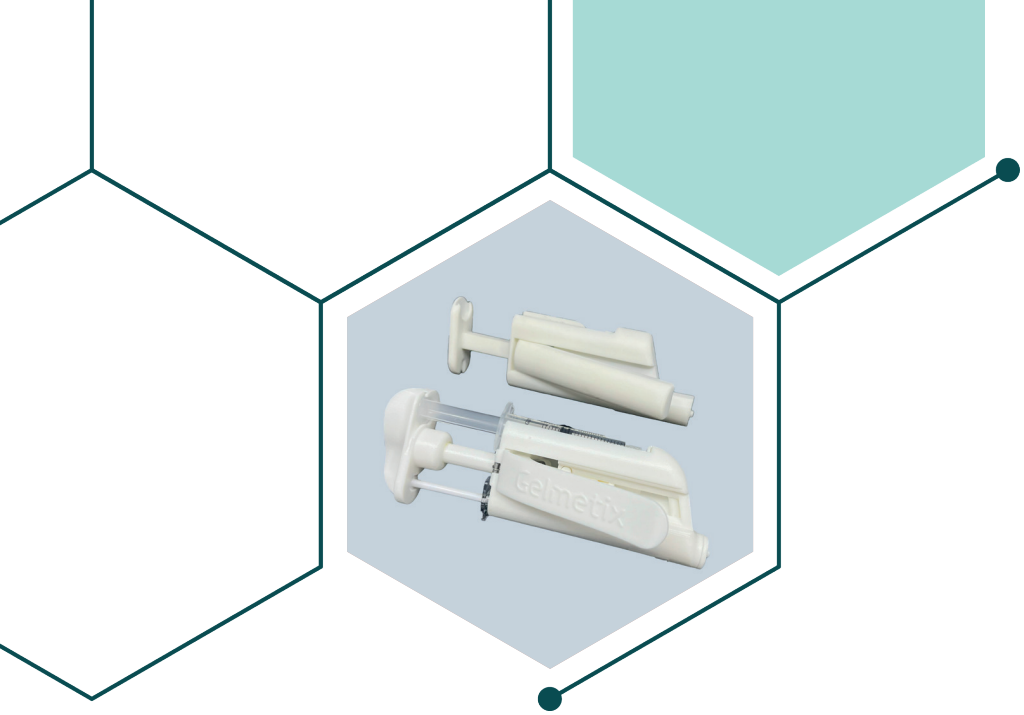

ilkonplan

HYDROGEL APPLICATOR: SUPPORT FOR CONCEPTION, DEVELOPMENT, AND PROTOTYPE

The internationally active startup company Gelmetix has developed a patented polymer gel for the treatment of chronic lower back pain. The polymer gel is injected directly into the intervertebral disc to rehydrate and stabilize it. konplan supported Gelmetix in the development and production of a prototye device for animal studies. The device combines two main functions: the mixing process of the polymer gel and its application with a hypodermic needle. The long-term goal is a single-use device for humans.

Iterative from idea to prototype
The team identified the requirements in collaboration with the stakeholders. Subsequently, konplan developed the functions and design. Various applicators were produced using 3D printing technology and then functionally tested in trials. A major challenge was developing the mixer for the polymer gel. Gel formation occurs quickly during application. This causes an increase in volume and high pressure inside the device.

Two prototypes tested for the development of different approaches
Gelmetix received two different applicators for use in the further development of the polymer gel. The 3D printing technology enabled rapid design review and successful functional tests for the mixing and application of the polymer gel. The high pressure inside the device was also successfully controlled to maintain the application force at a low level.

Result
- Idea Collection
- 3D printed applicators

Methodology & Technologies
- Workflow Analysis & Ideation, Trystorming
- Solidworks, Rapid Prototyping, Aligned Elements
- Iterative Design

Scope of Services
- Project Management & Idea Generation
- Definition of URS, DIRs and Risk Analyses, Implementation using 3D printing

7 months

3 employees – konplan
2-3 employees – customer

Analysis & Idea Generation, Conception, Development

Customer

Gelmetix