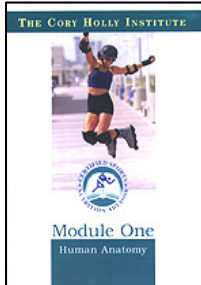
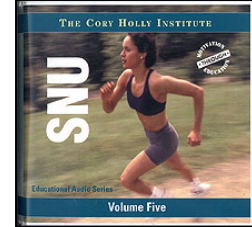
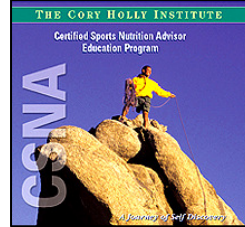


Certified Sports Nutrition Advisor (CSNA) Education Program

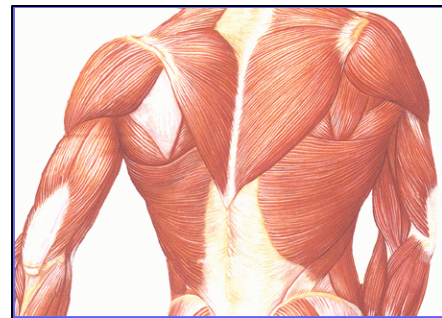
Syllabus & Module Outline

MODULE ONE * HUMAN ANATOMY



Many aspire to it, dream of it and fantasize about it... the human body in a ripped muscular state, chiseled to perfection and fueled with only the finest of raw materials. Others prefer a well toned, feminine and strong looking physique, while many athletes desire power and strength or endurance and stamina. In this lesson, you are able to move deep within the intricate workings of the body and thus understand how it functions, in a world where health and fitness and athletic performance are a top priority. Because human curiosity has always managed to manifest itself into a number of disciplines, the most intriguing, and perhaps the most inviting, is the exploration of the human continent, the anatomy of our form and the structure of our frame.

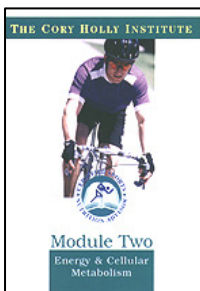
The first section on the muscular system details skeletal, cardiac and smooth muscle tissue, while focusing on muscle contraction, energy sources, various fiber types and their functional characteristics. Basic muscle groups are catalogued, isotonic and isometric contraction is defined, and sarcopenia, the phenomenon of muscle loss associated with disuse and aging is explained. The vascular section, responsible for nourishing trillions of cells in the body, studies the systems of blood and oxygen transport, the quality of blood, various types of blood cells, and the importance of hemostasis to the functioning of this vast network.



The skeletal system, which is very much alive with its own system of blood and lymphatic vessels and nerves, focuses on the bone cells, various hormones involved in skeletal strength and density, osteoporosis, the importance of weight-bearing exercise, mineral metabolism and the articular system (joints). The endocrine system, which is a complex and highly specialized network of "ductless" glands,

takes you deep into a vast network, connected directly to neurological function, immune system regulation and gene expression, all of which contribute to the body's activities and preservation of homeostasis. This section will help you understand the important role of the endocrine system and how the various primary hormones (growth hormone, insulin, glucagon, melatonin, testosterone, cortisol, DHEA, thyroxine and triiodothyronine) influence muscle growth, athletic performance and the deposition of fat.

MODULE TWO * ENERGY AND CELLULAR METABOLISM



Energy is to our lives and performance what the sun is to the solar system or the atom is to the make-up of matter. Energy is what propels us, motivates us and keeps us alive. It alone determines the frequency of everyone's participation in sport, influencing both the volume of training and the intensity of exercise. Fatigue is the athlete's greatest enemy. Energy controls the initiation and outcome of every process associated with human performance; its presence in surplus or its chronic absence represents the greatest limiting factor responsible for strength, endurance, stamina, growth, recovery and state of mind.

Energy is the secret behind true lasting health and the ability to participate in sport and athletics long term. In this lesson, you will learn that change is necessary by understanding the basic concept behind metabolism, catabolism and anabolism. The essence of photosynthesis and respiration becomes clear, while we study the three laws of thermodynamics and learn how energy is transferred from food to cell. What is kinetic, potential, and activation energy and what makes a calorie? What creates mass action and the mediation, induction, and repression of enzyme activity? We'll discuss the history of vitamins and how they were discovered, how free radicals are formed and how they leave a trail of damage in the body that can be measured.



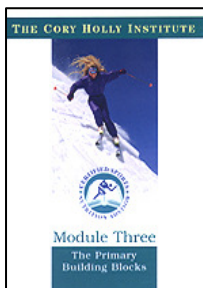
We'll focus on the importance of antioxidants before, during and after training, and learn why minerals are vital to optimal mental and

physical performance. You will move through the structure and history of the cell, our basic unit of life, focusing on the structure and function of its components: the nucleus, cytoplasmic organelles, the cytoskeleton, the centrosome and centrioles, cell inclusions, a variety of chemical constituents, and the almighty mitochondria, the workhorse of the cell. The next section studies organic compounds, looking deep into protein, its composition, classification, metabolization, relation to muscle tissue, and the essence of maintaining a positive nitrogen balance. As an athlete, you will explore ketones, ketosis, a ketogenic diet, the structure and function of nucleic acids, and the storage capacity and capabilities of ATP, the energy currency of the cell.

Carbohydrates, which fuel the machine and function primarily as biological gasoline, are examined in detail, probing their structure, function, metabolic capabilities under aerobic/anaerobic conditions, the vital glucose transport system, glycemic indexes, carbohydrate density, and how it all relates to our athletic performance. We will examine the structural, functional and metabolic capabilities of lipids, essential fatty acids, phospholipids and cholesterol, and then look at how fat is formed from sugar, fatty acid and glycerol catabolism, and how/why triglycerides form the major reserve of energy potential.

The last section investigates inorganic compounds, focusing on the pH of blood, electrolyte chemistry and fluid dynamics, the importance of optimizing pH balance by adjusting the amount of acid/alkaline-forming foods consumed, and their effect on performance. Module Two also reviews oxidation/reduction reactions, the role of ATP in recovery, the electron transport chain, the Krebs cycle, lactic acid as a valuable source of chemical energy, CP/ATP energy pathways, glycolysis and the impact of fuel regulation via the oxidation of fat and carbohydrates in aerobic and anaerobic exercise.

MODULE THREE * THE PRIMARY BUILDING BLOCKS

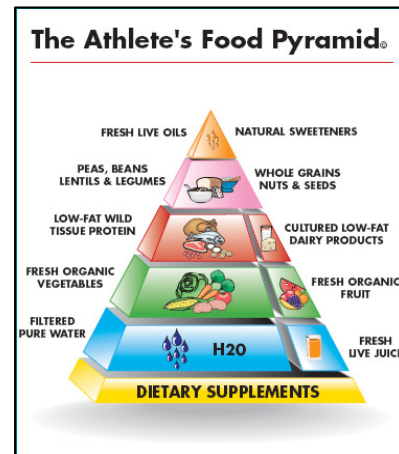


In Module Three, we review the Recipe for Health, analyzing the importance of clean air, pure water, fresh-pressed live juices, whole natural foods, natural light, physical exercise, personal hygiene, fasting and bowel cleansing, adequate rest and sleep, and nutritional supplements. As an athlete, you will learn how to protect yourself against the detrimental effects of air pollution and come to understand the importance of water quality

and optimum hydration before, during and after training. The multiple advantages of adequate rest and sleep will be brought to your attention, as well as nutritional strategies designed to augment hGH release and stabilize nocturnal blood sugar levels, which greatly influence growth and recovery.

In the section on personal hygiene, we look at the benefits of heat therapy and sauna, and discover how skin brushing can increase blood circulation and improve lymph drainage and elimination. We'll study the habits of traditional native societies, including their diet and lifestyle, and consider how it affects their health and well-being. An entire section is devoted to The Athlete's Food Pyramid©, which challenges Canada's Food Guide and the USDA Food Pyramid.

Whole natural foods and their protective characteristics vs. modern commercial foods are discussed, including the benefits of consuming raw foods, the truth about cholesterol, how fat substitutes can damage health, why refined sucrose and fructose are worse than artificial sweeteners and the importance of fish and their fat-soluble nutrients. Then we'll analyze the qualities inherent in omnivorous and vegetarian diets, consider some of the most common nutritional myths dominating society today, learn how to calculate anyone's protein requirements, why athletes definitely need more grams of protein per kilogram of lean mass, discover what is meant by biological value (BV), look at bioengineered foods, and finally, speculate as to the future of the human diet.



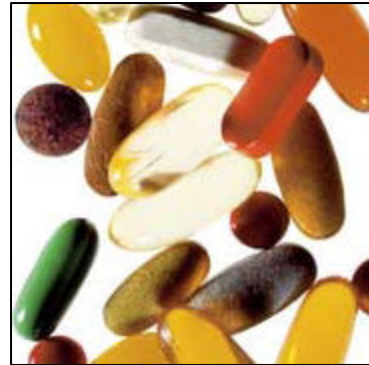
MODULE FOUR * DIETARY SUPPLEMENT REVIEW



This lesson investigates the role of dietary supplements; how millions of people benefit from them, how lives are saved because of them and their enormous popularity in bodybuilding, strength training, sport, fitness and weight management. We'll examine why allopathic mainstream physicians in North America don't routinely prescribe and how politics, rather than objective science, is used to regulate them. We'll focus on specific issues that pertain

to dietary supplements, such as quality control and labeling tactics, regulatory affairs, and learn how to effectively evaluate nutritional supplements by surveying the available scientific literature.

We'll also look at what makes a study reliable, why double-blind is not the "be all end all", and the difference between true science and pseudo-science. You will understand the process behind research, product analysis and manufacturing, and discover why Health Canada's version of the FDA is not representing our best interests. The section on essential nutrients examines fat and water-soluble vitamins, macro and micro minerals, toxic metals, vitamin safety and toxicity, specific supplements for different physical activities, natural vs. synthetic, why "natural" is a misnomer, and a number of reasons why individuals may be taking supplements and not seeing benefits.



We take a W5 look at The Big Four; 4 superb products proven over time to enhance the health and performance of virtually any athlete, namely: whey protein isolate, creatine monohydrate, beta-hydroxy beta-methylbutyrate (HMB) and L-glutamine. An in-depth account of D-Ribose, sport beverages, meal replacements and thermogenic "fat-burners" is provided, and you will also learn about the structure and function of fatty acids, essential amino acids and their role in the body; enzymes, glandular supplementation, herbal supplements, special super foods for improving health, life and longevity, and a wide range of accessory nutrients beneficial to enhancing mental and physical functioning. We'll look at a variety of protein supplements on the market, and determine how to choose the right supplements to benefit your performance by analyzing in detail The Hierarchy of Athletic Supplements© Pyramid.

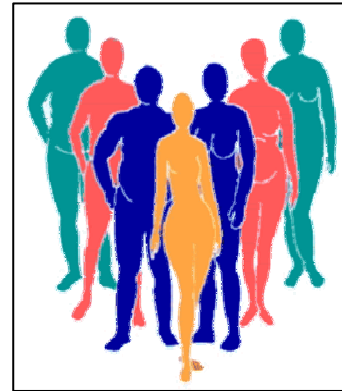
MODULE FIVE * BODY TYPING & INDIVIDUAL ASSESSMENT



That we are individuals each with a unique disposition and appearance may come as no surprise, but in this lesson, the concept of biochemically individuality is explored to a degree that surpasses common knowledge. Individual people differ not only in their genetic makeup, but also in their metabolic efficiency and nutritional requirements. More and more nutrition scientists are

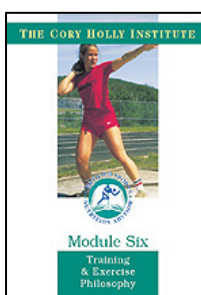
warning us about the implications of choosing the wrong food base. What is one man's food is another man's poison. Module Five takes the reader through an amazing and highly informative examination of eight classic bodytype models, each of which sorts the individual according to genetics, body shape, metabolic function, food cravings, personality traits, exercise tolerance, mood, emotion and predisposition to risk of morbidity and mortality.

From the blood type paradigm popularized by Dr. Peter D'Adamo, we move on to somatotyping, originally introduced by Dr. William Sheldon. The ancient concept of Ayurvedic constitutions is detailed, as well as Dr. Abravanel's theory of glandular dominance. The missing link of nutrition is identified in principles which review ethnic origin, and a modern approach to bodytype classification is revealed through the science which probes autonomic nervous system dominance and chronotyping.



Then a look back at the past as we investigate the twenty chemical types proposed by Norwegian homeopath Dr. Rocine. Why spend time on bodytyping? Because the best way to help ourselves achieve optimum health and excellent performance, as well as offset the pain and suffering associated with chronic disease, is to first determine our individual uniqueness and biological diversity.

MODULE SIX * TRAINING & EXERCISE PHILOSOPHY



For optimum health, the body and the mind need to be routinely detoxified through physical activity and specifically through a self-monitored, diligent, and progressive training regime. In this lesson, we will examine the history and philosophy behind resistance training, how and why it is important for you to determine your objectives, and the importance of motivation, attitude and setting attainable goals. We analyze intensity vs. volume, how to prepare for weight training, the benefits of cross-training, the symptoms of over-training, and the true essence behind lifelong health and fitness.

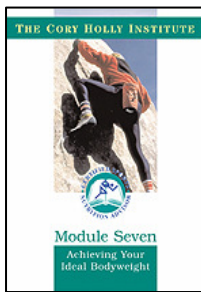
You will learn about bodyshaping for women, the definition of health, the importance of physical fitness and natural health products for

children and seniors, necessary training accessories, safety and etiquette in the gym, training at home vs. the gym, and the criteria necessary when seeking out a personal trainer.

In the last section, we will explore a variety of workouts designed for different goals and focus on the essence of a good training program. We will learn how to set up an effective/efficient exercise regime and chart your progress. Additional topics of interest include essential keys to training success, the benefits of stretching and yoga, the science of bodybuilding and its rational approach, the need for aerobic exercise, the principle of periodization, individual potential and the role of genetics.

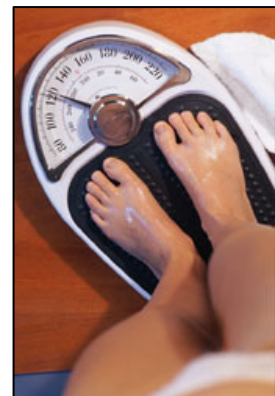


MODULE SEVEN * ACHIEVING YOUR IDEAL BODYWEIGHT



"Excellence" is never an accident. It develops only by careful design, by constant meticulous attention to detail." (M. Colgan). In this lesson, we probe the science of reducing body fat and building muscle mass through training principles, nutrition, natural health products (NHPs), and understanding the psychology of both living lean and building mass naturally. You will learn why "dieting" degrades wellness, how to create a native diet for health and longevity, the traditional wisdom in balancing foods, and how to improve exercise recovery through nutritional principles.

We investigate the world of ergogenics and anabolics, how your muscles fatigue and ways to beat the burn with the body's own natural buffering system, harnessing the anabolic drive and anti-catabolism, and bogus and misrepresented supplements. We focus on body composition assessment, manipulating carbohydrates as your premium fuel, carb loading as a complex strategy, battling the bulge, creating your personal sports nutrition program, and general principles to keep in mind when designing dietary and exercise protocols, such as the influence of food chemistry, the acid/alkaline balance of food, why counting calories is a waste of time, the importance of maintaining a positive nitrogen balance and why a psychology must be developed to achieve your ideal bodyweight.

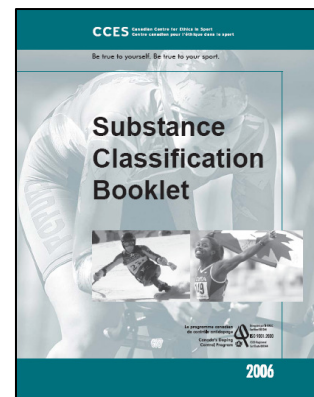


MODULE EIGHT * PERFORMANCE ENHANCING DRUGS



All drugs have side-effects. Anabolic steroids provide athletes with a synthetic copy of testosterone in amounts typically greater than what the body could ever produce naturally. Combine this with intense weight training and a high protein diet and you get explosive gains in muscle mass, increased strength, and a substantial reduction in body fat. Yes, steroids and many banned doping agents do “work”, there’s no doubt about it. But at what cost to our health and wellness? In this lesson, we examine natural alternatives to drugs, and learn how natural health products (NHPs) can support the process of building strength, power and speed without side-effects and reduce the catabolic action of stress and cortisol.

The Olympic Movement Anti-Doping Code and the most current CCES Drug Classification Booklet is presented on behalf of the Canadian Centre for Ethics in Sport. We will survey the available data on anabolic steroids and consider, why they are used and in what capacity, their pharmacological value, the legal aspects of their possession and distribution, the dark side of their use and why drug testing in competitive sport often fails to identify their presence. Studying Module Eight will help you understand why testosterone, diuretics, beta-boosters, growth hormone, erythropoietin and a grab bag of popular ergogenic drugs are so prevalent in sport.



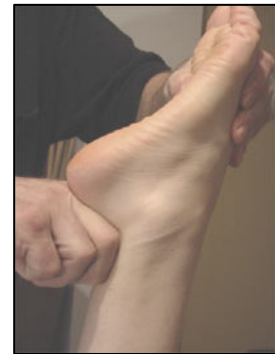
Many athletes also use recreational drugs without a complete understanding of their pharmacology; therefore, an objective examination is provided that describes the use of caffeine, alcohol, tobacco, cannabis, cocaine and ecstasy. Our focus is on the prevention of damage, thus, we investigate the pharmacology and chemistry of these substances in the body, while acknowledging their effects and possible adverse influence on human health and performance. We look at the issue of abuse vs. casual use, the psychology of drug addiction and dependency, social values and morality, and the importance of questioning the form and quality of any substance athletes frequently use.

MODULE NINE * TRAINING INJURIES: NATURAL TREATMENT



The human body has the inherent ability to heal. Biological medicine is an appropriate term that describes the use of nature's remedies to empower the body to heal itself, reinforce performance, and fulfill the biological needs that increase during athletic activity and intense physical training. In this lesson, we focus on training injuries, primary causes and their effects on training progress, while exploring the natural approach to treating injuries, where the individual is seen as a complete living entity, not a machine composed of separate, individual parts.

You will understand why common sport injuries are often better treated in the context of a natural healing method that encompasses and works along with Nature and all of its healing powers, focusing on the principles of naturopathy, various types of massage therapies, and the benefits of chiropractic medicine, osteopathy, acupuncture, homeopathy, traditional Chinese medicine, magnetic field therapy, nutrition and herbalism. Various forms of cryotherapy are presented; a case is made in favour of juice therapy and a number of natural health products including plant enzymes are discussed with specific reference to reducing pain and inflammation. You'll also receive some great ideas for a natural first aid kit to keep in your gym bag.



MODULE TEN * SCREENING AND DIAGNOSTIC TOOLS



Module Ten provides a clinical perspective on the merging science and practice of therapeutic sports nutrition. Rather than treating disease and chronic illness, clinical sports nutrition provides health conscious individuals and athletes with the professional support and guidance they need to enhance wellness, strengthen immune response, improve recovery or develop muscle and athletic skill for the purpose of improving performance. In this lesson, ten primary analytical procedures are reviewed which may be utilized to assist active people in their quest for ideal body composition and optimum health. These include fitness assessment, body & blood type, hair analysis, blood chemistry, urine &

saliva pH, thyroid function assessment, chiropractic examination, a review of exercise & training protocol, detailed dietary analysis and an examination of medication, recreational drugs, doping agents & NHPs.

A detailed dietary analysis provides an efficient and practical means to help determine whether or not the essential basic nutrients are being made available to the body. Fitness testing, a service often provided by personal trainers, gyms, or at university kinesiology and exercise physiology departments, provides an in depth, precise assessment of one's fitness level. The outcome provides an accurate estimate of present form, function and mortality risk.

The science and benefits associated with body composition analysis are investigated, as well as several popular methods including bioelectrical impedance, hydrostatic weighing, near-infrared interactance, skinfold calibration and air-displacement plethysmography (BOD POD). Hair analysis is a precise laboratory test used for assessing mineral imbalances and the presence of toxic elements in the body, often responsible for impaired health and performance. It allows one to probe the molecular matrix of the body in a non-invasive, very subtle biochemical manner. A comprehensive blood chemistry profile provides a snapshot of the internal body by analyzing the concentration of various substances in the blood measured in their state of fluid equilibrium. Taken one step further, essential metabolic analysis measures how well a nutrient works in its natural cellular environment.



Urinalysis is also a very valuable tool, detecting pH balance, protein concentrations, glucose, ketones, and any presence of leukocytes. Finally, the concept of Vega or “energy medicine” is introduced along with the study and practice of bio-kinesiology, which involves a synthesis of techniques used in chiropractic, naturopathy, osteopathy, and ancient Chinese acupuncture. Learning how and why various screening and diagnostic tools are utilized in clinical sports nutrition helps both the client and practitioner attain and maintain a state of optimum physical, mental and emotional health.