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Beyond sports-doping headlines: the science of laboratory tests for performance-enhancing drugs.

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This primer on urine analysis in sports-doping control is an overview with an emphasis on the main analytical chemistry technologies in use: gas chromatography-mass spectrometry (GC-MS), liquid chromatography-tandem mass spectrometry (LC-MS-MS), isotope ratio mass spectrometry detection of exogenous testosterone use, and isoelectric focusing detection of recombinant erythropoietin (EPO) use. Included are graphic examples of GC-MS selected ion monitoring and full scan, LC-MS-MS, and EPO test electropherogram data; a list of common acronyms; and answers to questions frequently asked about tampering and test accuracy.

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