PROFILE OF TRAINING LOAD IN ELITE BADMINTON PLAYERS DURING AN INTENSIFIED PRE-OLYMPIC TRAINING CAMP AND OLYMPIC COMPETITION

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INTRODUCTION: Coaches must carefully monitor their athletes' acute responses during intensified training camps in the lead up to competition as appropriate training dose is required to optimise performance potential while reducing the risk of developing non-functional overreaching. The session-RPE (sRPE) method has been widely used in training load quantification for various types of training across multiple sports, as determined by multiplying a sessional rating of perceived exertion (RPE: Borg category-ratio 10 [CR-10]) by the session duration (minutes). To date, no studies have quantified training load or periodisation profiles in elite badminton players during Olympic competition. Therefore, the purpose of this study was to 1) quantify training load of elite badminton players during an intensified training camp and Olympic competition using the sRPE method; and 2) describe periodisation strategies employed by Indonesian Olympic coaches.

METHODS: Ten Olympic badminton players' (male: n=5 and female: n=5) competing in six events (Men's Singles [MS]; Women's singles [WS]; Men's doubles [MD]; Women's doubles [WD]; Mixed doubles [XD1* and XD2]) completed a 9-day intensified training camp (ITC; Sau Paulo, Brazil) immediately followed by Olympic Games competition (OGC; Rio de Janeiro, Brazil) over 6–9 days, with each event having their own coach. Player characteristics for male and female players were, respectively: mean age 28.4 yrs (SD, 2.8) and 28.4 yrs (SD, 1.5); height 180.0 cm (SD, 6.4) and 164.4 cm (SD, 2.9); weight 79.1 kg (SD, 6.6) and 60.0 kg (SD, 5.5). Athletes were of elite level comprising of Olympic Games Medallists (2008 Gold and Silver); current World and Asian Champions. Quantification of the training load (AU) was performed by the sRPE method for every training session/match during the ITC and OGC. Players were asked 30 min after each session/match to ensure that their RPE referred to the intensity of the whole activity rather than the most recent activity intensity. A two-way ANOVA was used to determine any significant changes during the training/competition periods. Statistical analyses were performed using a SPSS (Version 22.0; Chicago, IL). Alpha was set at $p < 0.05$. Data are presented as mean ± SD with Delta percent change in training load relative to the previous day training load. The example profile presented is that of XD1*, Olympic Gold medallists.

RESULTS: Training loads between male and female during the ITC were significantly higher ($p < 0.001$) compared to OGC, respectively (ITC: 999 ± 375 and 1004 ± 407 AU; and OGC: 723 ± 252 and 745 ± 245 AU). No differences were observed between male and female players or event across the training/competition period. A clear difference in the periodisation strategy of daily training load dose was evident for the six coaches during the OGC. The profile of XD1* clearly represented a repeat step-type reduction in training load over the OGC (Day 2: –25%; Day 3: –24% Day 4: +36%; Day 5: –33%; Day 6: –32%; Day 7: –25%; Day 8: +50%; Day 9: –15%; Day 10: –11%).

DISCUSSION: As expected, training load for ITC was significantly higher than OGC, however individual players' training loads did not differentiate from each other. Differences in the six coaches' periodisation strategy were evident during the OGC. Daily training load profiles for coaches of XD1* and XD2 employed a step-type reduction over 3-days, followed by an increased training dose on day 4. This profile was repeated twice over the remaining days of the OGC. In contrast, coaches of MS and WS displayed an exponential reduction. Alternatively, coaches of MD and WD employed a combination of a step-type/exponential reduction.

PRACTICAL APPLICATIONS: The sRPE method enabled the training load quantification and determination of periodisation models in elite badminton players during an ITC and OGC. As acute training responses are directly linked to the magnitude of daily change in training load, coaches must consider the importance of the desired daily training load in meeting the periodisation model, thereby optimising the athletes' performance potential.