

# How a virus might make you diabetic later in life

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Cytomegalovirus (CMV) is one of the viruses that most infected people carry without ill effects. Once infected you are infected for life and, although it normally is dormant, it can become active again at any point in time. New research published in BioMed Central's open access journal *Immunity and Ageing* shows that CMV infection is a significant risk factor for the type 2 diabetes in the elderly.

Obesity, inactivity and aging are known to be associated with insulin resistance, one of the first signs of incipient diabetes. However only a third of those with [insulin resistance](#) go on to develop type 2 diabetes. So what marks these people as different? Why do their pancreas' fail? Genetic and environmental factors are thought to play a part but so also does inflammation. People with type 2 diabetes usually have raised levels of biological markers for inflammation such as elevated CRP and larger numbers of active [white blood cells](#).

Chronic infections including CMV can 'stress' the immune system and when researchers from Leiden University Medical Centre and University of Tübingen Medical School compared [glucose regulation](#) with antibodies to CMV (or CMV seropositivity) in over 500 participants of the Leiden 85-plus Study they found that having CMV was associated with type 2 diabetes.

The researchers suggest that CMV could be either acting directly on [pancreatic cells](#) or indirectly by causing the immune system attacking the pancreas. Dr Andrea Maier, who led the investigation explained, " In our

study we realised that although CMV seropositivity was associated with [type 2 diabetes](#), higher levels of HnA1c and high non-[fasting glucose](#) the actual level of antibodies against CMV was not. "

This study is looking at the effect of CMV on the very old. By their very nature these people have had longer to become infected with CMV and have low risks for other factors which are linked to diabetes or to cardiovascular disease. While it may not be possible to extrapolate these findings to the general population it seems likely that finding a way to overcome CMV infections may reduce diseases, such as diabetes, later in life.

**More information:** Cytomegalovirus seropositivity is associated with glucose regulation in the oldest old. Results from the Leiden 85-plus Study Sijia Chen, Anton JM de Craen, Yotam Raz, Evelyn Derhovanessian, Ann CTM Vossen, Westendorp GJ Rudi, Graham Pawelec and Andrea B Maier *Immunity & Ageing* (in press)

Provided by BioMed Central

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