

## HIP

# Reply to the Letter to the editor from Grappiolo G *et al.* to the article ‘The History of the development of the regular straight stem in hip arthroplasty’

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Thank you very much for having made the effort to critique (1) our publication. It is a great pleasure and an honour to see our work being read so attentively.

As mentioned in the Introduction section, our publication is a narrative review (2) focussing on the major developments of the stem in total hip arthroplasty and discussing the most common designs. The chosen format would never have allowed for providing a systematic review of all data available for each stem and each of its modifications. We fully acknowledge this, as well as the limitations of the method, and thank our colleagues for the additional information they have provided.

In order for any reader to judge if the GTS stem has been classified correctly into the family of the stems derived from the CLS (i.e. cementless) Spotorno or not, we would like to refer to other publications. The cited publication by Nadorf *et al.* contains a larger picture of both stems than is available in our publication (3). Nadorf *et al.* in their article explicitly describe the GTS stem as a derivate of the CLS stem, based on which their biomechanical study was performed (3). This link in the design philosophy is also stated in the product brochure from the manufacturer, including a graphical illustration of the evolution from the CLS stem to the GTS stem (4). There also is a marketing brochure from the manufacturer for both stems together, including high-quality pictures to illustrate the similarities

between both systems (5). Of note, the publication of the design philosophy of the CLS stem by Prof. Spotorno *et al.* also is coauthored by our colleagues (6).

Regarding the results of the GTS stem in the Swiss arthroplasty registry SIRIS, we fully acknowledge the limitations pointed out. Being among the designers of the GTS stem, our colleagues certainly had better results. Otherwise, the stem would never have been distributed internationally. It is, however, well known that implants perform less well in independent studies than reported by the designer groups and even worse in national registries (7, 8). There are only few publications about revisions rates of the GTS stem. Only two other groups published data and our colleagues pointed them out. On the other hand, a very recently published study from the Dutch arthroplasty registry states, ‘In our study, patients with short stems may have a higher risk for femoral stem revision compared with standard stem THA patients. However, this higher risk can be explained by short stems that are hardly used in the Netherlands anymore, including Pulchra, Metha, Nanos, C.F.P., GTS, and Taperloc Microplasty. Our study showed a comparable risk for femoral stem revision for Fitmore, Optimys, and standard stems’ (9). The GTS stem did not perform poorly only in the Swiss arthroplasty registry. The positive reports from the mentioned single-centre studies may well be an example of the well-known selection bias in orthopaedic publications (10).

Regarding ODEP ratings our colleagues mentioned, it may be worthwhile pointing out that the current rating is indicated as 'lapsed' (ODEP database accessed 6 August 2023). The last rating was indeed 5A\*, but dates back to 2018 and the required update in 2022 was missed. On the other hand, the CLS stem performs extremely well worldwide, which is confirmed by the ODEP rating of 15A\*. In the meantime, the 30-year outcomes have also been published, which emphasises the robustness of the CLS (7, 11).

Considering the additional information provided by our colleagues and the elements discussed here, we are convinced a corrigendum is not necessary.

#### ICMJE Conflict of Interest Statement

The authors declare that there is no conflict of interest that could be perceived as prejudicing the impartiality of this article's content.

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