THE ROLE OF SPECIALIZED PRO-RESOLVING LIPID MEDIATORS IN THE TREATMENT OF INFLAMMATION CAUSED BY EXERCISING: A SYSTEMATIC REVIEW

Morales Velázquez A[1], Escobar Juárez Y[1], Díaz Álvarez O[1], Soto Molina H[1], Guzmán Vázquez S[1]
[1]HS Estudios Farmacoeconómicos S.A. de C.V., Mexico City, México, [2]Instituto Politécnico Nacional, Mexico City, México.

Eccentric training can cause muscle damage, and increase the risk of lesions due to the inflammatory process, specialized pro-resolving lipid mediators (SPMs), which are endogenous chemical mediators that consist of four groups (lipoxins, resolvins, protectins, and maresins) and have anti-inflammatory properties.

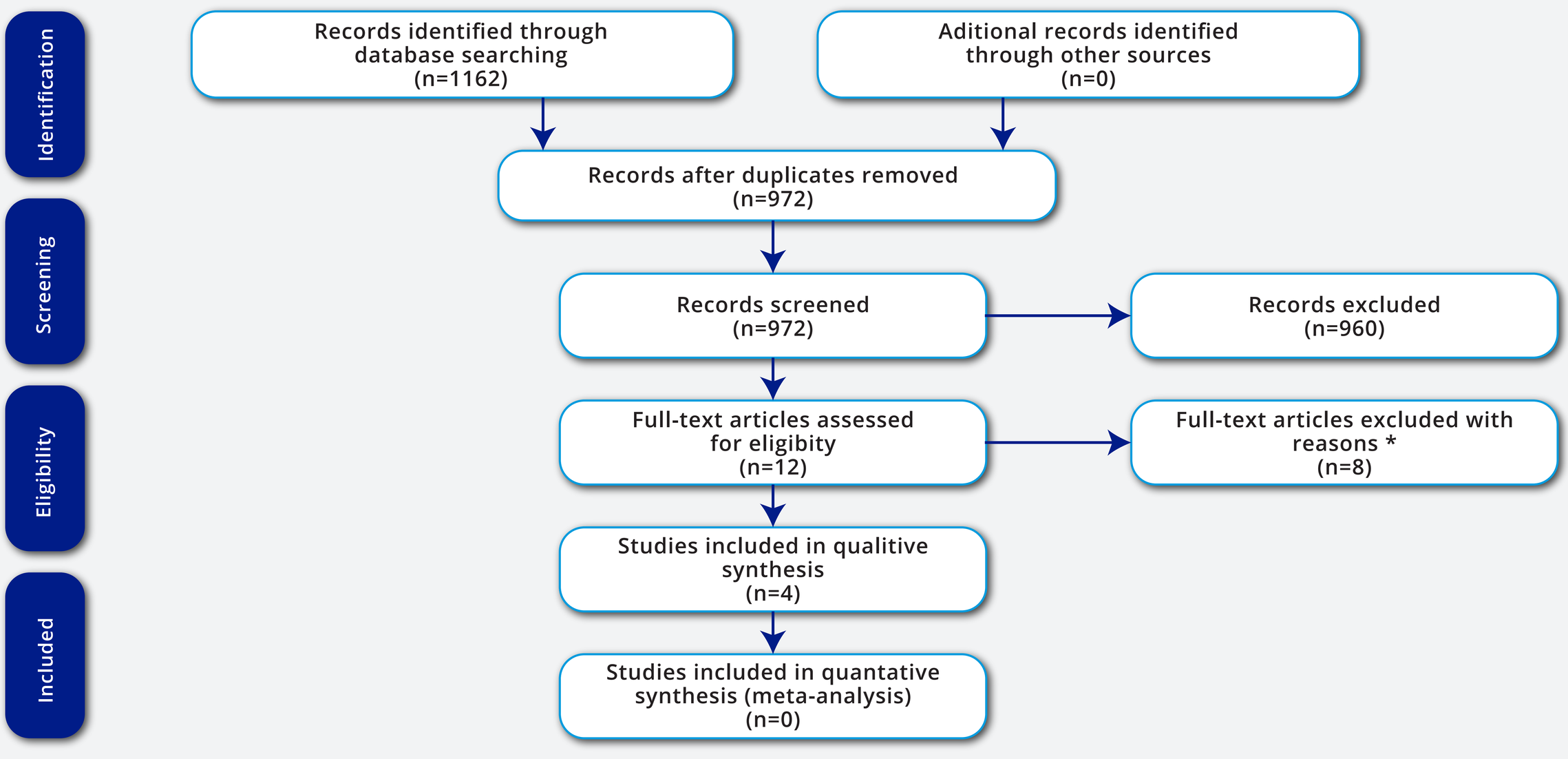
Objective:

To demonstrate potential benefits on post-exercise recovery by the induction through omega-3 polyunsaturated fatty acids (PUFA N-3) intake of SPMs.

Methods:

An exhaustive search of studies that reported the supplementation of SPMs in people who exercise was carried out, using the Cochrane method. Full-text publications of randomized clinical trials (RCTs) and non-randomized trials (NRT), published in English and Spanish until April 10, 2019, were taken into account. Quality assessment of the retrieved studies was performed using the Cochrane Tool of Risk of Bias for RCTs and the ROBINS-I (Risk Of Bias In Non-randomized Studies of Interventions) tool for NRT.

Figure 1: PRISMA Flow Diagram



*intervention (n=3), sample (n=1), design type (n=4)

Results:

1162 articles were located in the databases, of which was carried out, only 4 RCTs and 2 NRTs met inclusion criteria, a total of 208 patients. In these, results 90 were duplicates. Once the screening of titles and abstracts showed changes in the levels of inflammatory cytokines and the presence of SPMs after the intake of PUFA N-3. Another important parameter that was observed was an increase in the concentration of fatty acids in plasma. Both RCTs and NRTs showed beneficial effects in reducing inflammation and increase fatty acids compared to control groups. The quality of the studies was classified as medium quality using the Cochrane Bias Risk Tool and ROBINS-I respectively.

Conclusions:

The evidence shows the benefit of PUFA N-3 administration in a decrease of inflammation markers associated with muscle damage in people who exercise, so it can be considered as an alternative therapy for Inflammation control.