Peripheral Perception

The normal aging changes the characteristics of sleep, which becomes more fragmented and less deep (Garma et al., 1981; Salzarulo & Giganti, 2011). The poor quality of sleep can increase the sleepiness during wakefulness and negatively affect on performances. Generally, drowsiness causes reduction of vigilance and increase of sense of fatigue. It should be considered that most older adults are still driving in order to maintain their mobility and autonomy, even if the age-related behavioral and physiological changes could make driving more difficult (Ball & Owsley, 1991). Older drivers have more accidents per miles driven than any other age group (Owsley et al., 1991) and several studies reported a relationship between driver's performance and the visual function (Ball et al., 1988; Ball et al., 1990; Rogé et al., 2003; Scialfa et al., 1987; Sekuler & Ball, 1986). In particular, it seems that elderly people have a peripheral vision loss that is related to a stricture of useful visual field (Rogé et al., 2003). It has been demonstrated that in older people the risk of accident is higher when the useful visual field is reduced by 40% (Rogé et al., 2003). In fact, the measurement of the useful visual field is one of the most reliable factor to predict the road accidents in older drivers (Ball et al., 1990; Myers et al., 2000; Owsley, 1994; Owsley et al., 1998; Owsley & McGwin, 1999; Rogé et al., 2003). In other words, the size of the visual field and, specifically, the peripheral vision, seems to be a key element to investigate the car driving. It should be underline that some studies evidenced a relationship between tunnel vision phenomenon (i.e., the reduction in peripheral vision) and the arousal levels (Rogé et al., 2002; 2003). More directly, it was observed that peripheral vision is reduced in monotonous simulated driving tasks and is affected by aging factor (Rogé et al., 2004). In light of these considerations, one of the goal of the present project is observing in which measure diurnal drowsiness may affect on performance in a peripheral perception task, in aging people who complain scarce quality of sleep.