Some quadriparetics patients encounter trouble and lack of autonomy for the self urinary catheterization procedure. These patients are dependent of a third party for the procedure which had to be done 4-5 times a day. The existing solutions in the market did not fulfill their problem.

**Methods**

An Ultimaker 3 extended 3D® printer has been implemented in the Rehabilitation Service of University Hospital of Liège (Belgium) and a group of specialized educator and occupational therapist has received a formation in 3D design (Autodesk Fusion 360 ®). A multidisciplinary team including the quadriparetics patients, specialized educator, nurses, occupational therapists and rehabilitation physicians was formed.

The catheter recommended for these patients was the SpeediCath Compact® (male). The multidisciplinary team evaluated the existing solutions and their issues with the patients and eventually came up to a new idea of solution. This solution was created though 3D design and a first prototype in PLA plastic was made with the 3D printer.

**Results**

Our tool is inspired from the FreeHand Textile Support® design but exhibits new characteristics:

- Bigger for a better hand-grip,
- With a hook to suspend the urinary bag during the procedure;
- And a hole to insert the catheter that keep it vertical position during the procedure;

In addition, several accessory tools have been created to grab the urinary bag and holding it on the hook. The tools were tested with the SpeediCath Compact ® and after a few adjustments and a definitive model has been elaborated.

The elaboration of a 3D custom-made tool for the use of the SpeediCath Compact® by a multidisciplinary team including the patients has been a success and gives them a complete autonomy in this procedure, in safe, efficient and hygienic conditions.