

Elements Vital To Successful Bowling

Many elements are crucial to a bowler's performance. Some are physical such as strength, flexibility, and aerobic capacity while others are psychological including confidence and motivation. The technical element of our sport may include equipment available like balls, shoes, tape and wrist support. The cognitive domain of bowling relates to one's knowledge, understanding and analytic abilities. Of all these elements, one remains unscathed within the vast array of technical developments and psychological importance. It is the nutritional element. Yes, the nutritional element. There are actually several facets of the nutritional element such as fluid consumption, carbohydrate intake, protein metabolism and caloric balance. One little known and most often disregarded component of the nutritional element is the vitamin balance.

The word vitamin is really a synonym for vital. Vitamins are organic materials essential in minute quantities that perform specific functions promoting bodily growth and health maintenance. **Our body manufactures very small amounts of vitamins requiring them to be supplemented in the foods and beverages we consume.** Vitamins are categorized in two specific classifications: fat soluble and water-soluble. Quantities of each are measured in specific units determining their dosages. The International Unit (IU) and the milligram (mg) both define specific amounts provided per substance.

Vitamins are involved in the formation of red blood cells, building of bones, protein metabolism, and **co-enzymes of energy-releasing chemical reactions of the body.** The latter purpose, my bowling friends, is the important one. Vitamins are directly involved in the production of energy during bowling. The vitamins themselves are not direct sources of energy, but instead play a lead role manufacturing energy. Without them fast at work in our cells and systems, the energy required to roll a single shot is nil. Therefore, confirming energy and especially vitamins as our allies, let us develop a little understanding of them.

Fat Soluble

Fat-soluble vitamins are absorbed along with fat from the stomach and intestines. They are stored in the adipose tissue along with other fats and junk. Excessive consumption of fat-soluble vitamins will lead to vitamin toxicity, meaning bad things happening. The fat-soluble vitamins are A, D, E and K.

Vitamin A - enhances eyesight, maintenance of skin and development of bone and teeth. A good source of vitamin A can be found in carrots, spinach, broccoli, cantaloupe and apricots. Liver, eggs and dairy products also supply large amounts, though they are high in fat. The RDA for vitamin A is 5,000IU.

Vitamin D - assists with bone formation via calcium absorption. A good source of vitamin D can be found in milk and salmon. The body produces it during exposure to sunlight as a direct response. Liver, eggs and dairy products also supply large amounts of vitamin D, though high in fat. The RDA for vitamin D is 400IU.

Vitamin E - enhances tissue growth and red blood cell integrity. Good sources of vitamin E include wheat germ, vegetable oil, unrefined cereal products and eggs. The RDA for vitamin E is 30IU.

Vitamin K - involved in making proteins when the body constructs blood clots. The body creates small amounts of vitamin K in the intestines, though another source is milk and green leafy vegetables.

Water Soluble

Water-soluble vitamins are not typically stored in the body because they dissolve in water. Remember, nearly 70% of our body is water. Excessive amounts of water-soluble vitamins in the body are washed out through waste excretion. The water-soluble vitamins include the B complex series of B1 (thiamine), B2 (riboflavin), niacin, B6 (pyridoxine), pantothenic acid, folic acid, B12 (cyanocobalamin), biotine and C. The B vitamins are important to bowlers because they are critical during energy production and usage. If the B vitamins are deficient, athletic performance is often impaired (Haymes, 1983). A misconception of many athletes is that sugary products produce high amount of quick energy. This is only partially correct for what is failed to be realized is these same sugary products are generally deficient in the nutrients and vitamins that help produce the energy. As we increase our physical training and bowling, the need for nutrient satisfaction becomes even greater. Therefore, a nutrient balanced diet is a much better choice than encouragement of vitamin supplementation (Eisenman, Johnson, & Benson, 1990).

B1 (Thiamine) - assists energy production, digestion and helps healing of the skin. A good source can be found in bread, fish, and poultry. The RDA for vitamin B1 is 1.5 mg.

B2 (Riboflavin) - assists energy production, digestion and helps healing of the skin. Good sources include milk products, peas and leafy green vegetables. The RDA for vitamin B2 is 1.7 mg.

B6 (pyridoxine) - found in whole grains, vegetables, and meats. The RDA for vitamin B6 is 2.0 mg.

B12 (cyanocobalamin) - found in poultry, fish, spinach, and lean beef. The RDA for vitamin B12 is 6 micrograms.

Niacin - facilitates energy production and digestion, essential for fat and protein metabolism. Found in fish, poultry and bread. The RDA for Niacin is 20mg.

C (ascorbic acid) - helps prevent fatigue, resist infection and promotes healthy gums. Good sources are juices, broccoli, tomatoes, bread and green peppers. The RDA for vitamin C is 60 mg.

Though there is an increased need for vitamins with bowlers, these needs can be satisfied through the four food groups. It is up to us to select foods that are high in nutrient content rather than empty calories. The critical issue involves balancing our diet with the appropriate foods to satisfy the Recommended Daily Allowance. Remember, balance in the finish position at the foul line is only as good as your nutritional balance.

Since bowlers place considerable demands on our bodies training and competing, it is important we fine-tune the body for optimal performance. By sheer necessity, this includes optimal vitamin intake. Too often do bowlers and other athletes spend countless hours physically training and mastering skills while neglecting proper nutrition and sleep. It is not uncommon to uncover the decline in athletic performance traces back to poorly planned and executed nutrient consumption (Wilmore & Costill, 1988). Let us no longer fall into that category but instead use the information provided and supplement our diets with those foods high in vitamin content.