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Gender differences in response to weight cycling in elite judoists

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Background: Existing reports on the effects of weight cycling in weight class sports used indirect and cumbersome techniques to estimate soft tissue alterations and did not address gender differences. Novelty and aim of the present study was to provide an accurate quantification of soft tissue alterations and to analyze gender differences in response to weight cycling in elite judoists. Methods: Forty-eight elite judoists (males n=22, females n=26) were tested at Early-Season (ES), prior (Pre-C) and after (Post-C) competition. Each time, body composition was assessed by Dual-Energy X-ray Absorptiometry (DXA) and Sargent test and handgrip strength tests were performed. Training history and lifestyle data were collected by questionnaires. Weight-Cyclers (C) and Non-Cyclers (NC) were identified by a statistical typological classification test. Results: Gender had no influence on the typological classification into C or NC. C in both gender significantly altered lean and fat masses at pre-C and Post-C ($p < 0.0001$). Weight loss was for 68% lean mass in men, and 54% in women. In men, Pre-C lean mass loss induced prolonged impaired performance despite Post-C weight regain ($p < 0.05$). Conversely, females at post-C revealed increased muscle mass at the expense of fat and did not suffer performance alterations. Conclusion: DXA should be used to set realistic weight goals and to select the weight class most appropriate to the athlete's stature and physique. The leanness pertaining to male athletes put them at greater risk than their female counterparts. Accurate follow up of body composition alterations is recommended to optimise training and prevent injuries.

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