Differences in the dissolution rate of generic digoxin tablets.
A.H. Beckett and D.A. Cowan.

The dissolution rate of digoxin tablets on the U.K. market: the scale of the problem.
D.A. Cowan and A.H. Beckett.
Postgraduate Medical Journal, 1974, 50 (Suppl. 6), 52-55.

Metabolism of Phenothiazines: Identification of N-oxygenated products by gas chromatography and mass spectrometry.

Problems in the analysis of N-oxygenated products of the phenothiazines.
D.A. Cowan.

Identification of four new metabolic products of metoclopramide using mass spectrometry.
Xenobiotica, 1976, 6, 605-616.

Pitfalls in drug metabolism methodology.
A.H. Beckett and D.A. Cowan.

Gas Chromatography.
D.A. Cowan.


Mass Spectrometry as an aid to the Identification of N-oxygenated Organic Molecules.
D.A. Cowan.
Misuse of Drugs in Sport.
A.H. Beckett and D.A. Cowan.
British Journal of Sports Medicine, 1979, 12, 185-194.

The origin of 1-(3-pyridyl-N-oxide)ethanol as a metabolite of 3-acetylpyridine.
Xenobiotica, 1980, 10, 645-653.

The in vitro metabolism of 3-acetylpyridine, 3-acetylpyridine-N-oxide and 1-(3-pyridyl)ethanol.

Gas chromatographic analysis of drugs abused in sport.
D.A. Cowan.
Doping Control of Athletes, ed. V.A. Rogozkin and V.N. Litvinova, Soyuzsportobespechenie, Moscow, 1980, 83-95.

Synthesis of N-oxide derivatives of metyrapone and their detection as in vitro metabolites.

Metabolism of Metyrapone. 3. Formation of an Alpha-Pyridone Metabolite by Rat Hepatic Soluble Enzymes.
Drug Metab. Disposition, 1981, 9, 270-273.

Metabolism of metyrapone. 2. Chromatographic and mass spectral properties of the N-oxides of metyrapone and metyrapol.

Baeyer-Villiger oxidation of metyrapone during N-oxide formation.

Metabolism of 4-substituted N-ethyl-N-methylanilines: Chromatographic and mass spectrometric identification of and N-oxidation metabolic products formed in vitro.

Phenolic metabolites of thioridazine in man.
A.S. Papadopoulos, J.L. Crammer and D.A. Cowan.
Xenobiotica, 1985, 15, 309-316.
Prescribing for sportsmen in training.
D.A. Cowan

Drug abuse in sport.
M.S. Moss and D.A. Cowan.
Clarke's Isolation and Identification of Drugs. Senior Editor A.C. Moffat

In-vitro metabolism of lignocaine to its N-oxide.
L.H. Patterson, G. Hall, B.S. Nijjar, P.K. Khatra and D.A. Cowan.

In-vitro metabolism of desmethyltrimipramine to yield hydroxylamino compound.

Philosophy and practice of drug abuse in sport.
Part II. Scientific Considerations.
D.A. Cowan.

Stress-induced antinociception and morphine sensitivity in mice following chronic treatment with anabolic/androgenic steroids.

Effect of chronic treatment with methyltestosterone or methenolone on the sensitivity of mice to morphine.
D.A. Cowan, S. Friend, A. Gibson and S.L. Hart.
Br. J. Pharmac., 1986, 89, 515P.

Identification of Drugs Misused in Sport.
D.A. Cowan.

Degradation of doxorubicin by myoglobin.
The effect of an anabolic steroid and chronic exercise on nociception and plasma corticosterone levels in rats.
Two assays for dihydrocodeine in plasma and in urine and their use to determine the bioavailability of a controlled release product.
D.A. Cowan, A. Noormohamidi and G. Woffendin

Drug testing in human sports.
D.A. Cowan and G. Woffendin.
Spectra, 1988, 11, 4-9.

The identification and determination of some metabolites of trimipramine.

Alteration of w and k opioid receptor mediated activity in mice by an anabolic steroid.

Adverse behavioural effects of anabolic steroids in athletes: a brief review.
P. Choi, A.C. Parrott and D.A. Cowan.

High-dose anabolic steroids in strength athletes: effects upon hostility and aggression.
P.Y.L. Choi, A.C. Parrott and D. Cowan.

Drugs of abuse: metabolism, analysis and clinical implications. Screening methods.
D.A. Cowan.

Criteria to indicate testosterone administration.

Testosterone and hCG administration - approaches to the problem.
A. Ginn, E. Houghton and D.A. Cowan.
Use and abuse of drugs in sport.
D.A. Cowan.

Human chorionic gonadotrophin and sport.

Effect of administration of human chorionic gonadotrophin on criteria used to assess testosterone administration in athletes.

Therapeutic Drugs: Monographs on anabolic steroids
Ed C Dollery

Biochemical aspects of substances banned by the IOC.
David A Cowan.

Possible indices for the detection of the administration of dihydrotestosterone to athletes.

Peptide Hormones and Sport: Misuse and Detection.
A.T. Kicman and D.A. Cowan.

Testing urine for drugs.

Testing urine for drugs.

Testing urine for drugs.
Doping and the rules of sport.
D.A. Cowan.

Detecting Testosterone Administration.
Don H. Catlin and David A. Cowan.
Clinical Chemistry, 1992, 38, 1685-1686.

Potential use of ketoconazole for a dynamic endocrine test to differentiate between biological outliers and athletes using testosterone.

Drug Testing in Human Sports.
David A. Cowan.


Doping with peptide and protein hormones.
David A. Cowan and Andrew T Kicman.

Drug Abuse.
David A. Cowan.

Human chorionic gonadotropin doping in sport: establishing a threshold limit in urine and preparation of a quality control.
A T Kicman, D A Cowan, R C Hider and P Laidler.

New decision limits and quality control material for use in the detection of human chorionic gonadotropin (hCG) misuse in sport.
Clinical Chemistry, 1994, 40, 1306-1311.
Effect on sports drug tests of meat from steroid (methenolone)-treated livestock.
Clinical Chemistry, 1994, 2084-2087.


Detection of dihydrotestosterone administration in sport.
Andrew T. Kicman, Sarah B. Coutts, Christopher J. Walker and David A. Cowan.

Developing an immunoassay for the anabolic steroid stanozolol.
Pharmaceutical Sciences, 1995, 1, 87-89.

Olympic Medication Control.
David Cowan.

In-House Thresholds for Therapeutic Medications in Olympic Medication Testing.
David Cowan.

Drug Abuse.
David A. Cowan.

Paul Laidler, David A. Cowan, Robert C. Hider, Anita Keane and Andrew T. Kicman.
Rapid Communications in Mass Spectrometry, 1995, 9, 1021-1026.

Proposed Confirmatory Procedure for Detecting 5α-Dihydrotestosterone Doping in Male Athletes.
Andrew T. Kicman, Sarah B. Coutts, Christopher J. Walker and David A. Cowan.
Peptide Hormone Doping in Human Sports.
David A. Cowan and Andrew T Kicman.

Study of Cortisol Metabolites Using MS Methods.

The Misuse of Drugs in Sport.
David Cowan.

Urinary testosterone (T) to epitestosterone (E) ratios by GC-MS. I. Comparison of uncorrected T/E in six international laboratories.

Transmission of the results of tests for IOC defined Drugs of Abuse.
Ivan Bruunshuus, Karina Klempel, David Cowan, Gilbert Hill and Henrik Olesen.

Intramuscular administration of 5α-dihydrotestosterone heptanoate: changes in the urinary hormone profile.
Sarah B. Coutts, Andrew T. Kicman, David A. Cowan.

Qualitative analysis of hCG for confirmatory purposes

Doping in Sport; Misuse, Analytical Tests and Legal Aspects.
D A Cowan and A T Kicman.
Testing for drug abuse.

D A Cowan


Cortisol concentration in post competition horse urine: A French and British Survey.

New Approaches to Detect Cortisol Administration: A Preliminary Study.

Serum insulin-like growth factor (IGF)-1 and IGF binding proteins 2 and 3 as potential markers of doping with human growth hormone.
Andrew T Kicman, John P Miell, J Derrick Teale, Jake Powrie, Peter J Wood, Paul Laidler, Peter J Milligan and David A Cowan.

Characterization of human chorionic gonadotropin microheterogeneity by capillary electrophoresis: potential application for quality control in the pharmaceutical industry.

Intramuscular administration of 5α-dihydrotestosterone heptanoate: changes in the urinary hormone profile.
Sarah B. Coutts, Andrew T. Kicman, Derek T Hurst and David A. Cowan.

Low dose MDMA ("Ecstasy") induces vasopressin secretion.

Drug Abuse.

David A. Cowan.
Discrimination of Mammalian Growth Hormones by Peptide-mass Mapping.
Rapid Communications in Mass Spectrometry, 1998, 12, 975-981.

Enantiomeric analysis of MDMA (Ecstasy) in plasma and urine by capillary gc: a preliminary investigation of the stereoselective disposition in man.

Mass Spectrometry in Drug Metabolism
David A Cowan and Paul Laidler.
Drug Metabolism: Towards the Next Millenium, Editor N J Gooderham, IOS Press, 1998, 159-174.

The ß-subunit of human chorionic gonadotrophin exists as a homodimer.
Journal of Molecular Endocrinology, 1999, 22, 185-192.

Adrenal and gonadal contributions to urinary excretion and plasma concentration of epitestosterone in men - effect of adrenal stimulation and implications for detection of testosterone abuse.
Andrew T Kicman, Sarah B Coutts, David A Cowan, David J Handelsman, Chris J Howe, Surrinder Burring and Fred C W Wu.
Clinical Endocrinology, 1999, 50, 661-668.

Stereospecific analysis and enantiomeric disposition of 3,4-methylenedioxyamphetamine ('Ecstasy') in man.
Clinical Chemistry, 1999, 45, 1058-1069.

New approaches to detect cortisol administration in the horse.
M A Popot, E Lacabaratz, P Garcia, V Laroute, Y Bonnaire, P L Toutain and D A Cowan.

Henrik Olesen, David Cowan, Rafael de la Torre, Ivan Bruunshuus, Morten Rohde and Desmond Kenny.
Pure and Applied Chemistry, 2000, 72, 479-552.
Approaches to the Analysis of Protein Hormones: 1. Detection of administration of human chorionic gonadotrophin.
A D Ginn, D A Cowan and E Houghton

Approaches to the Analysis of Protein Hormones: 2. Discrimination of Mammalian Growth Hormones by Peptide-Mass Mapping
D E Marshall, P Teale, A T Kicman, P Laidler, D A Cowan, H A Davies, R George and E Houghton

ACTH Administration and Detection in the Horse.

The action of MDMA (‘Ecstasy’) on neurohypophysial hormone release in vitro.
J K Fallon, D Shah, M L Forsling, A T Kicman, A J Hutt and D A Cowan

In vitro/in vivo evaluation of the performance of two lactose carrier-based dry powder aerosol formulations for the delivery of salbutamol to the lung

In vitro/in vivo evaluation of the performance of two lactose carrier-based dry powder aerosol formulations for the delivery of salbutamol to the lung

Arginine vasopressin release in response to the administration of 3,4-methylenedioxy-methamphetamine (‘ecstasy’); is metabolism a contributory factor?
Mary Forsling, John K. Fallon, Andrew T. Kicman, Andrew J. Hutt, David A. Cowan and John A Henry.
The effect of 3,4-methylenedioxyamphetamine (MDMA, “ecstasy”) and its metabolites on neurohypophysial hormone release from the isolated rat hypothalamus
Mary L. Forsling, John K. Fallon, Darshna Shah, Gary S Tilbrook, David A Cowan, Andrew T. Kicman, Andrew J. Hutt

Enhanced Affinity Capture MALDI-TOF MS - Orientation of an Immunoglobulin G Using Recombinant Protein G.

Speciation of Fe(III)-chelate complexes by electrospray ionization ion trap and laser desorption/ionization Fourier transform ion cyclotron resonance mass spectrometry.
Hendrik Neubert, Robert C. Hider and David A. Cowan.

Synthesis of a dendron and dendrimer consisting of MALDI Matrix like branching units.
Hendrik Neubert, Andrew T. Kicman, David A. Cowan and Sukhvinder S. Bansal.


Andrew T Kicman, John K Fallon, David A Cowan, Christopher Walker, Sue Easmon, and David Mackintosh.

Effect of Androstenedione Ingestion on Plasma Testosterone in Young Women; a Dietary Supplement with Potential Health Risks.

MALDI TOF Post-Source Decay Investigation of Alkali Metal Adducts of Apolar Polypentylresorcinol Dendrimers
Hendrik Neubert, Kevin A. Knights, Yolanda R. de Miguel, and David A. Cowan.
Drug Abuse in Sport.
David A Cowan and Ed Houghton
in Clarke’s Analysis of Drugs and Poisons, Eds A C Moffat, M D Osselton and B Widdop,

Effects of Oral Administration of Androstenedione on Plasma Androgens in Young Women
using Hormonal Contraception.
Thomas Bassindale, David A Cowan, Sian Dale, Andrew J Hutt, Anthony R Leeds, Michael J
Wheeler and Andrew T Kicman.

Testosterone Measurement by Isotope-Dilution Liquid Chromatography–Tandem Mass
Spectrometry: Validation of a Method for Routine Clinical Practice.
Marion L. Cawood, Helen P. Field, Clive G. Ford, Scott Gillingwater, Andrew Kicman, David
Cowan and Julian H. Barth.

Detection of the administration of human erythropoietin (HuEPO) to canines.
Journal of Analytical Toxicology, 2006, 30(9): 663-669.

Drugs of abuse: Body fluid testing.
David Cowan

Homocysteine induced cardiovascular events: a consequence of long term anabolic-androgenic
steroid (AAS) abuse.

Evidence for a decrease in cardiovascular risk factors following recombinant growth hormone
administration in abstinent anabolic-androgenic steroid users.
Michael R. Graham, Julien S. Baker, Peter Evans, Andrew Kicman, David Cowan, David Hullin
and Bruce Davies.
Growth Hormone and IGF Research, 2007, 17, 201-209.

Short-term recombinant human growth hormone administration improves respiratory function in
abstinent anabolic–androgenic steroid users
Michael R. Graham, Julien S. Baker, Peter Evans, Andrew Kicman, David Cowan, David Hullin
and Bruce Davies.
Growth Hormone and IGF Research, 2007, 17, 328-335.
Recombinant human growth hormone in abstinent androgenic-anabolic steroid use: Psychological, endocrine and trophic factor effects.

Drug Testing
David A. Cowan

Sodium ascorbate improves yield of urinary steroids during hydrolysis with Helix pomatia juice.
Sofia Christakoudi, David A. Cowan and Norman F. Taylor.

Ion trap MS/MS of intact testosterone and epitestosterone conjugates - adducts, fragile ions and the advantages of derivatisation.
David A. Cowan, Andrew T. Kicman, Carlos Kubli-Garfías and Helen J. Welchman
Steroids, 2008, 73, 621-628.

Physical effects of short-term recombinant human growth hormone administration in abstinent steroid dependency.

Drugs in Sport
JC McGrath and DA Cowan

Liquid chromatographic-mass spectrometric analysis of glucuronide-conjugated anabolic steroid metabolites: method validation and interlaboratory comparison.

The Effect of Sports Injury on Insulin-Like Growth Factor-I and Type 3 Procollagen: Implications for Detection of Growth Hormone Abuse in Athletes
Ioulietta Erotokritou-Mulligan, E. Eryl Bassett, Christiaan Bartlett, David Cowan, Cathy McHugh, Rick Seah, Benjamin Curtis, Victoria Wells, Kate Harrison, Peter H. Sönksen, Richard I. G. Holt The GH-2004 Group

Detection of ketamine and its metabolites in urine by ultra high pressure liquid chromatography-tandem mass spectrometry.
Doping in Sport - 1. Excretion of 19-norandrosterone by healthy women, including those using contraceptives containing norethisterone.  
Christopher J Walker; David A Cowan, Vivian H James, Joanne C Lau, Andrew T Kicman.  

Doping in Sport - 2. Quantification of the impurity 19-norandrostenedione in pharmaceutical preparations of norethisterone.  
Christopher J Walker; David A Cowan, Vivian H James, Joanne C Lau, Andrew T Kicman.  

Christopher J Walker; David A Cowan, Vivian H James, Joanne C Lau, Andrew T Kicman.  
Steroids, 2009, 74, 341-349.

The influence of ethnicity on insulin like growth factor-I and procollagen III peptide in elite athletes and its effect on the ability to detect GH abuse.  
Ioulietta Erotokritou-Mulligan, E. Eryl Bassett, David Cowan, Christiaan Bartlett, Cathy McHugh, Peter H. Sönksen, Richard I.G. Holt  

A determination of the pre-analytical storage conditions for insulin like growth factor-I and type III procollagen peptide.  
Holt RIG, Erotokritou-Mulligan I, Ridley SA, McHugh CM, Bassett EE, Cowan DA, Bartlett C, Sönksen PH.  

Subject-based profiling for the detection of testosterone administration in sport.  
Andrew T. Kicman and David A. Cowan  

P-82 The physiological variability of insulin growth factor I and procollagen type III in amateur and elite athletes: implications in detecting growth hormone abuse in sports  
Growth Hormone & IGF Research, Volume 18, Supplement 1, September 2008, Page S51
Counterfeiting in performance- and image-enhancing drugs.
Michael R. Graham, Paul Ryan, Julien S. Baker, Bruce Davies, Non-Eleri Thomas, Stephen-Mark. Cooper, Peter Evans, Sue Easmon, Christopher J. Walker, David Cowan, Andrew T. Kicman
Drug Testing and Analysis, 2009, 1, 135–142

Laboratory issues in the implementation of the marker method.
David A. Cowan, Christiaan Bartlett
Growth Hormone & IGF Research, 2009, 19, 357–360
Use of Human Microsomes and Deuterated Substrates; An Alternative Approach for the Identification of Novel Metabolites of Ketamine by Mass Spectrometry
Sophie C Turfus, Mark C Parkin, David A Cowan, John M Halket, Norman W Smith, Robin A Braithwaite, Simon P Elliott, Glyn B Steventon, and Andrew T Kicman
Drug Metabolism and Disposition, 2009, 37, 1769-1778

High-throughput ultra-high-performance liquid chromatography/tandem mass spectrometry quantitation of insulin-like growth factor-I and leucine-rich α-2-glycoprotein in serum as biomarkers of recombinant human growth hormone administration.

The use of growth hormone (GH)-dependent markers in the detection of GH abuse in sport: Physiological intra-individual variation of IGF-I, type 3 pro-collagen (P-III-P) and GH-2000 detection score.
Ioulietta Erotokritou-Mulligan, E Eryl Bassett, David Cowan, Christiaan Bartlett, Polly Milward, Alessandro Sartorio, Peter H Sönksen, Richard IG Holt
Clinical Endocrinology, 2009, 72, 520-526.

Steroids excreted in urine by neonates with 21-hydroxylase deficiency: characterization, using GC-MS and GC-MS/MS, of the D-ring and side chain structure of pregnane(ene)s.
Sofia Christakoudi, David A Cowan, Norman F Taylor

A new marker for early diagnosis of 21-hydroxylase deficiency: 3β,16α,17α-trihydroxy-5α-pregnane-7,20-dione.
Sofia Christakoudi, David A Cowan, Norman F Taylor

The GH-2004 project: the response of IGF1 and type III pro-collagen to the administration of exogenous GH in non-Caucasian amateur athletes.

A rapid screening LC-MS/MS method based on conventional HPLC pumps for the analysis of low molecular weight xenobiotics: application to doping control analysis.
Monica Mazzarino, Xavier de la Torre, Francesco Botrè, Nicola Gray and David Cowan.

Urinary gamma-hydroxybutyrate concentrations in 1126 female subjects.
Brailsford AD, Cowan DA and Kicman AT

A simple high pH liquid chromatography-tandem mass spectrometry method for basic compounds: Application to ephedrines in doping control analysis.
Nicola Gray, Alessandro Musenga, David A. Cowan, Rob Plumb, Norman W. Smith