



## Editorial

# Physical Activity and Asthma



Physical activity is defined as any body movement produced by the skeletal muscles that requires energy expenditure. This term should not be confused with exercise, which is a variety of physical activity that is previously planned and structured, usually repetitive, and performed with the clear intention to improve or at least maintain 1 or more components of physical fitness.<sup>1</sup> Physical activity therefore encompasses exercise, but also includes other basic activities of daily living that require body movement, such as certain types of work, active forms of transport, household chores, and recreational, leisure, and play activities.

According to data from the World Health Organization (WHO), physical inactivity is the fourth most important risk factor for mortality, accounting for 6% of deaths worldwide.<sup>1</sup> This inactivity is due in part to a sedentary lifestyle at work and at home, lack of activity during leisure, and the increased use of passive modes of transport. Approximately 23% of adults in the general population are physically inactive,<sup>1</sup> and the percentage increases in the asthmatic population, with 3 out of 10 adult asthmatics in Spain failing to meet the minimum recommendations.<sup>2</sup>

There is a direct relationship between physical activity and cardiorespiratory and metabolic health.<sup>3</sup> When practiced regularly, it has been shown to reduce the risk of coronary heart disease and stroke, type II diabetes, high blood pressure, colon cancer, breast cancer, and depression. Risk reduction is achieved at a minimum of 150 min of moderate or intense activity per week. Increased activity provides additional health benefits, but there is no evidence that benefits increase after 300 min/week.<sup>1</sup>

The relationship of physical activity with respiratory health and asthma has also been widely studied. Several authors have shown that regular physical activity reduces the risk of developing asthma over a 10-year follow-up,<sup>4</sup> reduces lung function decline, regardless of smoking,<sup>5</sup> and decreases bronchial hyperresponsiveness.<sup>6</sup> Furthermore, as the baseline activity level increases, the risk of asthma exacerbations decreases significantly<sup>7</sup> and clinical control improves.<sup>8</sup> Mancuso et al. conducted a very simple study of 256 primary care patients with mild and moderate persistent asthma to evaluate the effect of increased baseline physical activity on disease control. At the beginning of the study, all patients were informed about the benefits of physical activity, and were given a pedometer and a program designed to increase their baseline levels in daily life, which in most cases was a simple matter of walking more. At 12 months, significant improvements in physical activity levels were

observed, accompanied by significant improvements in the clinical control of their asthma (from 38% at baseline to 60% at the end of the study).<sup>8</sup>

Most studies published to date focus on evaluating the effect of different training programs, supervised by professionals and conducted in health centers, in patients with more severe asthma, or with poor disease control, and report important benefits in the different indicators. For example, both aerobic training programs<sup>9</sup> and high-intensity interval training (also known as HIIT)<sup>10</sup> of at least 12 weeks' duration in patients with moderate and severe persistent asthma have demonstrated statistically significant improvements in clinical control and quality of life in asthma patients, measured with validated questionnaires. For this reason, some authors, after confirming these findings in different reviews, argue that respiratory rehabilitation units should offer programs of this type to the most severe asthmatics, regardless of their degree of bronchial obstruction, even before starting monoclonal antibody treatments.<sup>11</sup>

Physical activity training has also been shown to have a beneficial impact on both nocturnal symptoms<sup>12</sup> and asthma exacerbations.<sup>13</sup>

Nevertheless, some individuals with a diagnosis of asthma continue to avoid exercise because of a sensation of shortness of breath or worsening symptoms during exercise, or simply because they fear experiencing such symptoms. Others may have a negative attitude to exercise for other reasons, including organizational policies, family beliefs, health advice, or a misinterpretation of symptoms.<sup>14</sup> Low levels of physical activity result in low levels of physical fitness, which can cause peripheral muscle deconditioning. This deconditioning can lead to peripheral muscle atrophy and, consequently, to a greater sensation of shortness of breath.

Healthcare providers should therefore be aware of the importance of promoting regular physical activity in the control of respiratory diseases. In this regard, it would be very useful for educational asthma programs to include advice on avoiding a sedentary lifestyle and to promote WHO recommendations as part of the non-pharmacological treatment of the disease, as already contemplated in other obstructive respiratory diseases.<sup>15</sup> Aerobic training programs should also be considered in the most severe patients, particularly those with poor clinical control, regardless of their degree of airflow obstruction.

## Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at [doi: 10.1016/j.arbres.2022.03.028](https://doi.org/10.1016/j.arbres.2022.03.028).

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