Abstract

Women participating in endurance sports are at risk of presenting with low energy availability (EA), menstrual dysfunction (MD), and low bone mineral density (BMD), collectively termed the female athlete triad (FAT or TRIAD). Therefore, the purpose of the study was to determine the profile of the TRIAD among elite Kenyan female athletes and among non-athletes. There were 39 participants (athletes: 25, non-athletes: 14) who provided the data for this study. Exercise energy expenditure (EEE) was deducted from energy intake (EI), and the remnant energy normalized to fat free mass (FFM) to determine energy availability (EA). Weight of all food and liquid consumed during three consecutive days determined EI. EEE was determined after isolating and deducting energy expended in exercise or physical activity above lifestyle from the total energy expenditure output as measured by Actigraph GT3X+. Dual energy x-ray absorptiometry (DXA) determined both FFM and BMD. Menstrual function was determined from a daily temperature-menstrual log kept by each participant for nine continuous months. Low EA (<45 kcal/kgFFM.d⁻¹) was evident in 61.53% of the participants (athletes: 28.07 ± 11.45 kcal/kgFFM.d⁻¹, non-athletes: 56.97 ± 21.38 kcal/kgFFM.d⁻¹). The overall 36% MD seen among all participants was distributed as 40% among the athletes, and 29% among non-athletes. None of the athletes was amenorrheic. Low BMD was seen in 79% of the participants (athletes: 76%, non-athletes: 86%). Overall, 10% of the participants (athletes: 4, non-athletes: 0) showed simultaneous presence of all three components of the TRIAD. The Independent sample t-test showed significant difference ($t=5.860; p<0.001$) in prevalence of the TRIAD between athletes and non-athletes. The hypothesized higher prevalence of the TRIAD among athletes compared to non-athletes was partially accepted. To alleviate conditions arising from low EA, both athletes and their coaches need regular education on how to ensure they adequately meet specific dietary and nutritional requirements for their competition events.