The last fifty years of research on visual fatigue are surveyed, with special emphasis on results that may be important in the context of driving. Over that time, ideas about visual fatigue have varied, ranging from a broad application of the label *eyestrain*, to virtually any visual complaint (including poor acuity), to more specific applications of the term to mean visual discomfort associated with lengthy near-vision tasks. Much of the research reviewed concerns visual fatigue in the workplace, and places particular emphasis on extended use of video displays. One consequence of this emphasis on specific workplace circumstances is that substantial portions of the work on visual fatigue may not be fully applicable to driving. The mechanisms developed to explain workplace visual fatigue may not be strongly engaged in driving. This is especially likely for research that links visual fatigue to oculomotor changes in vergence and accommodation after near work. Visual fatigue in driving is likely to be more strongly related to mechanisms such as ocular surface irritation that may occur as a consequence of eyelink suppression, or to declines in arousal level that may occur over the course of a lengthy drive. Research directions on possible links between visual fatigue and vehicle lighting are discussed, along with options for measurement.