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Inter-limb asymmetries: methods of calculation, effects on physical performance and training strategies to reduce imbalances

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Inter-limb asymmetries refers to the performance of one limb in relation to the other and has been widely investigated in the sports science literature. The majority of literature has focused on injury risk and occurrence, with differences greater than ~15% suggested as a threshold where athletes may be at heightened risk. Interestingly, numerous methods of quantifying these between-limb differences have been identified and with multiple equations being proposed, it is challenging for practitioners to understand the most appropriate method for calculating these differences. Furthermore, despite the volume of literature pertaining to this topic, few have related their findings to physical performance measures. Of those that have, inter-limb differences in strength have reported a detrimental effect on jumping and sport-specific skills. When asymmetries have been quantified during jumping-based tasks, results are less conclusive with some studies showing a detrimental effect on change of direction speed and some not. Additional studies have calculated inter-limb asymmetries during sport-specific actions and again, shown mixed findings. Finally, the cumulative body of literature appears to lean towards a tendency that heightened inter-limb asymmetries may be detrimental to physical performance; thus, methods to reduce these between-limb differences have also been proposed.

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