Eukaryotic DNA damage response is an important mechanism which ensures genome stability. Its components are also mobilized during viral infection as a reaction against extraneous nucleic acid. Additionally, DNA repair machinery seems to be activated by some viruses purposely to provide their replication. This activation is mediated mainly by viral proteins which are able to interact with cellular factors. In many cases, key components of DNA damage mechanisms are associated with viral replication centre and likely participate in this process. Furthermore, cellular DNA damage signaling is exploited to provide competent environment for viral reproduction. However, particular mechanisms how these cellular factors participate in viral infection are still largely unclear. In this thesis, the principles of relationship between viral infection and eukaryotic DNA damage response are summarized and main viral families which are known to activate and utilize these mechanisms for its genom replication are described.