PURPOSE: To investigate the Epstein-Barr virus (EBV) serostatus in an athletic endurance population, especially the prevalence of complex aberrant EBV antibody patterns. In addition, the purpose was to determine whether serology in athletes is more complex than in the general population. METHODS: The study protocol included serological testing of 202 advanced endurance athletes (biathlon, cycling, nordic skiing (state to international level); mean age 19 +/- 4) and 200 control subjects (mean age 23 +/- 2). Twenty-microliter serum samples were examined using a strip immunoassay with antigens produced by recombinant techniques for detection of EBV IgG antibodies: anti-EBNA-1 (anti-EBV nuclear antigen-1), anti-p18, anti-p23, anti-p138, anti-p54, and anti-BZLF-1. Avidity determination was used to differentiate further between acute, recent, and past infections. RESULTS: Athletes showed 35 negative (17%), 6 unresolvable (3%), 1 acute (0.5%), 11 recent (5%), 122 past (61%), and 27 aberrant past (mainly anti-EBNA-1 negative) (13.5%) cases. The control group showed 31 negative (16%), 4 unresolvable (2%), 1 acute (0.5%), 1 recent (0.5%), 135 past (68%), and 28 (14.0%) aberrant past cases. Although endurance athletes included more recent infections (several months since acute infection), there was no significant difference (P = 0.144) in the total constellation of EBV serostatus between the groups.
CONCLUSION: No evidence was found for the assumption that endurance athletes are more susceptible to EBV infections than the general population. In addition, no differences were found with respect to serological classical and aberrant complicated patterns between athletes and the control group. Those cases that may lead to false diagnoses of acute EBV infection in previously used test systems because of a negative anti-EBNA-1 are common in both groups but were unambiguously resolved by the Recomline EBV IgG test applied here.