Supporting Information

A 3D printed microfluidic device with integrated biosensors for online analysis of subcutaneous human microdialysate

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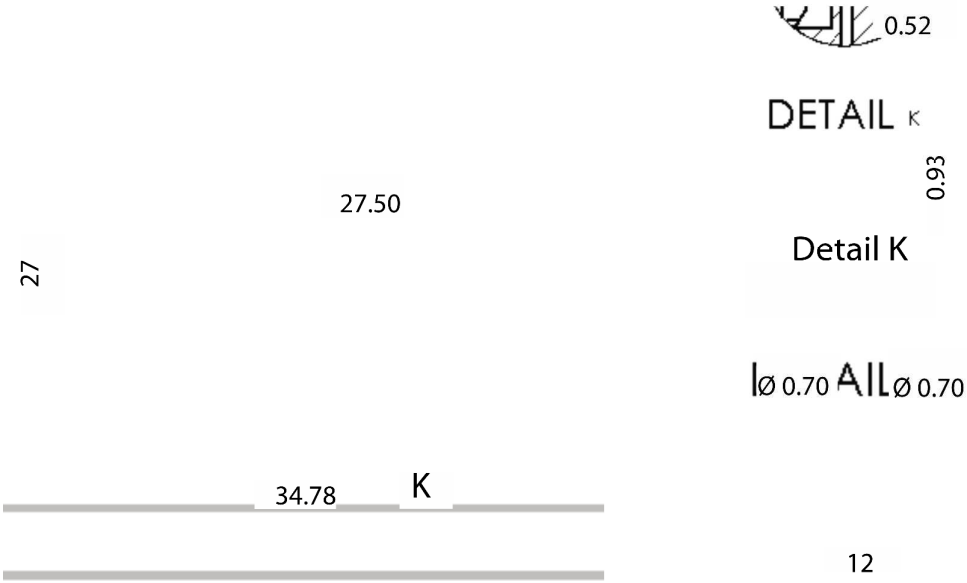


Figure S-1: Schematic drawings of the microfluidic chip. *Left* shows side view of microfluidic chip. *Right (top)* shows close-up of the microfluidic channel chamber, into which the needle biosensor is inserted and *Right (bottom)* shows top view of microfluidic chip. Key dimensions of microfluidic channel given in mm.

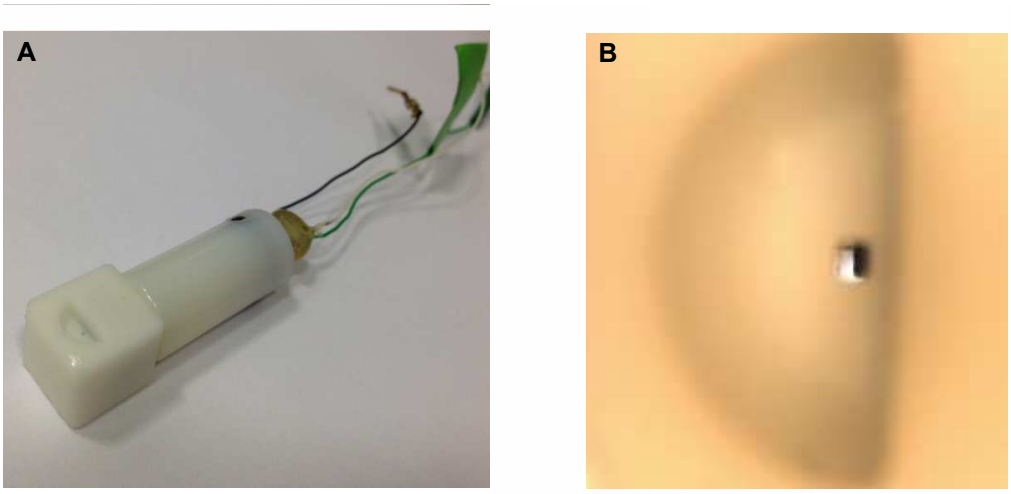


Figure S-2: Cross-sectional cut-out of the microfluidic chip. A. The electrode holder, containing the needle biosensor, is inserted into the cut-out part and the needle position can be visualised inside the channel under a microscope. The position of the needle can be adjusted and the needle can be secured in place once the desired height has been achieved. B. Close-up image of the needle biosensor positioned in the middle of the channel. Direction of flow is perpendicular to the page.

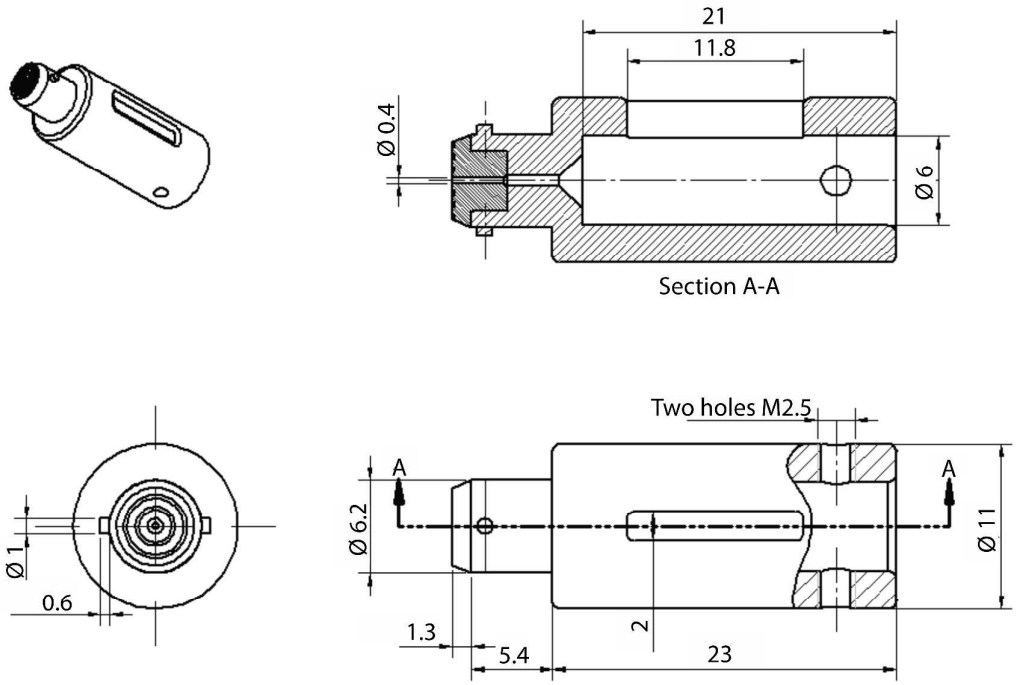
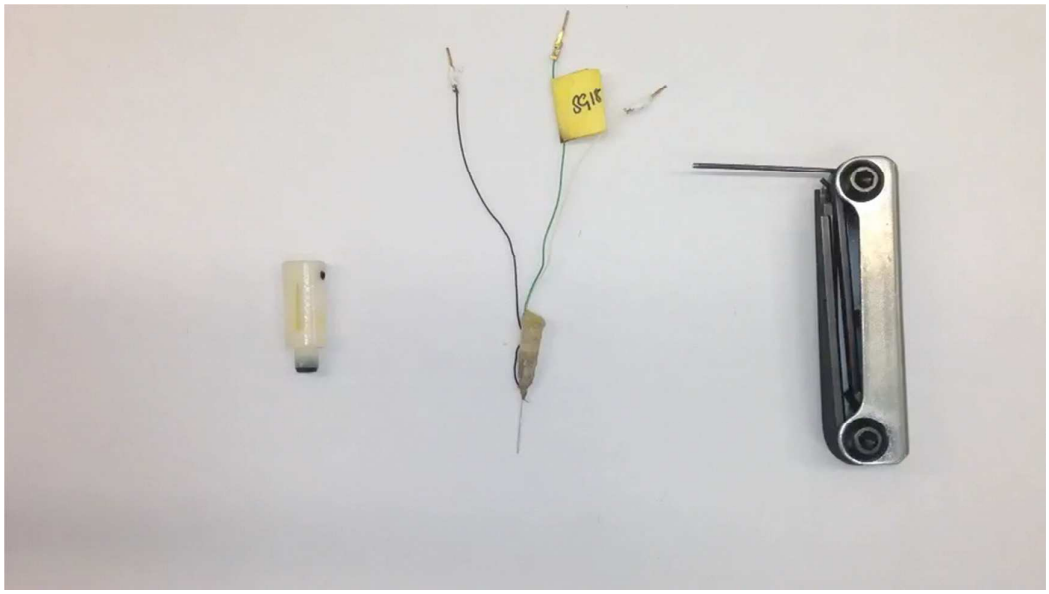
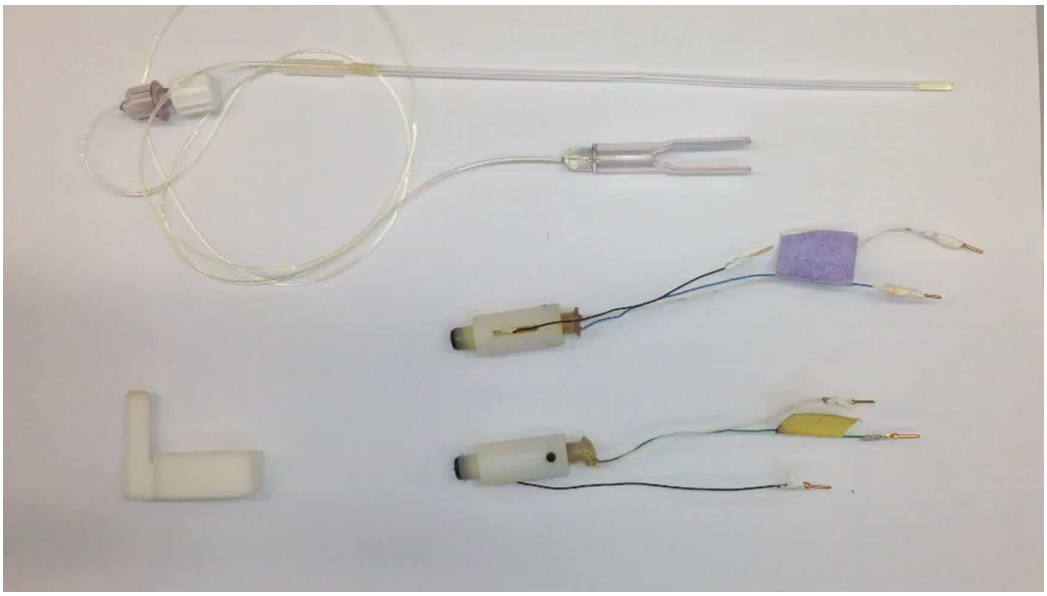


Figure S-3: Detailed schematic of needle holder. The needle holder has a soft, compressible plastic at the tip, which can form a seal with the microfluidic chip. Pegs at the side of the holder are used to guide the holder and therefore the electrode, into place inside the microfluidic channel. Two grub screws (M2.5) were tightened to fix the electrode in place inside the holder and a slot was added to the side so that the counter electrode wire could be threaded through. All measurements given are in mm.



Supporting video S-1: Insertion and positioning of needle electrode into electrode holder.



Supporting video S-2: Biosensor integration and connection to the microdialysis probe.