



加速康复外科

Enhanced Recovery After Surgery

ERAS起源

Dr. Henrik Kehlet 于1997年提出ERAS概念,被誉为“加速康复外科之父”



British Journal of Anaesthesia 1997; 78: 606-617

Multimodal approach to control postoperative pathophysiology and rehabilitation

H. KEHLET

Summary

Major surgery is still associated with undesirable sequelae such as pain, cardiopulmonary, infective and thromboembolic complications, cerebral dysfunction, nausea and gastrointestinal paralysis, fatigue and prolonged convalescence. The key pathogenic factor in postoperative morbidity, excluding failures of surgical and anaesthetic technique, is the surgical stress response with subsequent increased demands on organ function. These changes in organ function are thought to be mediated by trauma-induced endocrine metabolic changes and activation of several biological cascade systems (cytokines, complement, arachidonic acid metabolites, nitric oxide, free oxygen radicals, etc). To understand postoperative morbidity it is therefore necessary to understand the pathophysiological role of the various components of the surgical stress response and to determine if modification of such responses may improve surgical outcome. While no single technique or drug regimen has been shown to eliminate postoperative morbidity and mortality, multimodal interventions may lead to a major reduction in the undesirable sequelae of surgical injury with improved recovery and reduction in postoperative morbidity and overall costs. (*Br. J. Anaesth.* 1997; 78: 606-617).

trauma-induced endocrine metabolic changes and activation of several biological cascade systems (cytokines, complement, arachidonic acid metabolites, nitric oxide, free oxygen radicals etc). Although these responses have evolved presumably to confer an advantage for survival, they may, if amplified and prolonged, also contribute to erosion of body cell mass and physiological reserve capacity.

The key question in our understanding of the pathogenesis of postoperative morbidity is therefore related to the pathophysiological role of the various components of the surgical stress response and whether or not a modification of such responses may improve surgical outcome. More simply, one may ask why a technically successful operation, whether a colonic resection, hip replacement or cardiac operation, should result in an unsuccessful outcome. Additionally, if such surgical sequelae are controlled, one may ask if patients could undergo major surgery on an ambulatory or semi-ambulatory basis.

This article reviews current techniques for controlling postoperative dysfunction by reducing surgical stress and pain. It is hypothesized that multimodal interventions may lead to a major reduction in the undesirable sequelae of surgical injury with accelerated recovery and reduction in postoperative morbidity and overall costs. This discussion will focus on elective surgery, excluding trauma and multiple organ failure, which have been

国外一起源于心脏外科手术,现在,已经扩展到心脏外科、血管外科、关节外科、眼外科、整形外科、腹腔镜胆囊切除手术、疝手术、胃癌根治术、结直肠手术等

加速康复外科应用

在我国南京军区总院黎介寿院士等率先（年）引入此概念并加以利用。

他们在结直肠手术、疝手术、胃癌手术病人中研究表明，FTS治疗是安全、有效^[1]

^[1] 刘勇军 管向东 加速康复外科理念及其应用 新医学 Vol4 No40(4):211



南京军区总院黎介寿院士

Fast **T**rack **S**urgery

FAST Track = ERAS (Enhanced Recovery After Surgery)

围手术期采取一系列有循证医学证据优化办法，以降低或降低手术患者生理及心理创伤应激，从而到达快速康复目标。

加速康复外科应用

中国加速康复外科围手术期管理专家共识 (2016)

中国加速康复外科专家组

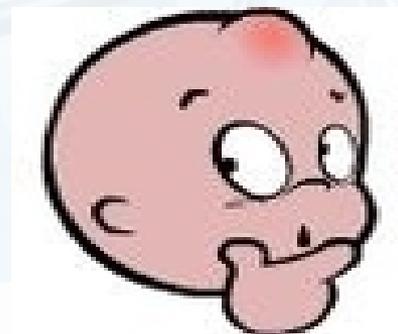
一、前言

加速康复外科 (enhanced recovery after surgery, ERAS) 指为使患者快速康复, 在围手术期采用一系列经循证医学证据证实有效的优化处理措施, 以减轻患者心理和生理的创伤应激反应, 从而减少并发症, 缩短住院时间, 降低再入院风险及死亡风险, 同时降低医疗费用。

年7月, 中国第一届加速康复外科大会在南京召开
年6月, 教授共识颁布 (中华外科杂志)

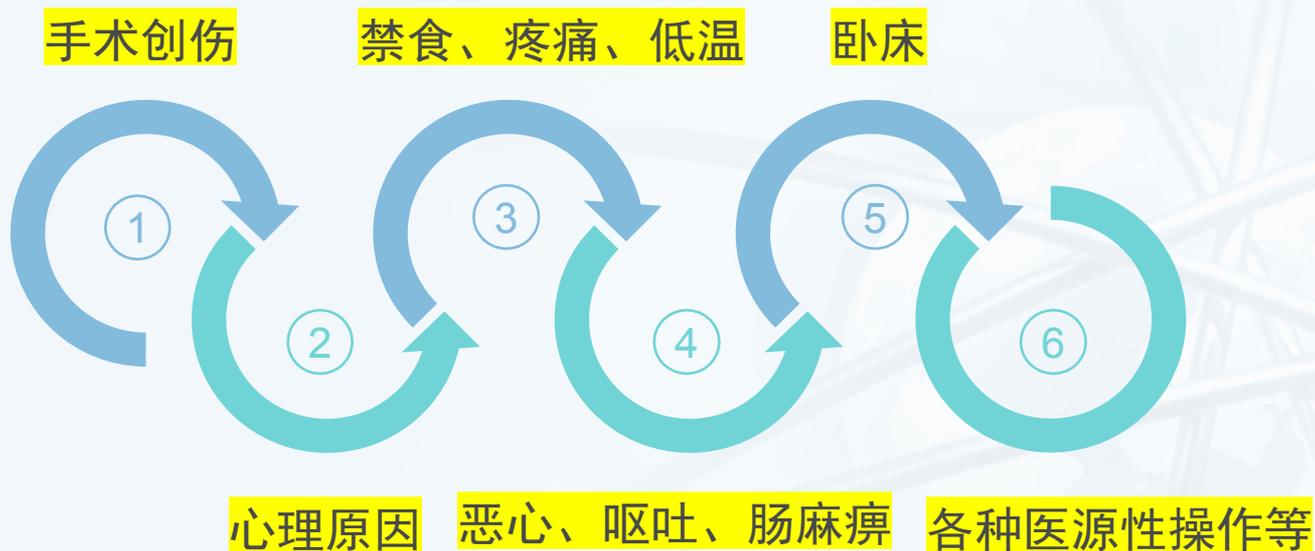
概 念

- › ERAS：围手术期采取一系列有循证医学证据优化办法，以降低或降低手术患者生理及心理创伤应激，从而到达快速康复目标。
- › 基于**应激**理论
- › 是促使手术病人加速康复围手术期处理程序
- › **应激**：指机体在受到各种内外环境原因刺激时所出现非特异性全身反应。



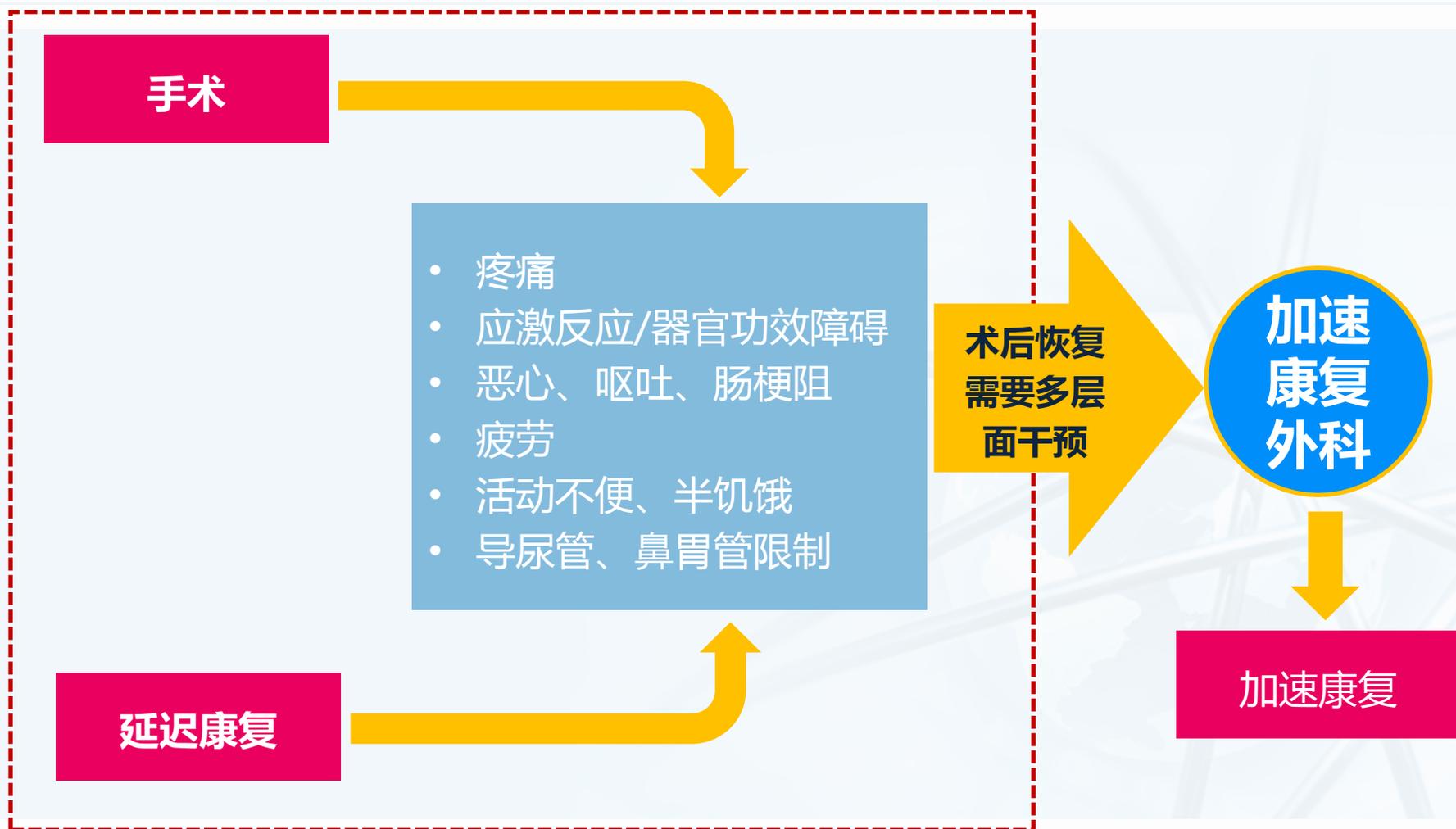
手术造成患者发生应激原因

应 激



作用于下丘脑—垂体—肾上腺素系统，打破机体内环境稳态，促进分解代谢、降低免疫功效、抑制胃肠道功效、加重心血管和呼吸系统负担，甚至诱发各种脏器功效不全。

加速康复外科产生原因



加速康复外科关键点

促进器官功效
早日恢复

患者在治疗过程中
愈加“舒适”

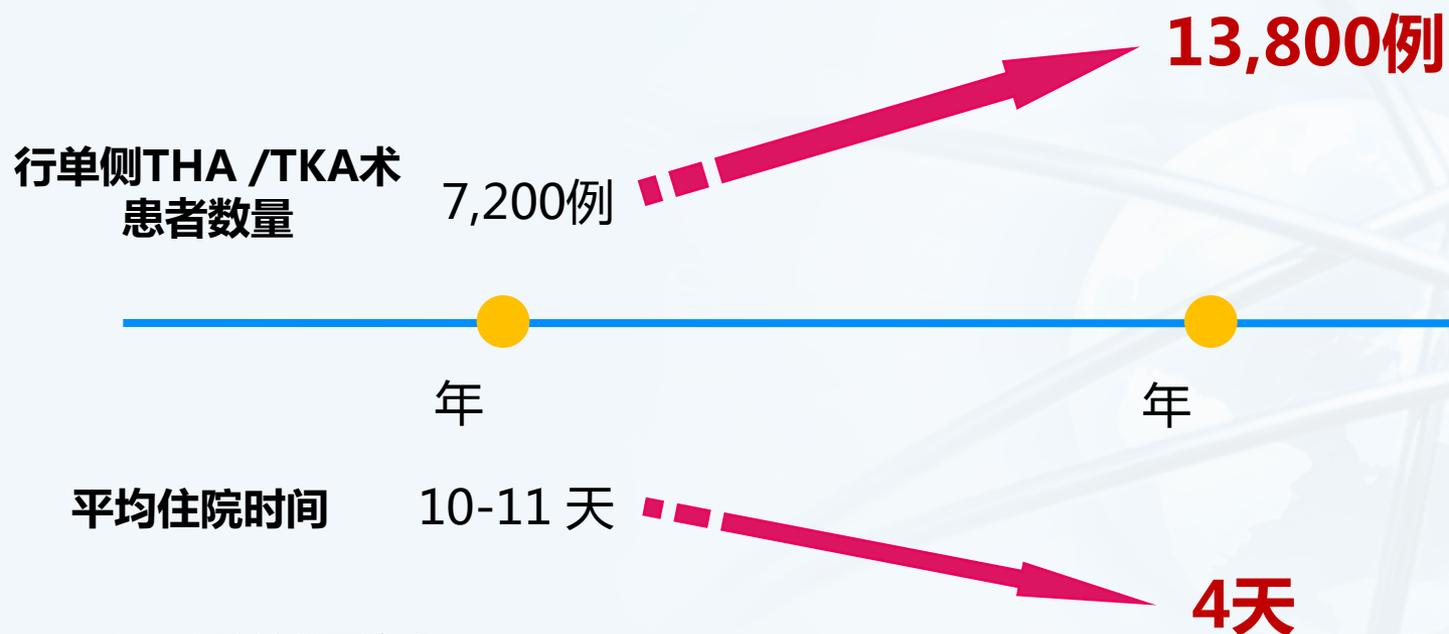
关键点

降低并发症

缩短住院时间降
低住院费用

借鉴加速康复外科经验，丹麦已取得成功

- 依据对丹麦 National Patient Registry 项目全部医院汇报分析：年较年，行单侧THA/TKA术患者数量增加到13800例，平均住院时间降低到4天



- THA：人工全髋关节置换术
- TKA：人工全膝关节置换术

“加速康复外科”应用现实状况

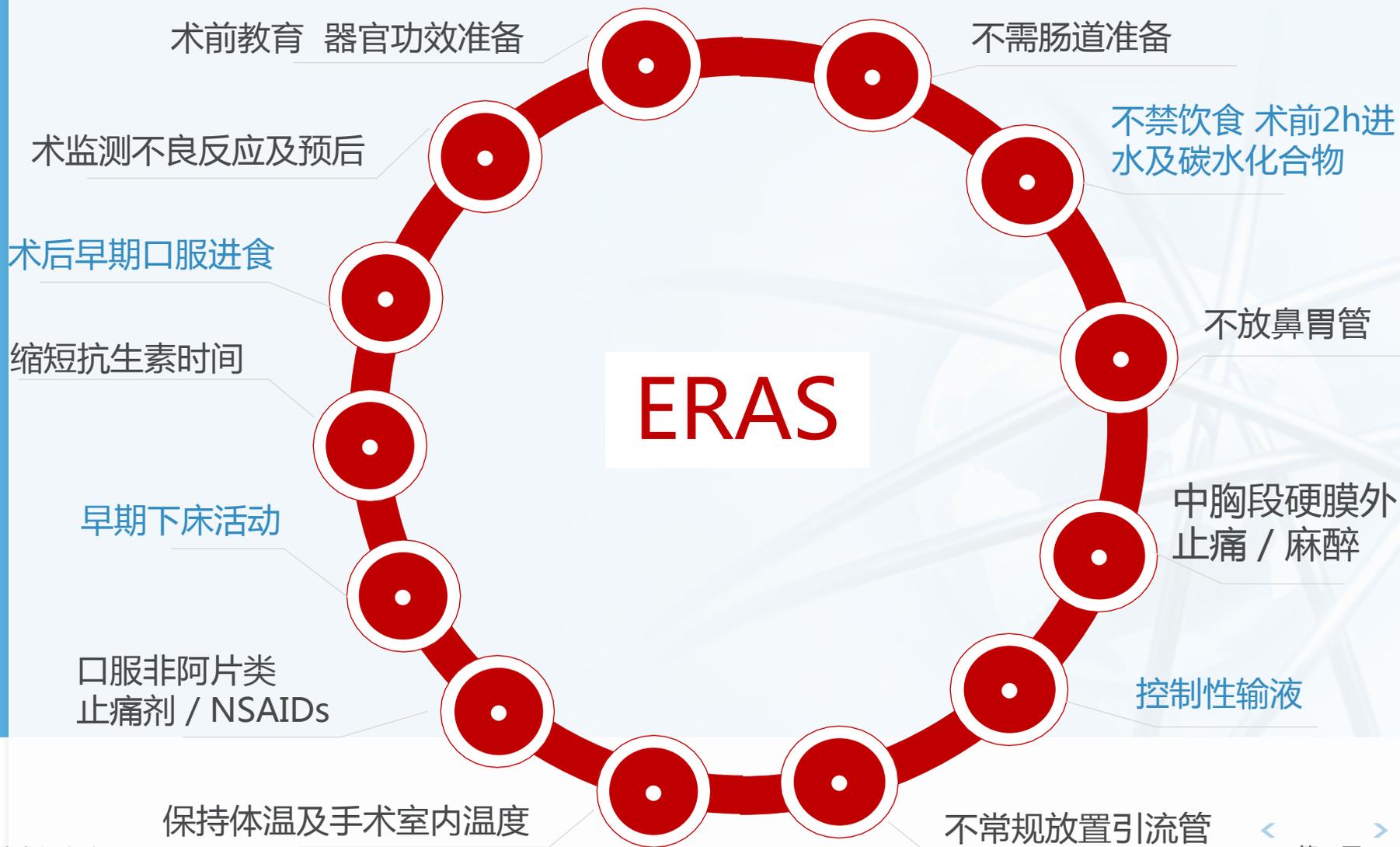
■加速康复外科理念已在许多择期手术中取得成功，
结直肠，骨科，泌尿，妇科

术型	住院时间
胆囊切除术	80%术后当日
开腹子宫切除术	2天
阴道子宫切除术	术后当日
子宫镜检查	门诊手术
开颅手术	40% <二十四小时
乳房切除术	90% <1天
肺切除术	约1天
结肠切除术	2-3天

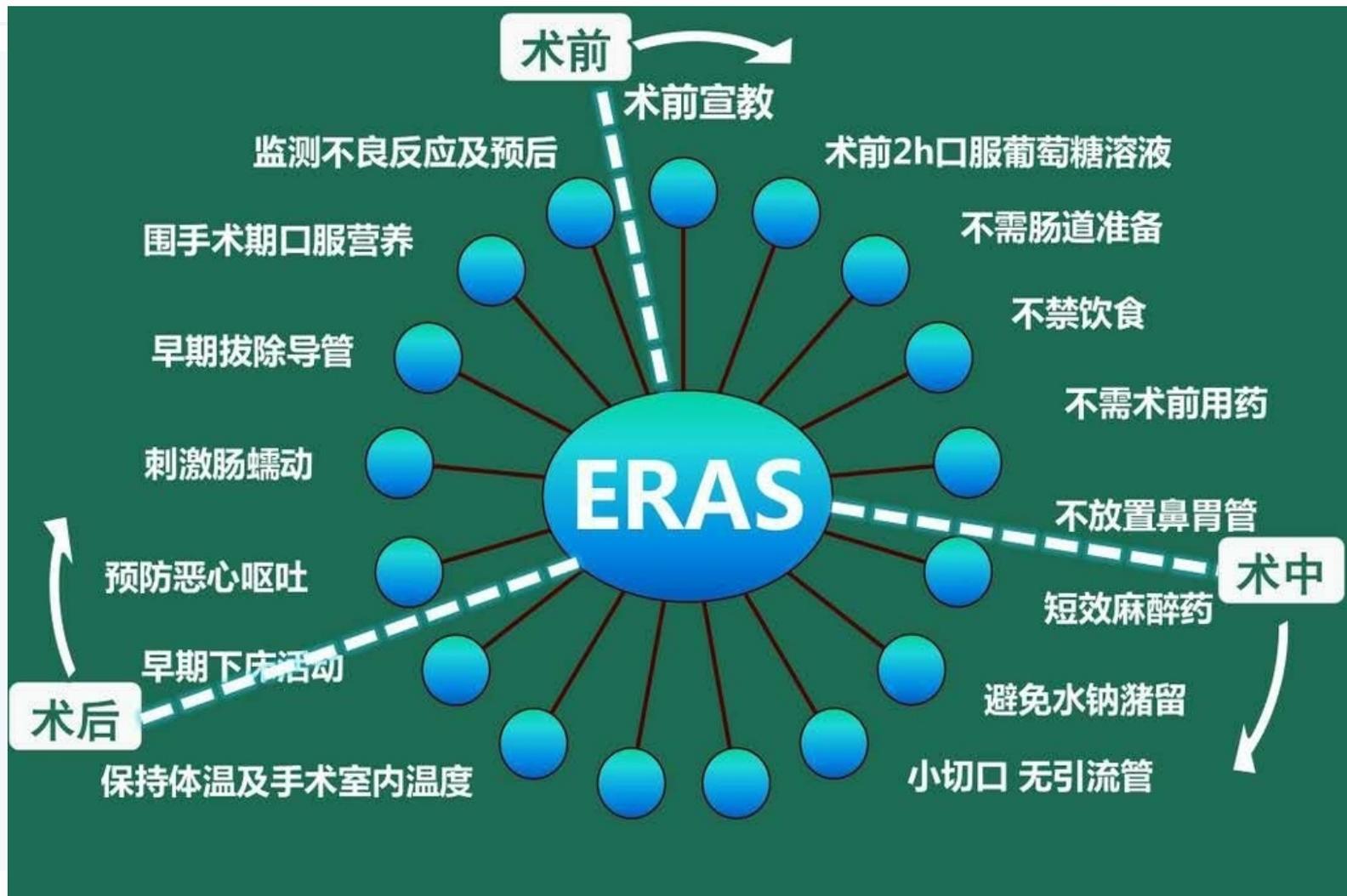
术型	住院时间
腹股沟疝修补术	1.5-6小时
结肠造口还纳术	2-3天
复杂盆腔结直肠手术	3-6天
直肠脱垂	80% <24h
供肾切除	1-2天
腹主动脉瘤切除术	3天
甲状旁腺手术	90%当日
前列腺切除术	75%1天

Fast track surgery 愈加全方面地重视微创理念

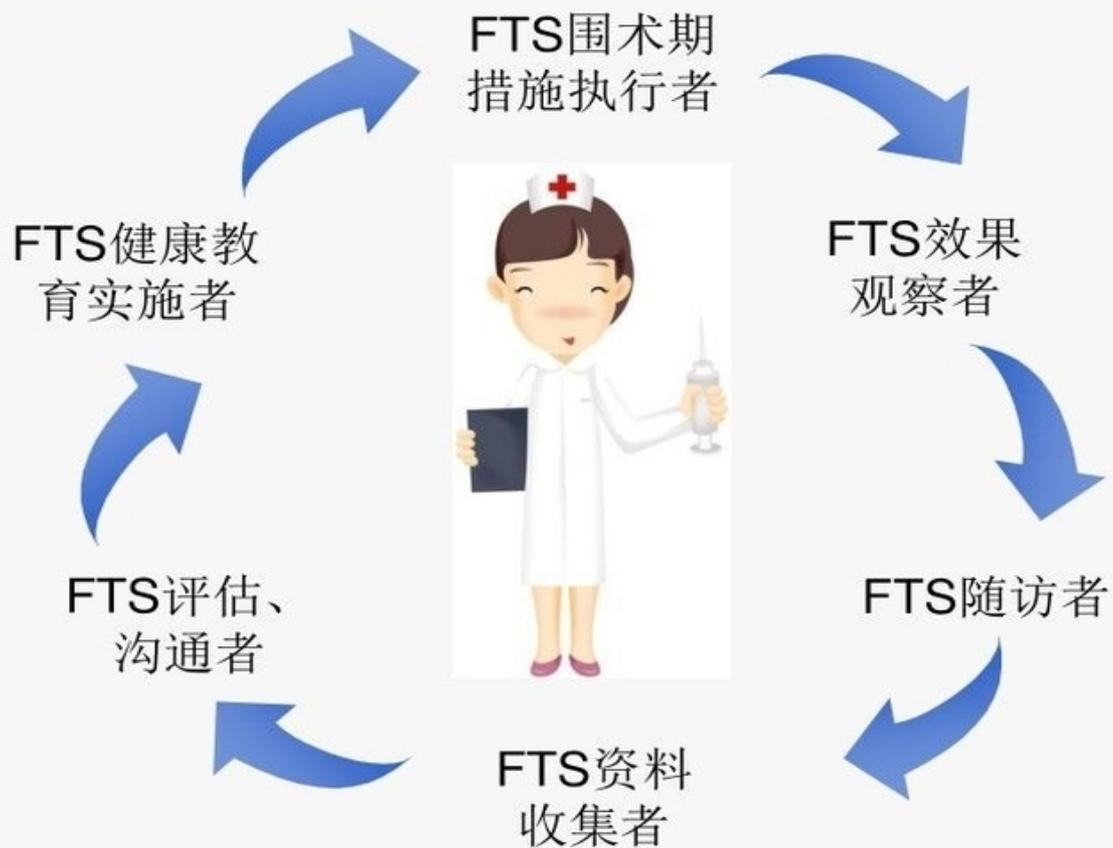
A consensus review of clinical care for patients undergoing colonic resection.



ERAS综合优化办法组成



护士在ERAS中角色



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