THE EFFECTS OF HIGH INTENSITY WARM-UPS ON ATHLETES WITH DIAGNOSED EXERCISE INDUCED ASTHMA: A CRITICALLY APPRAISED TOPIC

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Data Sources: The following Boolean string, (Athletes) AND (EIA OR exercise induced asthma) AND (warm-up OR preparation) AND (reduce OR decrease), was utilized in the following sources; PubMed, CINAHL, ProQuest. Also, a hand search of previously reviewed literature for topic relevance.

Study Selection: Included studies examined differences in warm-up procedure in athletes with EIA, were rated at a level of 2 or higher, published in English, and limited to humans. Excluded articles focused solely on pharmacological differences in EIA preventions.

Data Extraction: Exercise induced bronchospasm (EIB) was quantified via peak expiratory flow rate (PEFR; L/min), forced vital capacity (FVC; L), forced expiratory volume in one second (FEV1; L/s), forced expiratory flow between 25-75% (FEF25-75%; L/s), and oxygen uptake (VO2; mL/kg/min).

Summary Measures: DeBisschop et al utilized the planned comparison test and the post-hoc test with a p<0.05. McKenzie et al used four separate ANOVA’s with a p<0.01 and a post-hoc with a p<0.05. Mickleburgh et al calculated the data using an ANOVA and a post-hoc test both using a p<0.05. Schnall et al utilized a paired t-test using the method of least squares.

Evidence Appraisal: Quality of evidence was evaluated according to the Centre for Evidence Based Medicine (CEBM) and the PEDro scale.

Search Results: 37 studies were retrieved and four studies met the inclusion and exclusion criteria for full review.

Data Synthesis: Meta-analysis was not conducted due to variance between outcomes of the included studies. Narratives and tabulations were used to summarize the data.

Evidence Quality: The CEBM classified all four studies at level 1-b; two studies received a PEDro score of 6/10 and the remaining reports were assigned a PEDro score of 8/10.

Conclusions: The data supports that those who performed a high-intensity interval warm-up experienced a period of bronchodilation thus reducing the chance of experiencing EIB. Specifically, participants who completed a long run as a warm-up protocol and experienced a decrease in breathing capacity were more likely to experience a bronchoconstriction versus participants that completed an interval warm-up. These findings also support that high-intensity interval warm-ups improve lung capacity thus decreasing the stress on the athletes’ pulmonary system. It can be concluded that a high-intensity warm-up is strongly recommended to aid in prevention of an EIB. To summarize the type of high-intensity warm-ups used, researchers recommend completing five to ten, 30-second sprints with one to two-minutes rest in between sprints, depending on how the athlete responds. The completion of high-intensity warm-ups, regardless of the activity the athlete will engage in, is essential to aid asthmatic athletes in preventing the occurrence of EIB.

Word Count: 447