

## Educational methods in neuroanatomy: a review

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Among the basic sciences providing relevant medical awareness, human anatomy, which includes gross and neuroanatomy, represents a crucial science in medical schools (Verhoeven et al., 2002). Although numerous changes have been performed in medical curricula worldwide, the anatomic background is deemed a cornerstone for approaching clinical medicine (McLachlan and Patten, 2006). In the last decades, several modifications in anatomy and, in particular, in neuroanatomy education have been done and numerous strategies have been identified to improve the skills of the students (Rizzolo et al, 2010). We carried out a non-systematic review focusing our interest on the transformation of traditional teaching methodology of neuroanatomy. Articles on neuroanatomy education were selected if the study described an approach for teaching/learning neuroanatomy and if the neuroanatomy course was aimed to all medical students but dental or health-care students. PubMed database was used to select manuscripts with a predefined combined list of search terms: "neuroanatomy", "anatomy", "teaching", "learning", "methods and strategies". Our search included only English language manuscripts published from December 1990 to January 2012. Abstracts and unpublished studies were excluded. References of all relevant retrieved articles, of relevant recent review articles, and abstracts published in proceedings were also evaluated manually in order to find additional articles. For data extraction an electronic form was prepared. Only eighteen of the fifty (36%) selected articles met the inclusion criteria. Two described the dissection as the primary educational method, whereas the majority used electronic tools providing three-dimensional information. Some authors highlighted that students could be more enthusiastic when they have the chance to study with cadavers deeming this approach near to clinical medicine (Zurada et al, 2011); however the comprehension of topography and spatial relationships of various structures is equally achieved with the use of electronic means. The post-mortem examination represents an opportunity to evaluate the variability of human anatomy; however, logistical, ethical, and safety issues hamper the implementation of this method in medical schools (Winkelmann, 2007). The method used for anatomy and neuroanatomy teaching is essential to augment the interest of the medical students towards medicine but several obstacles can hinder the implementation and scale-up of the best educational method.

### References

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