiving unhealthy habits, that people forget the need for adequate food and water to sustain a healthy life. The nutrients in food can be categorized into six classes:

1. Carbohydrates
2. Proteins
3. Fats
4. Water
5. Vitamins
6. Minerals

The energy-yielding substances known as the macro-nutrients are carbohydrates, proteins and fats. Water is the most essential nutrient of the body. Vitamins and minerals are referred to as the micro-nutrients and are needed in small amounts. The primary role of vitamins and minerals is to enable chemical reactions to occur.

Carbohydrates
Carbohydrate provides the major source of fuel for most of the cells of the body in the form of a simple sugar called glucose. Carbohydrate-rich foods are whole grain breads, cereals, rice and pasta, as well as nature's vitamins, fruits and vegetables. Dairy products also provide a rich source of carbohydrate as well as a rich source of protein with varying amounts of fat.

Carbohydrates should comprise 55-65% of your total daily caloric intake. How many carbohydrates should you have? An easy estimation is to consume 0.75-1.0 grams of carbohydrate per pound of body weight (Coleman, 1998). A more muscle dense stature would require the 1.0 grams of carbohydrate per pound of body weight.

Proteins
Proteins are the main structural building block of the body. Proteins comprise a major portion of bone and muscle, and a essential components of blood, cell membranes, and the immune system. Amino acids are the building blocks of protein which are necessary to build and repair muscles. The protein requirements for the body can be met from animal (meat, poultry, seafood and eggs) and or plant sources (bean, nuts, tofu and legumes). The darker the meat, the richer the sou of iron and zinc.

Protein should account for 12-20% of your total daily caloric intake depending on your fitness program and muscle mass composition. The RDA of protein for a sedentary adult is 0.8 grams per kilogram of body weight, which equates to 0.4 grams per pound of body weight. The recreational exerciser requires 0.5-0.7 grams of protein per pound of body weight (Clark, 2003). Adults building muscle mass require 0.7-0.9 grams of protein per pound of body weight (Clark, 2003).

In contrast to current fad diets, there is no scientific evidence to date that suggests that protein intakes exceeding 0.9 grams of protein per pound (2.0 grams of protein per kilogram) will provide additional muscle strength or muscle size (Godard, Williamson, and Trappe 2002).

Fats
Fats are a key energy source and are essential to the body; however, fats provide more than double the calories per gra as carbohydrates and proteins. Fats are a major form for energy storage in the body. Some vitamins require fat for their storage (A, D, E and K - the fat-soluble vitamins). Fats can be classified into three categories:

1. Monounsaturated fats
2. Polyunsaturated fat
3. saturated fats

Monounsaturated fats are from plants and do not increase one's cholesterol level (e.g. avocadoes, olives, nuts). Polyunsaturated fats are oils predominately from vegetable products such as sunflower seeds, corn, soybeans and safflowers. They are usually liquid at room temperature.

Polyunsaturated fats help lower the levels of blood cholesterol by helping the body get rid of excess, newly formed cholesterol. Saturated fats are usually solid at room temperature. These fats are found primarily in animal products and whole milk dairy products.

Saturated fats have been shown to raise the cholesterol level in the blood. Your total fat intake should not be greater th 30% of your total daily calories for optimal health and a lean body mass. To minimize the risk of heart disease and to ke your cholesterol level within normal limits, it is recommended to consume only 10% of your total fat calories from saturated fats (Wardlaw, Insel 1996).

Water
Water comprises the largest portion of the body and has numerous vital functions in the body. Your body is approximate 60% water and your muscles are approximately 70% water. Water acts as a solvent (a substance that other substances dissolve in), a lubricant between joints, a medium for the transport of nutrients and waste, and plays a key role in temperature regulation. It is because of all these metabolic processes that we have a daily requirement for approximate liters of water per day or equivalent to 8 cups. Water is also a major component of some foods, such as many fruits and vegetables (e.g., lettuce, grapes and melons). The body can also make some water as a by-product of metabolism. The human body cannot conserve water to a sufficient degree; therefore, regular intake is essential to compensate for daily losses if health is to be maintained.

Vitamins
The main function of vitamins is to allow chemical reactions in the body to occur. Some of the chemical reactions help release the energy stored in carbohydrates, proteins and fats. It is crucial to remember that vitamins themselves provid no usable energy for the body. Therefore, taking a multi-vitamin supplement to compensate for a poor diet will not allow you to effectively absorb or utilize the supplement. Vitamins are divided into two groups:

1. Fat soluble vitamins (A, D, E, and K)
2. Water soluble vitamins (vitamin C and the B vitamins)

The fat soluble vitamins are more likely to build up in the body to a toxic level and cause illness.

Minerals
Minerals are categorized based on the amount the body needs per day. In general, if we require 100 mg (1/50 of a

teaspoon) or more per day of a mineral, it is considered to be a "major" mineral (e.g. calcium, phosphorus, potassium, sulfur, sodium, chloride, and magnesium); otherwise, it is considered to be a "trace" mineral (iron, zinc, manganese, copper, selenium, iodide, chromium, fluoride, molybdenum). Although the total amount of all trace minerals in the body less than 15 grams (0.5 ounce), these nutrients are very important for the body to function properly (Wardlaw, Insel).

The foundation for healthy eating is to eat a variety of foods which will help to ensure that your diet contains sufficient nutrients. Selecting foods from the five major food groups will help to provide balance and variety:

- Milk, yogurt, cheese
- Meat, poultry, seafood, eggs, nuts, bean, legumes
- Vegetables
- Fruits
- Breads, cereals, rice, pasta

A healthy eating plan coupled with a regular fitness program is a winning combination. You need adequate carbohydrate to fuel your muscles for endurance and performance, adequate calories to build muscles, and adequate strength-resistai exercises to stimulate muscle growth. Your goal with balance and variety should be to strive to moderate and not to eliminate an entire food group. Your single most controllable health factor is nutrition, and nutrition combined with phys fitness is the best health insurance you can invest in!

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