

SWIMSUIT

HOW CAN DESIGN POSITIVELY IMPACT SWIMMING PERFORMANCE?

How can swimsuit design positively impact swimming performance? Should swimsuits be close-fitting, offer the least possible drag, or have a high float capacity?

To give Dutch coaches and support staff more insight into the swimsuits that are currently available, TU Delft, VU University Amsterdam, the Royal Dutch Swimming Federation (KNZB) and InnoSportNL combined efforts and initiated a research trajectory. With this project, they wanted to be able to help sports federations to select the right materials. This is an important factor, which is why new materials are constantly being introduced.

The most striking conclusions of the user research were that the effort needed to get into a competition suit did not bother the swimmer, and that compression on the torso and pelvis gave swimmers a feeling of support. These results were used to develop a new swimsuit design. The focus lay on reducing pressure drag and wave drag by creating a smoother body shape. The elaborate design achieves this by compressing the pelvis in order to mould the body into a 'drop'-shape, which maritime engineers consider to be an excellent drag-reducing shape within this speed range. Furthermore, the swimsuit incorporates a super-hydrophobic fabric to imitate the 'lotus'-effect and reduce the friction drag.

Partners

InnoSportNL, VU Amsterdam, KNZB, Sportconfex

TU Delft scientific expertise

Dr.ir. Johan Molenbroek,
Erik van Geer, MSc, Faculty of
Industrial Design Engineering