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Do non-steroidal anti-inflammatory drugs improve sport performance? A meta-analysis of randomized trials

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NSAIDs are not included in

the World Anti-Doping

Agency (WADA) Prohibited

List, by lack of evidence that

they improve sports

performances. Since

published studies are of

poor quality and design, no

conclusion can be drawn.

Objective:

To perform a systematic review and meta-analysis of studies which evaluated the effect of NSAIDs on the athletic performances, i.e. maximum performance, time to exhaustion, and pain.

Material and methods:

Databases were searched for randomized trials involving healthy males and females, untrained or athletes, from any setting.

The intervention included NSAIDs (including aspirin), against any control. The primary outcome was the maximal performance (as defined in each study). The secondary outcomes were the time until self-reported exhaustion and the self-reported pain.

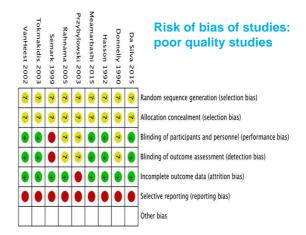
Results:

8 parallel group studies and 5 crossover studies were found, totaling 178 & 75 subjects respectively. 5 parallel group studies and 2 crossover studies tested an acute dosage, and 4 parallel group studies and 3 crossover studies tested a longer period of treatment. The dosages and drugs were very disparate. There was neither significant difference in the maximum performance between groups, nor in the time until exhaustion. Self-perceived pain was significantly lower in the NSAIDs group than in the control group.

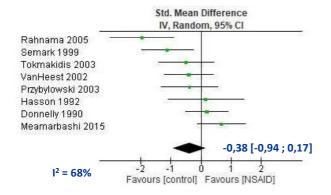
Introduction:

Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) are commonly used in sports medicine. NSAIDs are over-the-counter drugs and NSAIDs are frequently taken at high doses by athletes with unrestricted access. Severe adverse effects were reported such as acute renal failure, and gastro intestinal disorders.

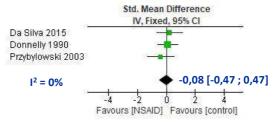
NSAIDs are not considered as performance enhancing drugs and are not included in the World Anti-Doping Agency (WADA) Prohibited List



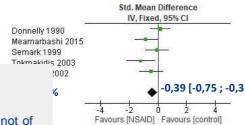
Maximal performance: parallel group studies



Time until exhaustion: parallel group studies



Self-perceived pain



Discussion / Conclusion:

Our meta-analysis does not allow concluding on the existence or not of an ergogenic effect of NSAIDs on sport performance, since the quality of the studies is low, the doses tested, and the exercises performed are very heterogeneous and far from those observed in real-life practices. However, the health risks for athletes is real and we recommend the conduct of new trials, adequately sized, methodologically sound, using adequate dosage in a real-life setting.

