

FROM THE LAB INTO THE CLINIC: ELECTROSPINNING OF MEDICAL DEVICES

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Electrospinning has received an ever-increasing amount of attention academically, as judged by the rise in the number of publications over the last three decades. It has been established as a fast and versatile fabrication technique for fibrous materials for use in implantable biomedical devices. Nevertheless, there is significant discrepancy between the academic effort undertaken so far and the relatively low number of approved medical devices utilising electrospun materials. The question therefore remains why this scientific knowledge can rarely be translated into the clinic.

Over the years, The Electrospinning Company has developed to a centre of excellence in biomedical electrospinning and we have a thorough understanding on how to achieve biomaterial characteristics such as mechanical strength, resorption time and architecture, suitable for specific therapeutic indications and target tissues. Having worked with many academic research groups as well as industrial clients, we have seen the challenges involved in moving scientific research to the market. We currently fabricate biomaterials that are used as part of an FDA-approved orthopaedic medical device, and others that are being evaluated in clinical trials in different indications and regions.

In this presentation we will provide an overview of the status of electrospun biomaterials on, or close to, market and share the challenges associated with taking promising electrospinning research out of the lab and into the clinic. We will further focus on how we approach device design and manufacture in order to maximise the chances of clinical and commercial success, and will illustrate this with a case study.