The prevalence of allergen sensitization reaches up to 46.6% in 14- to 17-year-old German adolescents. Polysensitization is strongly associated with a higher risk of allergic rhinitis or asthma. Whether or how sensitization also is related to lung function remains uncertain. To assess whether sensitization to common inhalant allergens is associated with lung function in adolescents after stratification by allergic respiratory disease. In total, 1,719 15-year-old participants of the German Infant Study on the Influence of Nutrition Intervention plus Air Pollution and Genetics on Allergy Development (GINIplus) birth cohort provided valid spirometric indices, including forced expiratory volume in 1 second, forced vital capacity (FVC), forced expiratory flow rate at 25% to 75% of the FVC, and specific immunoglobulin E (IgE) screening test to 8 inhalant allergens (ImmunoCAP). Complete information on allergic rhinitis and asthma status was available for 1,128 subjects. Associations between lung function parameters and sensitization, classified into 4 groups (no sensitization to polysensitization) were analyzed using adjusted linear regression models. Among participants, 21.1% (n = 347) had allergic rhinitis, 10.1% (n = 119) had asthma, and 46.4% (n = 798) had a
positive screening test to inhalant allergens. Prevalences were consistently higher in boys. The percentage of subjects with rhinitis or asthma increased from 5.8% in non-sensitized subjects (n = 620) to 69.4% in polysensitized subjects (n = 144). Sensitization was not associated with any spirometric parameter considered in subjects with allergic rhinitis, asthma, or neither disease. Although allergen-specific IgE concentrations can contribute to the identification of subjects at higher risk for allergic rhinitis and asthma, sensitization to inhalant allergens is not related to impaired spirometric lung parameters within the different allergic respiratory disease subgroups.