

Development of base, compression, retention and stabilisation layers for surgical cooling garments

Objective

Long surgery times pose significant physical challenges for surgeons: the build-up of heat under surgical clothing, combined with physical exertion, leads to increased perspiration, which not only affects the surgeons' comfort but also increases the risk of wound contamination from sweat. This situation is exacerbated when lead aprons are worn. At the same time, patients in the air-conditioned operating theatre (approx. 19 °C) quickly cool down and release their body heat upwards towards the surgeons. This compromises both the performance of the surgical team and patient safety. It highlights the need for innovative solutions that both regulate body temperature and protect against wound contamination.

Approach and results

The project involved the development of active cooling garments for surgeons and an insulating patient coverage. Cooling is achieved by extracting excess heat and moisture from the body's surface via a vacuum system. This not only reduces perspiration but also minimises the release of skin bacteria into the operating theatre air, which makes a significant contribution to infection prevention. The STFI was responsible for the functional textile layers of the surgical clothing. In addition, a patient coverage was developed that reduces heat loss from the patient, thereby ensuring their comfort and thermal stability during surgery. Together, both components improve the operating environment for both surgeons and patients.



Warp knitted vest for surgical cooling garments



Double-layer knit with internal filling threads for use as a patient coverage



Gefördert durch:



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The final report on this project is available on request.

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