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Concern raised about performance enhancing drugs in the US

Deborah Josefson, San Francisco

The race between two US baseball players to achieve a record number of home runs in one season has focused US national attention on the increasing use of performance enhancing dietary supplements by athletes.

Baseball players Mark McGwire and Sammy Sosa have admitted consuming creatine, an energy boosting protein. Mark McGwire also admits to taking androstenedione, a testosterone precursor. Both substances are readily available over the counter, and because they are labelled as dietary supplements they are not subject to regulation by the Food and Drug Administration.

The enthusiastic endorsement of such substances by high profile professional athletes has raised their popularity among teenagers, college athletes, and amateur athletes. It has also led to more inquiries into the safety of such supplements.

Androstenedione, a potent anabolic steroid, is produced endogenously in small quantities in the adrenal glands and gonads. In turn, it is converted by the liver to testosterone, an even more potent androgen. In large doses, anabolic steroids have been implicated in causing liver cancers, aggressive behaviour, gynaecomastia, and testicular atrophy.

Whereas testosterone is available on prescription only, androstenedione can be easily purchased over the counter. No long term studies have been done on androstenedione supplementation, but it seems likely that side effects would mirror those of testosterone. Children taking such steroids may be subject to an increased incidence of hepatomas, cystic acne, and early epiphyseal closure leading to stunted growth.

Several athletic organisations, including the International Olympic Committee, the National College Athletic Association, and the National Football League, have banned the use of androstenedione by their members. But, finding offenders is difficult, as the steroid is not tested for in standard drug tests.

Manufacturers of androstenedione maintain that the steroid is safe, and that it only transiently raises testosterone levels and only by up to 15%. Users and manufacturers claim that it allows them to build muscle mass quickly and recover rapidly from injury. Creatine, the other popular muscle builder, is less controversial and androstenedione, but even less is known about its side effects. Creatine is naturally present in muscle, brain, and blood cells. It is believed to enhance athletic performance by recycling ADP to ATP and stemming lactic acidosis, allowing cells to recover faster from exertion. Accordingly, creatine users report less fatigue and increased endurance and muscle strength. Intracellular fluid retention is also increased by creatine.

The daily creatine requirement is believed to be about 2 g for a 70 kg person and is usually consumed in red meat and fish as well as being produced endogenously. People who use creatine supplements typically “load” on the protein for a week, consuming 20-25 g daily. They then continue with a maintenance dose of 5 g a day. This is thought to ensure a continuous supply of creatine in the muscles.

Many professional ball players, however, take the supplement in even larger doses. There have been few studies on the safety of creatine, but so far reported adverse effects have been few. The longest study so far on the supplement lasted only 51 days. Gastrointestinal upset, muscle cramping, and dehydration have been anecdotally cited as the more prominent side effects. A case report in the Lancet suggested that the supplement can cause renal failure, but the patient had pre-existing kidney disease (Lancet, 1998;351:1292-3).

Last year creatine was implicated in the deaths of three collegiate wrestlers but was subsequently cleared by the Food and Drug Administration of that suspicion. None the less, in July the administration warned consumers to consult a doctor before taking creatine, and it is investigating whether a link exists between the supplement and the development of seizes and brain tumours.

US doctors want no part in executions

Deborah Josefson, San Francisco

A group of doctors in California is suing the state to drop its requirement that doctors should participate in the execution of prisoners.

The 13 doctors contend that such participation in executions violates the Hippocratic oath and is contrary to ethical practice. The doctors are lobbying the state Court of Appeals to resurrect a lawsuit that was dismissed in 1996 when a judge from the San Francisco Superior Court ruled that the involvement of doctors in the death penalty was public policy established by the state legislature.

Some 27 US states require the presence of doctors at executions. The roles of these doctors include administering lethal injections, witnessing executions, and certifying prisoners’ deaths. In Illinois, doctors who participate in executions are afforded anonymity by the state, to prevent their persecution by medical societies. Two states, Utah and Missouri, have recently revoked the requirement for doctors’ participation in the death penalty.

Meanwhile, the American Medical Association (AMA), the American College of Physicians, and most state medical societies bar doctors from taking part in executions. The AMA censures doctors who participate in capital punishment and includes both witnessing an execution and certifying death as participation. Psychiatric evaluation of competency to sit for an execution is allowed by the AMA, but the treatment of a mentally or psychiatrically incompetent condemned prisoner is proscribed if such treatment is likely to lead to execution.

The AMA’s Council of Ethical and Judicial Affairs holds: “When a condemned prisoner has been declared incompetent to be executed, physicians should not treat that prisoner to restore competence, unless a commutation order is issued. However, if the incompetent prisoner is undergoing extreme suffering as a result of psychosis or any other illness, medical intervention intended to mitigate the level of suffering is ethically permissible.”

Christine May, a spokeswomen for California’s Department of Corrections, said that technicians, not doctors, insert intravenous lines into the condemned prisoners and administer the lethal drugs. She said doctors are present to attend and to certify death, which is required by state law, and that they are volunteers. “From our perspective, they do not participate,” she said.

However, Steven Schean, an attorney for the doctors suing the state, said that documents from the Department of Corrections included doctors as part of the execution team but were vague about their role.