

Reprint from

RECENT ADVANCES
IN DOPING ANALYSIS
(4)

W. Schänzer
H. Geyer
A. Gotzmann
U. Mareck-Engelke
(Editors)

Sport und Buch Strauß, Köln, 1997

W. SCHÄNZER, S. HORNING, G. OPFERMANN, M. DONIKE:
Gas Chromatography/Mass Spectrometry Identification of Long-term Excreted Metabolites of
the Anabolic Steroid 4-Chloro-1,2-dehydro-17 α -methyltestosterone in Humans
In: W. Schänzer, H. Geyer, A. Gotzmann, U. Mareck-Engelke (eds.) Recent advances in
doping analysis (4). Sport und Buch Strauß, Köln, (1997) 33

W.Schänzer, S.Horning, G.Opfermann and M. Donike

Gas Chromatography/Mass Spectrometry Identification of Long-term Excreted Metabolites of the Anabolic Steroid 4-Chloro-1,2-dehydro-17 α -methyltestosterone in Humans.

Institute of Biochemistry, German Sports University Cologne

This paper was published in **J Steroid Biochem Mol Biol 1996;57:363-376**

SUMMARY

The misuse of anabolic steroids by athletes has been banned by sports organizations and is controlled by analysis of urine samples obtained from athletes using gas chromatography/mass spectrometry (GC/MS). To extend the retrospectivity of the analytical methods research is focused on longterm excreted metabolites. Preliminary results concerning the longterm detection of metabolites of the anabolic androgenic steroid 4-chloro-1,2-dehydro-17 α -methyltestosterone **I** are presented.

A new metabolite 4-chloro-3 α ,6 β ,17 β -trihydroxy-17 α -methyl-5 β -androst-1-en-16-one **II** was isolated by high performance liquid chromatography (HPLC) from urine following a single oral administration of 40 mg of **I** and characterized.

Metabolite **II** was excreted into urine with a maximum excretion rate at approximately 48 h after administration and could be detected by gas chromatography/high resolution mass spectrometry (GC/HRMS) up to 14 days.

Two further partially characterized metabolites **III** and **IV** were confirmed for more than 9 days. The same three metabolites **II** - **IV** in varying amounts were also detected in urine samples from athletes who administered **I**.