

## Laparoscopy or fast-track surgery, or both?

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There is no doubt that the laparoscopic revolution could be considered one of the major improvements for the management of colorectal diseases. Since its introduction in the 1990s, several meta-analyses have clearly demonstrated its feasibility and efficacy [1, 2]. It is becoming the new “gold standard” for the care of colonic diseases with a high level of evidence [3] because of its mini-invasiveness and better postoperative comfort for surgical patients. At the same time, another improvement in colorectal surgery, initiated by Kehlet and coworkers, the so-called enhanced recovery protocol or the fast-track surgery (FTS) approach [4, 5], initially less recognized, has gradually gained worldwide acceptance [6]. This new paradigm, a parallel revolution in the care of surgical patients (based on a multimodal approach of patients), was initiated in the field of *open* surgery. However, the evidence-based literature shows with a high level of evidence that FTS is feasible, safe, and offers a better postoperative recovery compared with traditional care [5], even for laparoscopic surgery.

Generally speaking, beside the field of colorectal surgery, one of the most important lessons learned from the laparoscopic revolution has been that some of the old dogma has to be questioned: this has sparked a review of

several practices in open surgery. As an example, surgical stress and inflammatory response to surgery have been better evaluated and cell-mediated immunosuppression has been highlighted as an important component in this setting [7]. Thanks to the laparoscopic approach, “modern open” surgery also has become less “aggressive.”

### Two alternatives for colorectal surgery

We are now faced with two alternative options, both designed to improve perioperative surgical care: “traditional” laparoscopic surgery and “open” FTS.

It is noteworthy that in the major, randomized trials [8–11] that served to establish the superiority of laparoscopic colon surgery compared with its open counterpart, the control patients underwent open traditional approach without FTS—the standard when those trials were initiated. Therefore, from an evidence-based point of view, one can only say that laparoscopic surgery is superior to open surgery as it was conceptualized in the 1990s. Without trials comparing traditional laparoscopic surgery to open FTS, whether there is sound evidence that the traditional laparoscopic surgery is superior to open FTS remains to be shown.

When we consider the respective results of these two approaches and compare for example the length of postoperative hospital stay (LOS), the results of randomized trials on conventional laparoscopic surgery (without a multimodal perioperative approach) were never superior to those of FTS. Indeed, LOS is an outcome subjected to variations related to socioeconomic factors, but all published large trials showed concordant results with a mean LOS exceeding 5 days in all cases [8–11], whereas in most randomized trials on “open” FTS, the mean LOS did not exceed 5 days [references on request to KS].

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Intuitively, one can assume that combining the two approaches would be beneficial; however, this assumption is not evidence-based because no published trial has yet compared traditional laparoscopy with laparoscopy within a multimodal rehabilitation protocol.

### The role of laparoscopy in colorectal FTS

Another way to resolve this issue would be to evaluate the impact of the laparoscopic approach within an FTS protocol, which has been done in two randomized trials from Denmark [12] and the United Kingdom [13]. The protocols were similar; however, unfortunately for those awaiting the results, these trials showed conflicting results. The blinded trial by Basse et al. [12] was unable to show any difference between laparoscopic and open colorectal surgery within a multimodal rehabilitation protocol, as regards LOS or functional recovery. The other trial [13], which was not blinded, suggested a superiority of laparoscopy (LOS significantly shorter: 5.2 vs. 7.4 days, and better performance score in day 2), but one cannot exclude a placebo effect due to the absence of blinding. These conflicting results have also been reported in non randomized studies.

Therefore, the current body of evidence cannot resolve this issue. The role of laparoscopy in this setting remains controversial, and we still do not know whether there are actual advantages of integrating laparoscopy in a multimodal rehabilitation. One can assume that the main difference between laparoscopy and laparotomy in the setting of FTS could finally be a lower rate of incisional hernia after the laparoscopic access, but this has yet to be proven (the scanty evidence that we have today does not suggest this). Furthermore, several questions remain to be answered regarding the cost-effectiveness of fast-track laparoscopy compared with fast-track laparotomy. The ongoing LAFA trial [14] could answer these questions, and its results are eagerly awaited.

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