

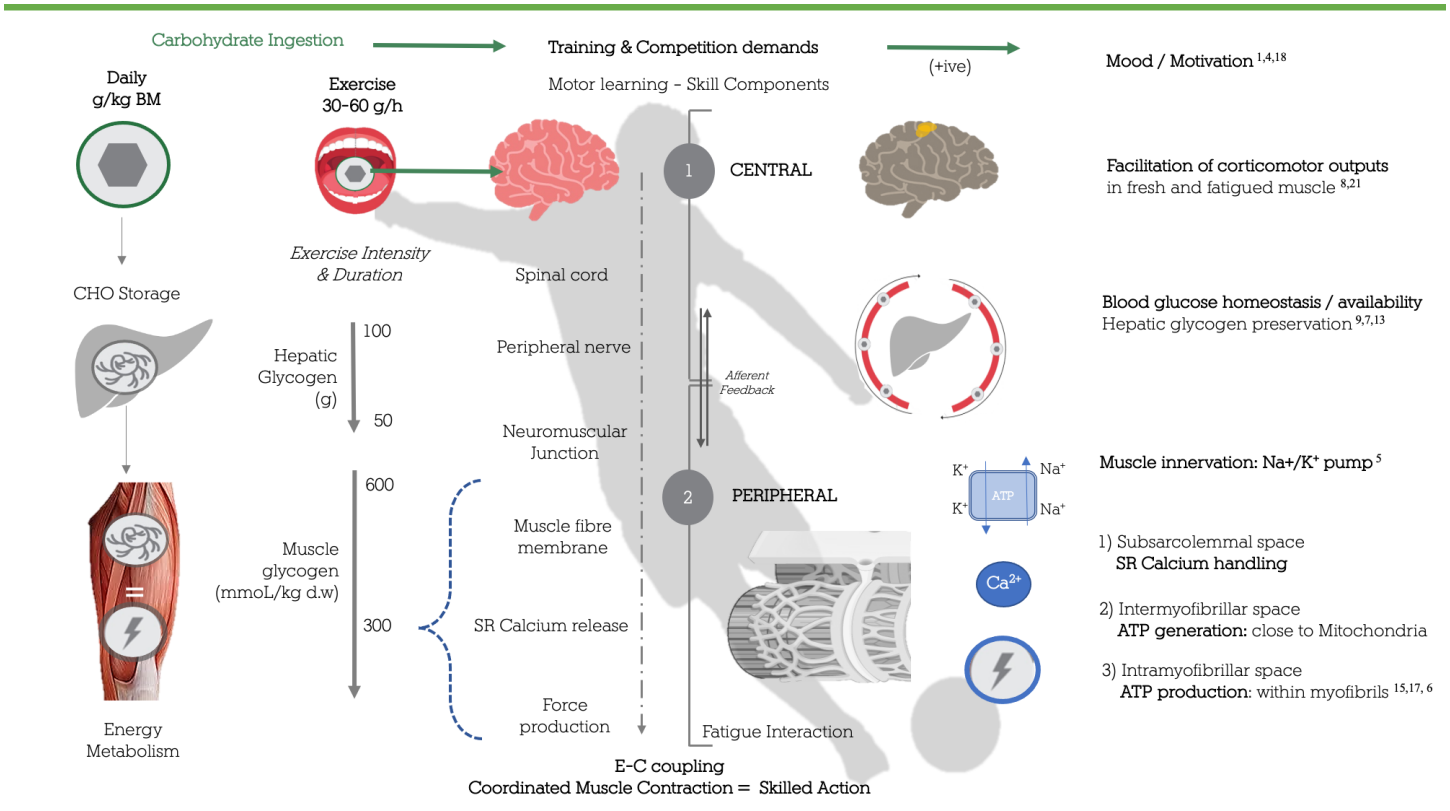
# CARBOHYDRATE NUTRITION AND TEAM SPORT PERFORMANCE: An Update and Focus on Skilled Actions

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The execution of skills is an integral element of team sport performance. Sport specific skills are acquired through hours of practice and rehearsal. Indeed, the successful completion of skilled actions, at speed and/or under pressure from opposing players, is likely a distinguishing factor between elite team sports players and their recreational counterparts.

Skilled actions are dependent on the appropriate synchronisation and recruitment of muscle to execute the desired outcome. The physical demands of team sport result in the depletion of endogenous glycogen stores which can negatively impact muscle function and the ability to maintain skill performance for the duration of exercise.<sup>16,14</sup> In addition, cognitive demands of team sport can also cause fatigue, negatively impacting skill performance.<sup>10,18</sup>

Experimental studies aim to replicate the demands of team sport, whilst embedding the assessment of skilled outcomes.<sup>3,11,19</sup> The ingestion of carbohydrate (30-60 g/h) before and during such studies is associated with the preservation of skill performance over the duration of exercise.<sup>2,12</sup> Interestingly, the effects of carbohydrate ingestion on skill retention in soccer appear most evident on non-dominant or unpreferred side. The mechanisms responsible are likely to be multi-factorial and interactive,<sup>20</sup> with carbohydrate providing substrate for both central and peripheral functions during exercise summarised below:



**Figure 1:** Influence of carbohydrate ingestion on muscle function and skilled actions during exercise. Excitation-Contraction (E-C), Sarcoplasmic Reticulum (SR), Calcium (Ca<sup>2+</sup>), Sodium (Na<sup>+</sup>), Potassium (K<sup>+</sup>), dry weight (d.w), Adenosine Triphosphate (ATP). lightning bolt = energy.

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## An Update and Focus on Skilled Actions

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