

ciated with higher percent-predicted forced expiratory volume in 1 second (FEV₁) and forced vital capacity (FVC). These researchers sought to establish the relationship between serum vitamin D levels, pulmonary function, and asthma control.

STUDY POPULATION. This was a cross-sectional analysis of Italian children aged 5 to 11 years with asthma (intermittent or persistent) consecutively evaluated at a university hospital-based outpatient clinic in Verona, Italy, in the winter and spring of a single year.

METHODS. Asthma control was classified according to the Global Initiative for Asthma (GINA) guidelines. Children and parents completed the Childhood Asthma Control Test questionnaire. Pulmonary-function testing was performed according to American Thoracic Society guidelines. A single measurement of each child's serum vitamin D level (25-hydroxy cholecalciferol) was obtained.

RESULTS. Of the 75 asthmatic children, 7 (9.4%) had sufficient vitamin D levels (≥ 30 ng/mL), 28 (37.3%) had insufficient levels (20–30 ng/mL), and 40 (53.3%) had deficient levels (< 20 ng/mL). A statistically significant positive correlation ($P = .011$) was found between serum levels of vitamin D and asthma-control scores according to the questionnaire. Serum levels of 25-hydroxyvitamin D were associated with percent-predicted FVC ($P = .04$), but correlation between percent-predicted FEV₁ and vitamin D levels was not significant.

CONCLUSIONS. Deficient and insufficient vitamin D serum levels were found in most asthmatic children in this study. There was a positive association between vitamin D levels and asthma control, and it was observed that lower vitamin D levels were associated with reduced asthma control. These data suggest that higher vitamin D levels are positively associated with pulmonary function, particularly FVC; however, the correlation is relatively weak.

REVIEWER COMMENTS. This study raises the question of whether vitamin D deficiency negatively affects asthma control and pulmonary function. Although the cross-sectional design reveals a correlation between vitamin D insufficiency/deficiency and poor asthma control, it does not prove a causal relationship. As suggested by the authors, interventional studies are warranted to evaluate the effect of vitamin D supplementation in poorly controlled asthmatic patients.

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Swimming Pool Attendance, Asthma, Allergies, and Lung Function in the Avon Longitudinal Study of Parents and Children Cohort

Font-Ribera L, Villanueva CM, Nieuwenhuijsen MJ, Zock JP, Kogevinas M, Henderson J. *Am J Resp Crit Care Med.* 2011;183(5):582–588

PURPOSE OF THE STUDY. Several retrospective studies have identified attending chlorinated swimming pools during childhood as a risk factor for developing asthma and allergies later in life. These researchers collected data on a large birth cohort of children in the United Kingdom.

STUDY POPULATION. Data were available for 5738 children from an initial cohort of 14 062 live births.

METHODS. Data on swimming were collected by questionnaire at ages 6, 18, 38, 42, 57, 65, and 81 months. Data on asthma and allergic conditions were collected at 7 and 10 years. Spirometry and allergy skin testing were performed between the ages of 7 and 8 years. Multiple confounders were considered in the statistical models.

RESULTS. Fourteen percent of the children swam before 4 years of age, and 50% attended pools at least once per week between 4 and 7 years of age. From birth to 7 years of age, children with a high versus low cumulative swimming-pool attendance rate had an adjusted odds ratio of 0.88 (95% confidence interval [CI]: 0.56–1.38) and 0.5 (95% CI: 0.28–0.87) for asthma ever and current asthma, respectively, and a 0.2-SD (95% CI: 0.02–0.39) increase in forced midexpiratory flow. Children with a history of asthma ever, with a high versus low cumulative swimming exposure rate, had an odds ratio of 0.34 (95% CI: 0.14–0.80) for current asthma at the age of 10 years.

CONCLUSIONS. Among those with previous asthma, swimming was associated with decreased asthma symptoms at the age of 10 years. It was also associated with increased lung function at 7 years of age. Swimming did not affect the incidence of asthma.

REVIEWER COMMENTS. The results of this study are a nice addition to the previously available data regarding the impact that exposure to swimming pools and their chemical irritants has on asthma. Swimming was not found to increase asthma or asthma symptoms; in fact, it was protective in some aspects. One weakness of this study was its inability to determine if swimming was linked to other healthy lifestyle characteristics that affected the outcomes.

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