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The in and out of sports nutrition and working with the female athlete

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From adolescent to baby boomer, females are trained at high levels including playing sports, religiously working out at the gym and training for triathlons and Iromans. Unfortunately many of them are trained underfueled putting them at the risk for injury, overtraining syndrome and medical issues. It's not that they purposely underfuel, but many don't realize the caloric and nutrient demand they put on their bodies. "The Ins and Outs of Working with the Female Athlete" will cover the nutrition demands of the female athlete at all ages. It will also cover the Female Athlete Triad and how to prevent, work with and treat athletes that suffer from it. Whether you are a sports dietitian or not, active females are walking into your office or facility and it is essential to know how to fuel them so they can perform at their highest potential. After this presentation, attendees will be able to: 1. Identify the three components of the Female Athlete Triad and ways to prevent and treat it. 2. Recognize nutrients of concern with female athletes across the age span. 3. Provide appropriate fueling techniques for female athletes for both fueling and meeting weight/body fat concerns.

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Analysis of steroids in human urine by on-line coupled liquid chromatography-gas chromatography (LC-GC) with mass spectrometry (MS) and combustion-isotope ratio mass spectrometry (C-IRMS) for anti-doping purpose

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Anti-doping laboratories accredited by the WADA (World Anti-Doping Agency) must have available methods capable of detecting synthetic steroids at concentrations below 10 ng mL−1. Most accredited laboratories use gas chromatography–combustion–isotopic ratio mass spectrometry (GC–C-IRMS) to discriminate between natural and synthetic steroids, and gas chromatography–mass spectrometry GC-MS to identify the analyte peak. The method involves laborious sample preparation, including hydrolysis, liquid–liquid extraction and acetylization. A further cleaning step of the derivatized steroids is usually carried out by liquid chromatography (LC) to ensure the purity of the steroid. In the analytical methods presented, the Through Oven Transfer Adsorption Desorption (TOTAD) interface was used to couple the last clean up stage of LC with GC–IRMS or GC-MS to provide on-line coupled LC-GC-IRMS and LC-GC-MS analytical methods. The methods developed were used to analyse 11-hydroxyandrosterone, 11-ketoetiocholanolone, epitestosterone, testosterone, etiocholanolone, androsterone, 5αAdiol, 5βAdiol and pregnandiol, as well as Boldenone and its principal metabolite. The volumes transferred from the LC to GC range from 700 to 2200 µL, while acetonitrile/water was used as the LC mobile phase. The TOTAD interface eliminates the solvent but retains steroids that are introduced in the GC column. Good sensitivity is achieved, detection limits being below 5 ng mL-1 in all cases, as the whole LC fraction containing the analytes is transferred from LC to GC. The relative standard deviation (RSD) of the absolute peak areas is below 20% for MS detection, and the RSD of the δ13C is about 1.1%, both of which can be considered very good since they represent the variability in the whole process, including sample preparation.

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