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Factors influencing the steroid profile in doping control analysis.

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Steroid profiling is one of the most versatile and informative screening tools for the detection of steroid abuse in sports drug testing. Concentrations and ratios of various endogenously produced steroidal hormones, their precursors and metabolites including testosterone (T), epitestosterone (E), dihydrotestosterone (DHT), androsterone (And), etiocholanolone (Etio), dehydroepiandrosterone (DHEA), 5alpha-androstane-3alpha,17beta-diol (Adiol), and 5beta-androstane-3alpha,17beta-diol (Bdiol) as well as androstenedione, 6alpha-OH-androstenedione, 5beta-androstane-3alpha,17alpha-diol (17-epi-Bdiol), 5alpha-androstane-3alpha,17alpha-diol (17-epi-Adiol), 3alpha,5-cyclo-5alpha-androstan-6beta-ol-17-one (3alpha,5-cyclo), 5alpha-androstanedione (Adion), and 5beta-androstanedione (Bdion) add up to a steroid profile that is highly sensitive to applications of endogenous as well as synthetic anabolic steroids, masking agents, and bacterial activity. Hence, the knowledge of factors that do influence the steroid profile pattern is a central aspect, and pharmaceutical (application of endogenous steroids and various pharmaceutical preparations), technical (hydrolysis, derivatization, matrix), and biological (bacterial activities, enzyme side activities) issues are reviewed.

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