

Question

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 **news 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.



Conclusions

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.