

**Author**

Leiniger, Andreas (Duderstadt DE)  
Otto Bock HealthCare Deutschland GmbH - Business Development Service Fertigung

**Title**

Design opportunities for individual prosthetic sockets from Silicone for lower limbs

**Coauthors**

Harald Gottlieb, Kai Bussiek

**Summary**

The properties and manufacturing options from modern plastics like silicone and carbon enables many new freedoms in design. The lecture shows some case studies from prosthetic sockets for transtibial amputees

**Introduction**

Despite there many variants, Off the shelf products can't replace the necessity of unique solutions for special stump characteristics.

The opportunities to adapt a prosthetic socket through a appropriate selection of material is really huge. Therefore silicone is a well known and proved material.

The lecture will show the high individual design for uncommon stump situations. All introduced cases shows optimized sockets with higher degree of use and wearing comfort as a result of using silicone.

**Methods**

The interaction with high complex stump situations requests a sensible approach from a prosthetist. The additional use of services from external suppliers empirical increases the expectations of the definitive product.

By using individual liner and sockets from silicone it was possible to create prosthesis meet the requirements from amputees over a different distances.

**Results**

The wearing comfort is the most important feature for the amputee.

The fitting from check liner for individual liner from silicone for such highly complex stump situations is the necessary way. To adapt the technical opportunities on the amputee individual

request, the multiple manufacturing is useful. The variety from base material is a curse and a blessing the same time, but opens often new ways.

Despite quite lengthy and complex treatment processes can be achieved by use of available technical options to improve the prosthesis.

### **Conclusion**

By using Silicone the requirements from highly individual prosthetic treatments can be achieved. To get the maximum utilization from silicone properties and therefore to increase the wearing comfort from a prosthesis a lot of patience is mandatory. This is hardly possible with other materials.

### **References**

Own prosthetic treatments