賽前、賽中、賽後定時補充碳水化合物對籃球比賽中、比賽後疲勞指標的影響

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摘要

Purpose: To evaluate the changes in fatigue indexes, such as blood urea nitrogen (BUN), creatine kinase (CK) and cortisol when competing in basketball games, as well as to investigate the effect of carbohydrate (CHO) supplementation on those fatigue indexes at pre-game, in-game and post-game periods. Methodology: 15 male division II collegiate basketball players were recruited as subjects. In this study, subjects were divided into 3 groups to complete three following experiments respectively in counterbalanced order: (1) No CHO supplementation, not participate in games (C). (2) No CHO supplementation but participates in games (G). (3) CHO supplementation and participate in games (DG). The three experiments were separated by a 7-day wash-out period. Venous blood samples were obtained from subjects to assess the level of BUN, CK, and cortisol at 20 minutes pre-game and in-game as well as 0, 60 and 120 minutes post-game respectively. Two-way repeated measures ANOVA were used to test the within and between treatment differences at different time points (α = .05). Results: The results revealed that (1) BUN significantly increased at 0, 60, 120 minutes post-game; however, CK and cortisol significantly increased at 20 minutes in-game, and 0, 60, 120 minutes post-game ($p<.05$). (2)

BUN level significantly decreased in DG (CHO supplementation) compare to G treatment at 20
minutes in-game, 0, 60 and 120 minutes post-game ($p<.05$). (3) Cortisol significantly decreased
at 20 minutes in-game, 0, 60 and 120 minutes post-game ($p<.05$); and no significant difference in
CK. Conclusion: BUN level increased after participate basketball games, CK and cortisol levels
increased during and after participate in basketball games. The results show that carbohydrate
supplementation before, during and after games can attenuate the BUN concentration at
post-game period, and inhibit the cortisol secretion during in-game and post-game periods,
however, carbohydrate supplementation has no significant effect on CK.

關鍵字：Blood urea nitrogen, Creatine kinase, Cortisol