

Surgical Glove

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Prestigiacomo CJ. Commentary: A Sensorized Surgical [Glove](#) to Analyze Forces During Neurosurgery. Neurosurgery. 2022 Dec 15. doi: 10.1227/neu.0000000000002311. Epub ahead of print. PMID: 36729636.

Medical gloves are disposable gloves used during medical examinations and procedures that help prevent cross-contamination between caregivers and patients.

Medical gloves are made of different polymers including latex, nitrile rubber, vinyl and neoprene; they come unpowdered, or powdered with cornstarch to lubricate the gloves, making them easier to put on the hands.

Cornstarch replaced tissue-irritating Lycopodium powder and talc, but even cornstarch can impede healing if it gets into tissues (as during surgery). As such, unpowdered gloves are used more often during surgery and other sensitive procedures. Special manufacturing processes are used to compensate for the lack of powder. There are two main types of medical gloves: examination and surgical. Surgical gloves have more precise sizing with a better precision and sensitivity and are made to a higher standard. Examination gloves are available as either sterile or non-sterile, while surgical gloves are generally sterile.

The invasive nature of surgery carries high risk for the transfer of pathogens responsible for [surgical site infections](#) (SSI). This risk can be reduced by using protective barriers such as sterile gloves; however, gloving practices vary among different surgical specialties and countries.

The available evidence to assess the effect of wearing additional gloves, intraoperative glove change or type of gloves on SSI rates is very limited and of low-quality. Our findings indicate the need for RCTs on this topic ¹⁾.

Double gloving is the practice of wearing two layers of medical gloves to reduce the danger of infection from glove failure or penetration of the gloves by sharp objects during medical procedures. A systematic review of the literature has shown double gloving to offer significantly more protection

against inner glove perforation in surgical procedures compared to the use of a single glove layer ^{2) 3)}.

Bashir and Sørensen suggested that surgical gloves could be a possible means for transferring microorganisms from skin flora to [shunt](#) material during surgery.

A retrospective study of 432 shunt operations in 295 adults was undertaken over a 7-year period. Study population consisted of two groups: Group A without intraoperative glove change (2003-2006), and Group B with change of the outer pair of the initial double gloves before handling the shunt material (2006-2009). The results were compared at 6- and 12-month postoperatively. A binary logistic regression was performed to determine predictors of shunt infections.

Overall, 46 (10.6%) [infection](#) episodes occurred in 40 (13.6%) patients. Main symptoms were [fever](#), abdominal pain and altered mental status. *Propionibacterium acnes* was the frequently isolated microorganism, followed by *Staphylococcus* species. The infection rate was reduced only moderately from 11.8% in Group A to 9.8% in Group B ($p = .472$). Patients with subarachnoid haemorrhage were more likely to experience shunt infections (17.9%), compared to patients with [normal pressure hydrocephalus](#) (5.9%). An increased likelihood of shunt infections for the increased number of subsequent shunt revisions ($p = .030$) and a trend towards prior history of shunt infections ($p = .118$) was seen. After adjusting for various covariates, a decreased likelihood of shunt infections for intraoperative glove change was seen at 6-month follow-up for first-time shunt insertion ($p = .050$).

Intraoperative glove change does not significantly reduce the risk of shunt infection. However, it seems to reduce the infection rate within 6 months in patients undergoing first-time shunt insertion only ⁴⁾.

1)

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4474873/>

2)

Tanner, J; Parkinson, H (2002). "Double gloving to reduce surgical cross-infection". The Cochrane Library (3): CD003087. doi:10.1002/14651858.CD003087. PMID 12137673.

3)

Tanner, J; Parkinson, H (2006). "Double gloving to reduce surgical cross-infection". The Cochrane Library (3): CD003087. doi:10.1002/14651858.CD003087.pub2

4)

Bashir A, Sørensen P. Evaluation of intraoperative glove change in prevention of postoperative cerebrospinal fluid shunt infections, and the predictors of shunt infection. Br J Neurosurg. 2016 Sep 14:1-7. [Epub ahead of print] PubMed PMID: 27626705.

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