

EDITORIAL



**Philip J. Adds, MSc, FAS,
FFIBMS, SFHEA**

Dear Colleagues:

Like most of us, I frequently make use of Wikipedia as a first-line source of information. Of course, we are all aware that it may not always be relied upon for accuracy and impartiality, and I always warn students that Wikipedia is not to be used as a cited reference.

The reliability of Wikipedia has been investigated in several studies. Rector (2008) compared nine Wikipedia entries on historical topics to their counterparts in Encyclopædia Britannica, The Dictionary of American History and American National Biography Online. The paper reported that Wikipedia's entries had an overall accuracy rate of 80 percent, whereas the other encyclopedias had an accuracy rate of 95 to 96 percent.

There is even a Wikipedia page "Reliability of Wikipedia": "Studies and surveys attempting to gauge the reliability of Wikipedia have mixed results. Wikipedia's reliability was frequently criticized in the 2000s but has been improved; it has been generally praised in the late 2010s and early 2020s"

(https://en.wikipedia.org/wiki/Reliability_of_Wikipedia).

The Wikipedia entry for "Plastination" makes interesting reading

(<https://en.wikipedia.org/wiki/Plastination>):

"Plastination is a technique or process used in anatomy to preserve bodies or body parts, first developed by Gunther von Hagens in 1977.[1] The water and fat are replaced by certain plastics, yielding specimens that can be touched, do not smell or decay, *and even retain most properties of the original sample* [2]" (my italics).

I think few would disagree with the opening sentence. The reference [1] refers to "'The Idea behind plastination". Institute for Plastination. 2006. Retrieved 1 May 2012'. This website is actually the "Body Worlds" commercial website, so hardly a peer-reviewed source, but, nonetheless, accurate.

The second sentence is, I think, more problematic. While we can agree that water and fat are replaced by certain plastics, and that the resulting specimens can be touched, and do not smell or decay, in what sense can it be claimed that plastinated specimens "retain most of the properties of the original sample"? Curiously, the reference [2] refers to 'Weiglein, A. H. (2005). "Overview & General Principles of the Plastination Procedures". *8th Interim Conf Plast. Archived from the original on 6 July 2011. Retrieved 27 January 2009*'. This was actually the abstract of a talk (Overview & General Principles of the Plastination Procedures) presented at the 8th Interim Conference on Plastination, Ohrid, Macedonia, in July 2005. The abstract, an article of considerable length (1690 words), was published in The Journal of the International Society of Plastination, Vol 20 (2005).

As might be expected, the late Prof Weiglein summarized the process of plastination clearly and accurately:

“Plastination is a unique technique of tissue preservation developed by Dr. Gunther von Hagens in Heidelberg, Germany in 1978. In this process, water and lipids in biological tissues are replaced by curable polymers (silicone, epoxy, polyester) which are subsequently hardened, resulting in dry, odorless and durable specimens. The class of polymer used determines the optical (transparent or opaque) and mechanical (flexible or firm) properties of the impregnated specimen. Silicone is used for whole specimens and thick body and organ slices to obtain a natural look. Epoxy resins are used for thin, transparent body and organ slices. Polyester-copolymer is exclusively used for brain slices to gain an excellent distinction of gray and white matter.” [...] “The S10 technique is the standard technique in plastination. Specimen impregnation with Biodur™ S10 results in opaque, more or less flexible and natural looking specimens” (Weiglein, 2005).

According to Prof Weiglein, therefore, plastinated specimens are “dry, odorless, and durable”, and can be either “transparent or opaque”, depending on the technique. Specimens plastinated with S10 are opaque, “more or less flexible, and natural-looking”.

At no point does Weiglein claim that plastinated specimens “retain most properties of the original sample” as stated in the Wikipedia article. The term “original sample” also demands closer consideration. Does this refer to the sample before, or after, fixation? Those who have experience of dissecting fresh, unfixed human or animal cadavers will surely agree that their properties are not at all similar to the plastinated finished article, being notably soft, wet, liable to rapid putrefaction, and with an unpleasant smell, in many ways the complete opposite of the properties of plastinated specimens.

Formalin-fixed specimens, despite avoiding the deterioration and unpleasant odor of putrefying tissue, are also wet, with an unpleasant chemical odor and fumes that are irritant and potentially carcinogenic. According to Brenner (2014), the disadvantages of formalin are that it hardens the tissues, coagulates blood, converts tissues to a uniform gray hue when it mixes with blood, fixes discolorations, deteriorates with age, and has an unpleasant odor. Again, these are not qualities that we associate with plastinated specimens. As de Jong and Henry note “specimens produced by the Biodur® S10 silicone methodology are of superb quality. Surface clarity is perfect and some flexibility is associated with thinner specimens. All specimens are durable, free of offensive odor and dry” – again, the complete opposite of the “original sample” (de Jong & Henry, 2007).

The Wikipedia page “Reliability of Wikipedia” notes that “Researchers and academics contend that while Wikipedia may not be used as a 100 percent accurate source for final papers, it is a valuable jumping off point for research that can lead to many possibilities if approached critically” (https://en.wikipedia.org/wiki/Reliability_of_Wikipedia). The need for a critical approach is borne out by close reading of the entry for “Plastination”. We should be wary of perpetuating misunderstandings of our subject.

REFERENCES

Body Worlds <https://bodyworlds.com/plastination/plastination-technique/> (accessed

7/10/23)

Brenner E. Human body preservation - old and new techniques. J Anat. 2014;224(3):316-344. doi:10.1111/joa.12160

De Jong K, Henry RW. 2007: Silicone Plastination of Biological Tissue: Cold-temperature Technique Biodur© S10/S15 Technique and Products. J Int Soc Plast 22: 2-14. <https://doi.org/10.56507/ZLMJ7068>.

Rector LH. 2008: Comparison of Wikipedia and other encyclopedias for accuracy, breadth, and depth in historical articles". Ref Serv Rev 36 (1): 7–22. doi:10.1108/00907320810851998.

Weiglein AH. 2005: Overview and General Principles of Plastination Procedures. J Int Soc Plast 20:33-42



Philip J Addis
Editor-in-Chief