

## Safe use of human anatomical preparations in frontal and interactive teaching

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In the institute of Human Anatomy of Pavia, the use of cadaver dissection is not economically feasible. In order to improve students' preparation related to topography of the central nervous system, we decided to use formalin-fixed brains and cranial sections belonging to the collection of cadaveric specimens. These specimens, preserved in formalin, however cannot be manipulated as such by the students because formalin can cause headaches, burning sensation in the throat, difficult breathing and can trigger or aggravate asthma symptoms [1, 2]. Furthermore, formalin is known to be a human carcinogen [3]. In order to minimize toxic effects, whole brains were extensively washed in running water and then sliced according to different reference planes using a "home-made" device enabling cuts according to parallel planes. Finally, the resulting sections were inserted into transparent plastic envelopes, immersed in a solution composed by 0.5% agar and 1% sodium azide as preservative. Medical students can now use these human brain sections to test their own ability to recognize nervous system structures. This strategy optimize specimen's choice and focalize student's attention on peculiar, selected human samples in full compliance with current security laws.

### References

[1] <http://biblus.acca.it/rischio-biologico-dall-inail-la-guida-completa/>

[2] "Formaldehyde Reference Exposure Levels". California Office Of Health Hazard Assessment. December 2008. Retrieved 19 May 2012.

[3] "Formaldehyde", IARC Monographs on the Evaluation of Carcinogenic Risks to Humans 88, Lyon, France: International Agency for Research on Cancer, 2006, pp. 39–325, ISBN 92-832-1288-6

### Keywords

Anatomical teaching, human specimens, security, central nervous system