

Steroids: More Than a Growing Concern

Craig Longhurst

Steroids and performance enhancing drugs have dominated professional sports headlines these past months. However, steroid abuse has increased more prominently in high schools and colleges across the United States.

Informal studies reveal 10 to 15 percent of youth are experimenting with some form of performance enhancing drugs.

One Source Toxicology and Steroid Free Sports Inc. are providing laboratory steroid screening and confirmation testing for student athletes in Texas.

Steroids can have severe side effects causing cardiovascular disease including heart attacks and strokes for users under the age of 30.

A user can also experience external physical effects. Male and female users can encounter accelerated hair growth, baldness patterns, cysts, oily hair, severe acne, and other severe skin

blemishes. Male users can develop breasts because of an increase in estrogen also causing impotence in some cases. Women might develop facial hair growth with increased levels of testosterone.

Selling, distributing, and using steroids without a prescription is illegal under the Controlled Substances Act. Other bills have been introduced to deter steroid abuse. Recently, the Drug Free Sports Act was presented before Congress to enforce stringent testing for major professional sport associations. The National Football League, National Basketball Association, and Major League Baseball have adopted, or are in the process of adopting, steroid testing mandates for their athletes.

Steroid use first became popular during Olympic competition. Subsequently, the World Anti-Doping Agency (WADA) was established to implement stringent steroid testing methods. In 2005, approximately 8,000 tests were conducted on Olympians in the United States.

In comparison, conducting steroid testing for student athletes for two Texas school regions would greatly exceed all tests conducted by the U.S. Olympics Committee and the top three major professional sport associations in the United States combined.



Retrospective Screening Methods Meet Today's Standard of Steroid Analysis

Dr. John Novinski

One Source Toxicology has made a commitment to providing parents and students an economical and accurate anabolic steroid analysis. The steroid analysis is specifically geared toward detecting steroids used by student athletes. Abuse of these drugs by this group has resulted in well-publicized deaths.

Most often steroid testing, both the screening and confirmation analysis in urine is performed by using gas chromatography mass spectrometry (GC/MS). Although many laboratories have developed extraordinary expertise with this technology, it is a problematic approach to steroid urine analysis because of limited detection capabilities and difficulties associated with identifying specific steroids. For example, a designer steroid like tetrahydrogestrinone (THG) is not amenable to GC/MS analysis; in addition, the more

commonly abused steroids are difficult to derive and prepare for analysis by GC/MS.

One Source's approach began with a desire to bring a fresh perspective to urine steroid analysis, thus overcoming all of the problems associated with GC/MS analysis of these compounds. Research by the technical staff of One Source lead to modern colorimetric and fluorimetric methods of anabolic steroid analysis. These methods were cutting edge in the 1930s and 1940s. One Source modified these vintage methods into outstandingly useful methods to screen urine for anabolic steroids.

In addition to the use of colorimetric screening methods, the laboratory is investing in an Applied Biosystems 3200 Q-Trap LC/MS/MS for confirmation of steroids and some screening applications.

Tetrahydrogestrinone (THG)

THG is reportedly used by athletes to improve their performance. The Food and Drug Administration has determined that THG is an unapproved drug. As such, it cannot be legally marketed without FDA approval. In the meantime, the FDA is warning consumers that little is formally known about the safety of this drug. Its structure and relationship may pose considerable risks to health. In fact, THG does not meet the dietary supplement definition and is a purely synthetic "designer" steroid derived by simple chemical modification from another anabolic steroid that is explicitly banned by the U.S. Anti-Doping Agency.

For more information on THG visit the Food and Drug Administration website at www.fda.gov