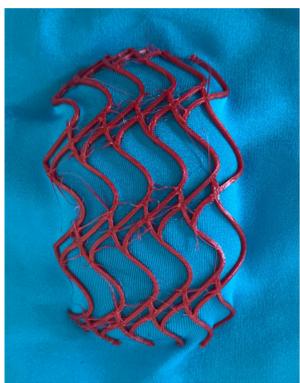


„Performance touch - A design and product development concept for leotards with sportphysiological functional zones based on the Medical Taping Method“

Bachelor Thesis

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The high physical and psychological pressures in gymnastics are increasingly gaining public attention and give reason to further develop leotards to adapt to the changing demands. The bachelor thesis „Performance Touch“, by Chalin Hüge is facing this challenge. The aim was to further develop the leotard through sport-physiological functional zones based on the medical taping method to support the performance of the gymnasts. The concept of the leotard presents a combination of technical and aesthetical aspects in design with a smart application in sportswear.



Printing Techniques

Using 3D printing with TPU and screenprinting with foaming pigments, the engineered structures are printed on a pre-stretched textile to mimic the restoring force of the tape.

Medical Tape

The engineered zones are inspired by the properties of Medical Tape, which is textile adhesive tape, used to prevent and treat injuries.

The acrylat adhesive that is applied in the form of a sine wave along the length of the tape, maintains elasticity lengthwise.

Applied in a stretched state, the tape creates a restoring force that stimulates the skin.



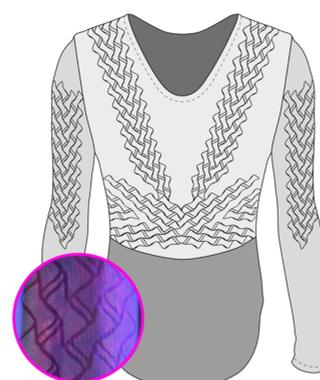
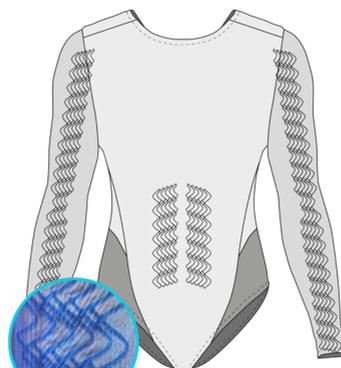
The functional Zones

The placement of the functional zones is directly derived from the placement of the tape.

The 3D- and screenprinted structures are placed on the insides of the leotard, promoting stimulation of special muscle regions during movement.

The zone „Blue Touch“ is realized via TPU structures which mimics the restoring force of the tape very well. During the wear, the zones are stretched, but have a tendency to shrink back. This tension and contraction promotes stimulation of the skin and the underlying muscle layers.

The zone „Pink Touch“ on the other hand is looking for a more uplifting effect, recreating the adhesive properties of the tape through the soft-touch effect of the foaming pigments..



Aesthetic Design

The outer design "Symbiose Empowerment" represents the interaction of technology and aesthetics. The color and composition of the design elements is inspired by the original tape colors as well as the effects of the engineered zones.



Summary and Outlook

The resulting concept "Performance Touch" optimizes the gymnastic leotard in regards to the changing demands in gymnastics. Based on the Medical Taping method, the leotard provides optimal performance support, adapted to the gymnasts' needs. The concept fuses technological and aesthetical aspects and focuses on the empowerment of female athletes through the interaction of the "Blue-" and "Pink Touch" zones and their performance-supporting function.

It also offers potential for future developments. 3D scanning could be used to customize the leotard, which is of particular interest for chronic problems.

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