PRESS RELEASE

DEUTSCHE INSTITUTE FÜR TEXTIL+FASERFORSCHUNG

January 30, 2023

Digital platform: producing custom-fit orthoses quickly, resource-efficiently and cost-effectively

Resource efficiency, time and cost savings are essential topics in the textile and apparel industry. Conventional supply and production chains often reach their limits, as products need to individually be tailored and available in a short time. The trends of the future are therefore called "fast fashion" and "microfactory". The advantages of digital manufacturing apply not only to fashion, but also to medical textiles. To this end, the German Institutes of Textile and Fiber Research Denkendorf (DITF) have developed a digital platform that can be used to produce precisely fitting flexible textile orthoses in a resource-, time- and cost-efficient manner.

Until now, orthoses have primarily been made manually, which leads to a high error rate. Digitally based manufacturing chains can significantly reduce this waste. For the digital platform, the body data of patients was analyzed and processed at the DITF, on the basis of which standardized orthoses can be developed. Therefore, various body scanning methods were investigated and methods were developed for taking precise body measurements. The information from the screenings was condensed and a digital basic pattern or pattern module database was created.

From this database, the individual model fitting to the patients is carried out. Therapeutic fit is verified using an avatar in 3D simulation software. The finished digital pattern designs are transferred to a cutter, where they are machine-cut to size from elastic fabrics. It is also possible to print the pattern on a plotter/printer as templates and then cut them manually.

The cuts are then processed into finished textile orthoses.

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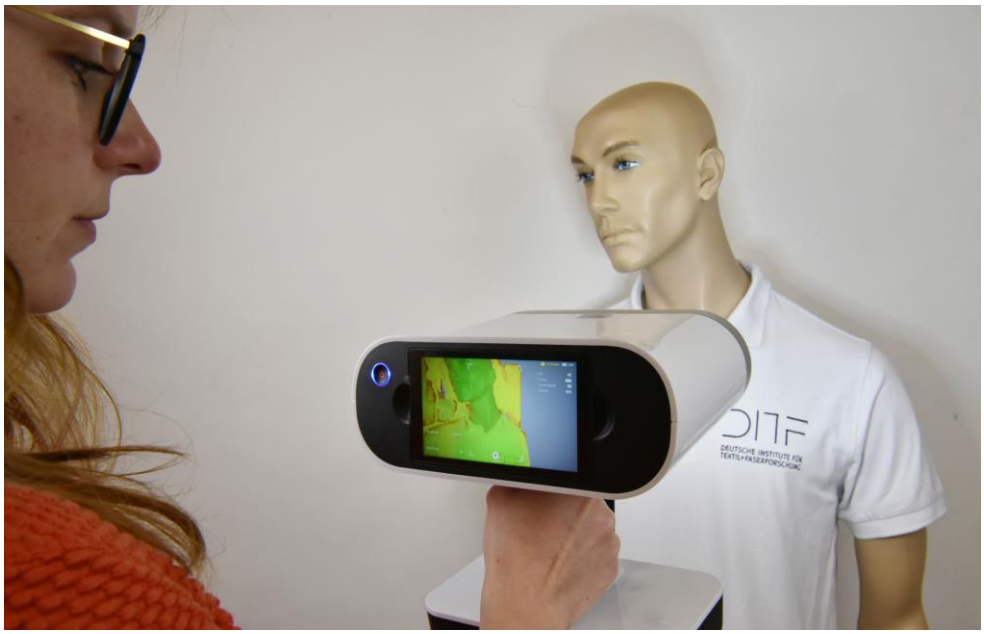
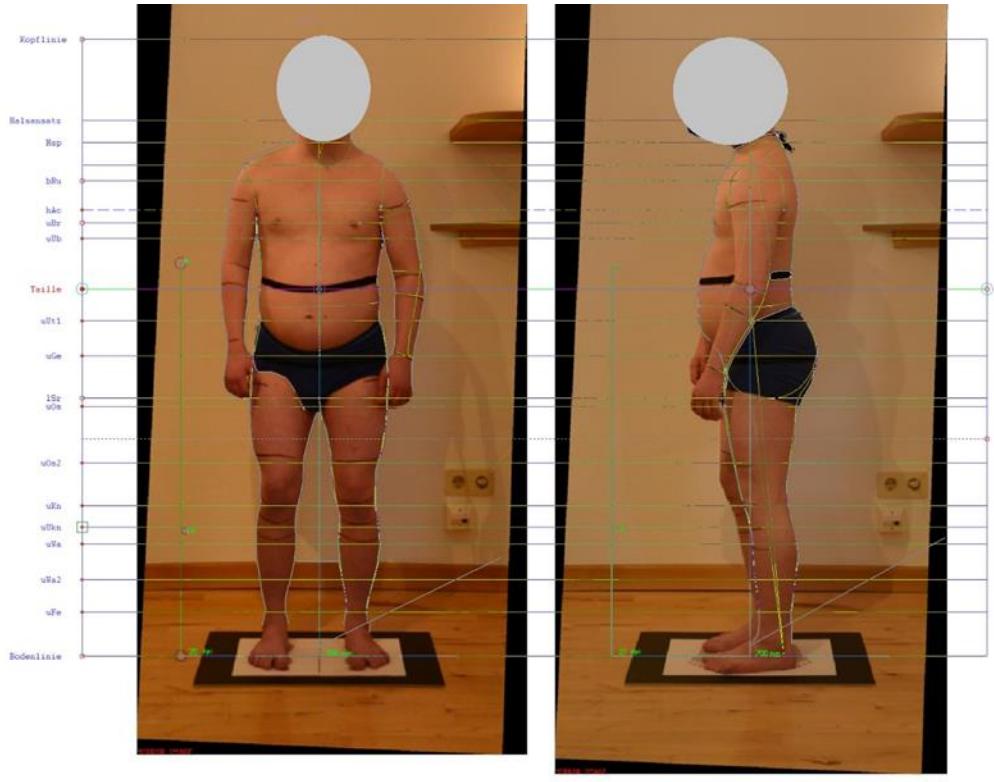


Hand-held 3D scanners can be used to digitize patient body parts as the basis for flexible textile orthoses. Photo: DITF



Carrying out a patient screening with digital measurement. Photo: DITF

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