Dear Alice,

My question is about nutritional supplements, specifically androstenedione and its closely related cousins. I have a five-day-a-week workout routine, and I have been searching for a supplement that will give me the greatest benefit for all of that hard work. I am, however, very concerned about the negative effects of some of these unregulated supplements. My question then is, what kind of side effects can I truly expect from using one of the male hormone precursors like androstenedione? And, in your opinion, is it safe?

Answer

Dear Reader,

While it appears that androstenedione has helped some people (a few prominent athletes included) increase their muscle mass and recover more quickly from injury, there is no scientific research supporting these results. In order to help you decide whether such nutritional supplements are right for you, let's first take a look at androstenedione.

Androstenedione is a direct precursor hormone to testosterone and other hormones including one type of estrogen. It is converted from cholesterol, as are all other steroid hormones. Specific enzymes and hormones, among other things, must be present and ready to work for these conversions to take place. For instance, luteinizing hormone, produced and released by the pituitary gland, plays a pivotal role in converting androstenedione to testosterone. Simply introducing extra androstenedione to your system does not automatically indicate that all of the necessary players will be there to produce testosterone or improve the productivity of your workout.

About sixty years ago, when androstenedione was first synthesized, it was shown to have both androgenic (male hormone-like) and anabolic steroid [2]-like properties. The anabolic effects were considerably less than those of testosterone. Subsequent research found that testosterone levels rose after inhalation of androstenedione, but remained elevated for only a couple of hours, with peak levels lasting a few short minutes.
Beyond these cursory early studies, rigorous studies have come to two broad conclusions about androstenedione. First, despite increasing testosterone levels for those with low baseline testosterone levels such as women and older men, androstenedione has not been shown to increase the testosterone levels of young men or to improve the effectiveness of their exercise regimens aimed at building muscle.

What side effects can you expect from androstenedione? No one knows for sure. Androstenedione falls under the category of steroid hormones, which are known to have androgenic and anabolic properties. Therefore, androstenedione may produce side effects similar to those of testosterone-based anabolic steroids [2]. The most dangerous of these side effects is the increased risk for cardiovascular disease, certain cancers, depression, psychoses, and even extreme aggression. There are also gender-specific effects. For men, these include shrinking testes, increased hair loss, enlarged breasts, and possible sterility. Women may experience side effects such as shrinking breasts and uterus, enlarged clitoris, irregular menstruation, increased facial and body hair growth, and a deepening voice. In fact, due to many potential negative health hazards, the Food and Drug Administration (FDA) has prohibited the sale of over-the-counter androstenedione and similar steroid-like dietary substances.

Is it safe? Safety can be difficult to determine when you don't really know what you're dealing with. Is it worth the risk? That's for you to decide. Before you begin taking any dietary supplements you may want to speak with your healthcare provider. S/he can answer your questions and give you more detailed information. Columbia students might want to consider making an appointment at Medical Services [3] by calling x4-2284 or online using Open Communicator [4]. Students on the Medical Center campus can contact the Student Health Service [5].

Alice!
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Published date:
Oct 23, 1998
Last reviewed on:
Oct 12, 2012
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