

Chapter 1 - The more things change, the more they stay the same.

McGwire, it seems, had a little something extra in his back pocket, and it wasn't his batting glove.

In 1998, St. Louis Cardinals right fielder Mark McGwire broke Babe Ruth's long-standing home run record. That record was made even more exciting by the Chicago Cubs Sammy Sosa challenging McGwire down the stretch as they both strove to hit 62 home runs in one season. Baseball fans, and all of America, were treated to a good, old-fashioned rivalry by two exceptional professional athletes, each bringing years of experience, hard work, and dedication in an effort to break the Babe's record. But McGwire, it seems, had a little something extra in his back pocket, and it wasn't his batting glove. In the summer of 1998, the Associated Press broke the news that McGwire was taking a dietary supplement called Androstenedione, or Andro. Once inside the body, Andro is converted to testosterone, the male hormone. Many have likened it to taking anabolic steroids. Where could someone get such a powerful substance? Well, just about anywhere that sells vitamins and minerals. Some fans called foul, but taking Andro was not illegal in Major League Baseball. While no one debates that McGwire

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was truly a phenomenal athlete, critics went so far as to say there should be an asterisk next to his name in the home run books, that Andro gave him an unfair edge. Asterisk or not, on November 13, 1998, ESPN sports reported that Andro was currently the number one selling sports supplement in stores. Flash forward one year. In Minnesota, a high school athlete is cut from the football team by his coach. Not for not being good enough; no, he was cut because he refused to take dietary supplements to gain weight. Eventually the athlete was banned from all sports at the high school. A judge would later overrule the school's decision and the athlete was allowed to participate ⁽¹⁾. In another instance, a volunteer coach of a youth basketball team in Arkansas was asked to step down after giving his players an energy supplement called "Go Juice" before each game. The player's parents had not been asked for their permission to give the product to their kids. In his defense, the coach had said he had heard it was like drinking a Mountain Dew soda ⁽²⁾. According to the product's Internet site however, Go Juice is designed for people 'on the go' who want to maintain a high energy level and control their appetite with a natural product of herbs, vitamins, and minerals!"

Pick up any popular magazine and ads for muscle builders, weight reducers, energy increasers, and fat burners tempt your eye.

Love them or hate them, dietary supplements are as much a fixture in sports participation as mouth guards and athletic tape. Ask any ninth grade school yard hoopster what Creatine is and they can tell you, ask any soccer player how many lawns he or she mowed this summer so they could afford to buy them and they'll tell you, and ask any parent who just spent the rest of their paycheck at the local nutrition center buying weight gainer for their young athlete and they will definitely tell you. These people know *what* these products are, but *where* are they getting their information?

Sources of information

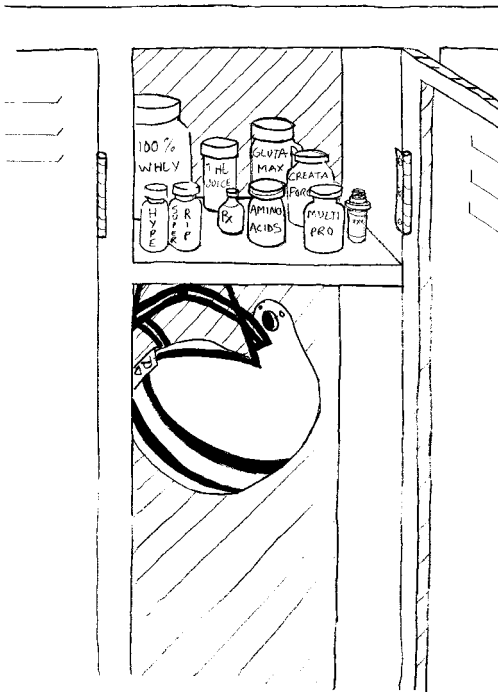
Pick up any popular magazine and ads for muscle builders, weight reducers, energy increasers, and fat burners tempt your eye. Saturday morning cartoons have been replaced by trendy infomercials for the latest and greatest "miracle of science" in a pill, and otherworldly commercials on television show athletes dripping with blue sweat encouraging you to "drink this, feel that." Mass marketing practices among supplement companies

Philen's study found Ecdysterone, an insect hormone with no known use in humans at 1000 milligrams per dose, and levodopa, a prescription drug, in dietary supplement products

are endemic, and a general attitude exists that these products, even if they don't work, do no harm. As one would imagine, advertising channels abound for marketing purposes, such as the Internet, television, radio, newspapers, and any number of sport, recreational, and popular press magazines. Let's look, for example, at what type of information a young athlete might get out of a muscle magazine browsed at the local stop and shop. In a classic study done by Philen and colleagues ⁽³⁾, the advertising practices of dietary supplements in health and bodybuilding magazines were surveyed. To accomplish this, the authors purchased twelve issues of popular health and bodybuilding magazines at different locations during three different months, and reviewed, page by page, advertisements for dietary supplement products. Information in each advertisement including manufacturer, brand name, all advertised ingredients, benefits attributed to consuming the product, dosage information, and telephone number and address of the manufacturer. Each product was categorized depending on its purported health benefits, and each ingredient was cross referenced using chemistry,

pharmacology, medical, and herbal textbooks, as well as by searching MEDLINE, TOXLINE, and POISINDEX databases. Ingredients that did not fit into any category were labeled miscellaneous. The results of the study found:

- 311 products from 89 different companies with 235 unique ingredients being listed in 914 instances.
- 68 products listed no ingredients! The most frequently mentioned ingredients by category were: amino acids, mentioned 198 times of out of 914 instances; herbals, mentioned 130 times; vitamins, 105 times; steroids, 39 times; glandulars, 23 times; and carbohydrates, 21 times.
- The most frequently mentioned ingredients by specific name were: amino acids (unspecified), 40 times; chromium, 30 times; vitamins and minerals, both unspecified, 26 times each; boron, 22 times; and smilax, 18 times. The principal effects attributed to the 311 products were: muscle growth, mentioned 59 times; increased testosterone levels, 27 times; energy enhancer, 17 times; increased strength, 12 times; and human growth hormone releaser, 8 times.
- Dosage levels of these products ranged from 40,000 milligrams of unspecified amino acids to 10 milligrams for folic acid, 25 times the recommended daily allowance.
- Also found - Ecdysterone, an insect hormone with no known use in humans at 1000 milligrams per dose, and levodopa, a prescription drug.



The dietary supplement industry has boomed in recent years, with consumers spending more than \$4.7 billion on *sports* dietary supplements in 1996 alone

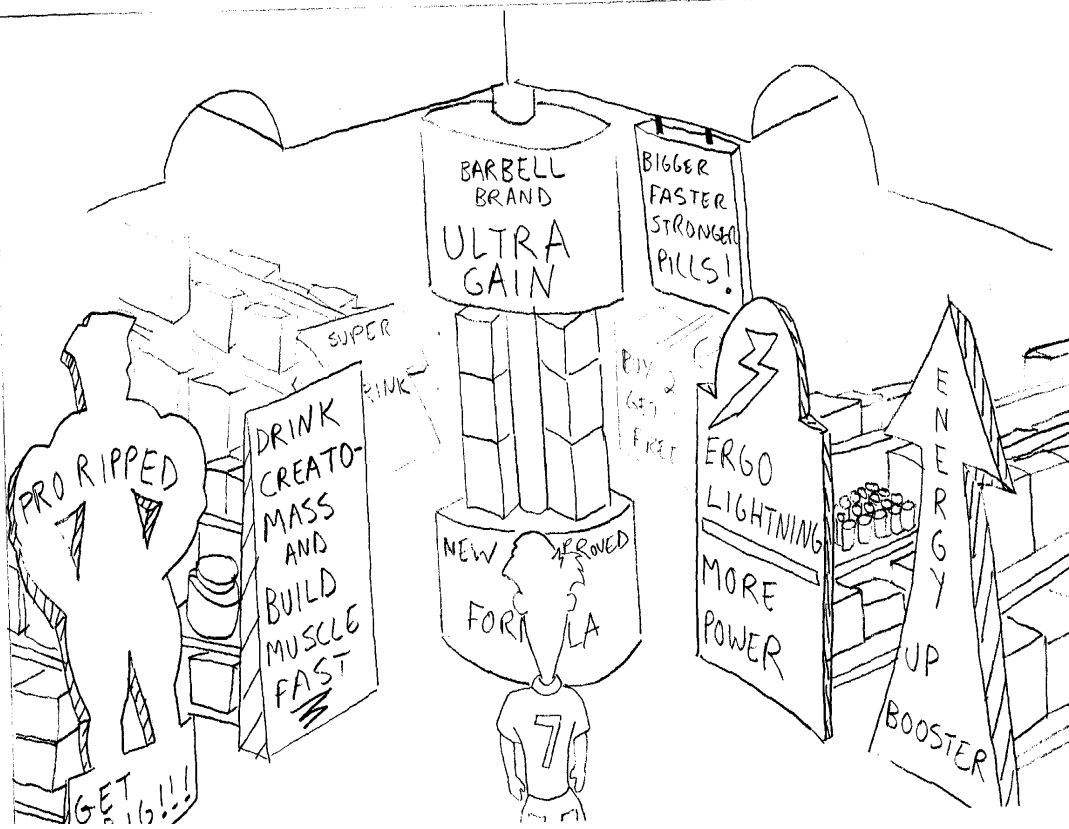
Dietary Supplements - What are they good for?

With an increased emphasis on nutrition as a factor in disease prevention and health promotion, dietary supplement use among the United States population is growing ⁽⁴⁾. Medical evidence suggests only certain subgroups of people need dietary supplements, for example, increased iron is needed for pregnant women, special formulas for infants and small children, folate for women of child bearing years, and calcium for adolescent girls and young women. Yet, many people self-prescribe dietary supplements for various reasons, including concern about the adequacy of their diet, a desire to be healthier, or to treat or prevent an illness ⁽⁴⁾.

Who's watching the store?

In 1992, approximately 3,400 unique, non-prescription dietary supplement products were produced by 600 manufacturers with retail sales of roughly \$3.3 billion annually ⁽⁵⁾. Only four years later, in 1996, consumers spent more than \$6.5 billion on dietary supplements according to Packaged Facts Inc., a market research firm in New York City ⁽⁶⁾. Amazingly, just two years after that, consumers spent \$12 billion on dietary supplements

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After all, these products must be tested by scientists and therefore we feel safe in going into our local food and drug stores to buy them, right?

according to Nutrition Business Journal in their September, 1998 Annual Industry Overview ⁽⁷⁾. The sports dietary supplement industry has boomed in recent years, with consumers spending more than \$5 billion on sports nutrition products in 2000 alone ⁽⁸⁾. It's not unusual to see professional athletes standing on the sidelines wearing ball caps or t-shirts with a dietary supplement company logo attached or watch a sporting event sponsored by a major dietary supplement producer. We think nothing of this and accept this as normal. After all, these products must be tested by scientists and therefore we feel safe in going into our local food and drug stores to buy them, right? Wrong. As you'll find out, these products have been exempt from the stringent testing done of other types of products we put into our body. Additionally, as you will see in the following chapters, these products have a long and storied past.

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