

Asthma and Sport

Astım ve Spor

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ABSTRACT Asthma is a chronic inflammatory disease of the airways. One of the physical stimuli that trigger symptoms in patients with asthma is exercise. Airway hypersensitivity, which is the most important feature of asthma, is more common in endurance athletes, especially in winter sports participants and swimmers than the general population. Most patients avoid doing physical activity in their daily life due to exercise-induced bronchospasm. On the other hand, exercise has positive effects on the airways in people with asthma. Exercise-induced bronchospasm is frequently seen in asthmatic athletes due to exercise. Apart from athletes, most asthma patients tend to avoid physical activity in their daily lives due to exercise-induced bronchospasm. However, regular exercise has positive effects on airway in patients with asthma. Exercise training also reduces the risk of asthma exacerbations, improves exercise capacity, and decreases frequency and severity of exercise-induced bronchospasm. Recent studies show that moderate exercise will be one of the treatment options for asthma patients. By suggesting aerobic exercises such as walking, swimming, cycling to individuals with asthma, which is under control (controlled by health professionals), an asthmatic individual can be ensured to live a normal life like other healthy people.

Keywords: Asthma; exercise; bronchospasm; exercise-induced bronchoconstriction; athlete

ÖZET Astım, solunum yollarının kronik bir inflamatuvar hastalığıdır. Astımlı hastalarda, semptomları tetikleyen fiziksel uyarılardan biri egzersizdir. Astımın en önemli özelliği olan havayolu aşırı duyarlılığı, dayanıklılık sporcularında özellikle kış sporları katılımcıları ve yüzücülerde genel nüfusa göre daha yaygın olarak görülmektedir. Çoğu hasta, egzersize bağlı bronkospazm nedeniyle günlük yaşamlarında fiziksel aktivite yapmaktan kaçınır. Öte yandan egzersizin, astımlı olan kişilerde solunum yolları üzerinde olumlu etkileri vardır. Egzersiz nedeniyle egzersize bağlı bronkospazm, astımlı sporcularda daha sık görülür. Sporcular dışında, çoğu astım hastası egzersize bağlı bronkospazm nedeniyle günlük yaşamlarında fiziksel aktiviteden kaçınma eğilimindedir. Bununla birlikte düzenli egzersizin, astımlı olan hastalarda havayolu üzerinde olumlu etkileri vardır. Egzersiz eğitimi aynı zamanda egzersiz kapasitesini artırır, astım alevlenmesi riskini ve egzersize bağlı bronkospazmın sıklığını ve şiddetini azaltır. Son çalışmalar, orta şiddette egzersizin astım hastaları için uygun tedavi seçeneklerinden biri olacağını göstermektedir. Astımlı bireylere yürüme, yüzmeye, bisiklete binme gibi aerobik egzersizler (sağlık profesyonellerinin kontrolleri altında) önerilmektedir. Astımlı bir bireyin diğer sağlıklı insanlar gibi normal bir yaşam sürmesi sağlanabilir.

Anahtar Kelimeler: Astım; egzersiz; bronkospazm; egzersize bağlı bronkospazm; atlet

Asthma is a chronic inflammatory disease characterized by increased airway sensitivity to various stimuli and reversible airway obstruction.¹ Asthma affects approximately 250-300 million people worldwide; hypersensitivity of the bronchi, airway obstruction, recurrent wheezing, dyspnea, chest tightness, a chronic inflammatory disorder of the airways characterized by cough, especially at night and early in the day.² Allergens, cold weather, exercise, infections, air pollutants and some medications provoke asthma. Asthma symptoms can be provoked or worsened by exercise. This situation

reduces physical activity and participation in sports and leads to cardiorespiratory dysfunction.

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The persistence of the poor condition leads to less intense physical activity and worsening exercise tolerance and asthma symptoms. Pharmacological treatment can prevent exercise-induced bronchoconstriction and associated symptoms, but individuals with moderate to severe asthma should be directed to pulmonary rehabilitation programs to increase exercise tolerance. Studies on exercise train-

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ing reveal that increases in cardiorespiratory endurance and work capacity and decreased exercise dyspnea, but little or no effect on resting pulmonary functions.³ Many recent randomized controlled studies have demonstrated that exercise training can reduce airway inflammation, asthma severity, the number of symptom days, the number of visits to the emergency room, anxiety and depression symptoms, and also improves health-related quality of life.^{4,5}

Especially recommended sport for asthmatic athletes are swimming sports. Exercise in a humid environment does not provoke bronchospasm. Breathing in the water and breathing underwater while swimming is a good breathing exercise for individuals with asthma. Although diving is not recommended in asthmatics, cycling, long-distance running, skiing, ice hockey, football and basketball are accepted as high-risk sports. Volleyball, wrestling, weightlifting, tennis, short-distance races are among low-risk sports.

Severity, controllability, lung capacity and preference of the asthmatic child play an important role in the selection of sports. Many parents think that when their children are diagnosed with asthma, this disease is a lifelong illness that lasts a lifetime and prevents their child from participating in sports. However, because the child with asthma becomes inactive for this reason, weight gain and asthma symptoms become evident. According to the researches, approximately 10-20% of professional athletes are asthmatic. It can be claimed that most asthmatic athletes won medals in the summer olympics of 1984-1996 and in the winter of 1998, as evidence that asthma does not prevent sports activities.⁶ Exercise-induced bronchospasm does not limit exercise performance if symptoms can be well controlled by non-pharmacological methods and appropriate prophylactic drugs. It should be noted that despite asthma, athletes such as David Beckham, Paul Scholes, Frank Lampard (football), Dennis Rodman (basketball), Justine Henin (tennis), Paula Radcliffe (marathon), Şahika Ercümen (diving), Marit Bjoergen (skiing) have gained international fame in their sports branches.

EXERCISE PRESCRIPTION FOR ASTHMA

AEROBIC EXERCISE

Frequency: At least 2-3 days a week

Intensity: Exercises should be done at least 60% of VO_{2peak} or 80% of the maximal walking speed determined from the 6-minute walking test.

Time: At least 20-30 minutes in a day.

Type: Aerobic activities using large muscle groups (walking, running, or cycling). Swimming (for choice in a nonchlorinated pool) is less pathogenic, and therefore a better-tolerated form of exercise.⁷

Progression: After four weeks, if exercises can be tolerated, the intensity can be increased to 70% $maxVO_2$. The exercise time can be increased to 40 minutes, and the frequency to 5 days a week.⁷

Resistance Exercise: The same frequency, intensity, type, time protocol principles can be followed in resistance training and flexibility like in healthy individuals.

SPECIAL CONSIDERATIONS FOR ASTHMATIC ATHLETES

Individuals who experience exacerbations in their asthma should not exercise until their symptoms and respiratory functions improve. Bronchodilators may be required before or after exercise to prevent or treat exercise-induced bronchoconstriction.⁷ Treated for a long time with oral corticosteroids, individuals may experience peripheral muscle weakness and benefit from strength training. Breathing through the nose while exercising is effective in reducing exercise induced bronchospasm.⁸ In addition, wearing a mask while exercising is effective in reducing exercise induced bronchospasm, such as nose breathing.⁹ Warm-ups before exercise increases bronchial blood flow and helps to keep the airways moist.¹⁰ Exercise should be limited in cold environments or in the environment with airborne allergens or pollutants to avoid triggering bronchoconstriction in susceptible individuals. Exercise-induced bronchoconstriction can be triggered by long exercise times or high-intensity exercise sessions.

CONCLUSION

Today, the prevalence of asthma is increasing both in the general public and elite athletes. Although exercise is an important trigger in asthmatic patients, exercising sports such as swimming, walking, jogging and cycling by paying attention to exercise principles have positive effects on patients' symptoms, physical activities and quality of life. For this reason, sports counseling services should be provided in asthmatic patients and patients should be encouraged to perform appropriate physical activities. On the other hand, anamnesis and physical examination are not sufficient in the diagnosis of exercise-induced asthma, and further tests such as exercise tests are needed. Asthmatic athletes have been extremely successful in sports in the past. The main point here is the health and drug records of athletes with asthma and which they are using in order to be protected from doping.¹¹ In addition, all patients (athlete and sedantary) with asthma should be supported by health professionals emphasizing that there will be a decrease in com-

plaints, benefits in general health and an increase in their quality of life with regular exercise.

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Conflict of Interest

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Authorship Contributions

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