

## Japan finds risk factors associated with waning immunity of Pfizer vaccine

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**Sex, age and smoking were studied as risk factors for lower antibody titres at 6 months**

New research from Japan, led by Jichi Medical University, has found several risk factors associated with greater waning immunity after vaccination. Old age and smoking were amongst those with some of the lowest antibody titers. Women more than men were also more likely to experience a rapid decline in antibody levels 3 to 6 months after receiving their second Pfizer-BioNTech dose.

Older adults had significantly lower antibody titer levels, with almost half of those seen in people in their 20s. This indicates that antibody titers decreased more as ages increased from 20s to 70s.

All participants were from a single national hospital in Japan, which raises the question of generalizability for both the rest of Japan and the world.

The research team only wanted to view vaccine-induced immunity, so they excluded participants with antibodies against nucleocapsid proteins because they assumed it meant these people had immunity after recovering from infection. However, some excluded patients showed no instance of waning immunity against the spike protein but were negative for antibody protection against SARS-CoV-2 nucleocapsid proteins.

Further studies of the associations between Ab titres and the comprehensive medical histories of individuals are needed to establish a more personalized approach to vaccination involving earlier boosters, different schedules, or different types of vaccines.