This review article is undertaken on behalf of the European Agency for Safety and Health at Work (EU-OSHA). It examines some key questions concerning the use/abuse of pharmacological drugs for the purposes of cognitive enhancement in the context of employment and the workplace. ‘Cognitive enhancing drugs’ are substances claimed to improve mental performance, such as focus, concentration, memory or motivation. ‘Performance enhancing drugs’, as a broader category, also includes claims to improve the acquisition of motor skills, deal with anxiety, or promote affiliation. No drugs are currently specifically licensed for such purposes. Yet there is evidence of drugs meant for other medical conditions (e.g. modafinil usually prescribed for narcolepsy; methylphenidate for Attention Deficit Disorder) increasingly being used for purposes of performance enhancement. Ascertaining quantitative measures of prevalence is difficult, particularly due to non-prescribed use. However, certain groups have been particularly associated with the use of cognitive enhancing drugs, including students (to augment study); shift-workers and transportation workers (to promote wakefulness); and employees in the City (to cope with high-pressure demands). The effects of these drugs are contested, for both short and long term usage, including their addictive potential. In considering the effects of the drugs, it is important to note that research shows that although there may be improvements in the performance of some cognitive tasks, the performance of others may be degraded. As well as cognitive and physiological effects, social/emotional effects may also impact on work performance, for example where increased focus on a specific task negatively affects team work. Thus, there are a number of important health and safety considerations. These include: the possible health risks associated with non-medically supervised use; drug-use causing individual over-confidence which poses implications for safety-critical environments; normalised use of these drugs leading to increased working hours and work intensification with associated health and safety risks, e.g. employee burnout and unforced errors. In relation to the management of health and safety, cognitive enhancing drugs present issues for workplace drug testing and welfare/health provision. Typically drug-use has been perceived as linked to recreation or addiction, and seen as separate from but detrimental to work. In contrast, the use of cognitive enhancing drugs is directly related to attempts to improve work performance. Existing approaches which treat drug use as a disciplinary or counselling matter, rather than addressing its roots in the demands of work performance, will need to be reconsidered. The use of performance enhancing drugs in the workplace represents a dynamic and evolving issue. Various new pharmaceuticals with cognitive enhancing potential are undergoing research, and there is an increasing interest and concern in the media and various professional bodies about the potential and consequences of these developments. Thus there is a growing need for the formulation of health and safety policy and practice that specifically addresses this area.