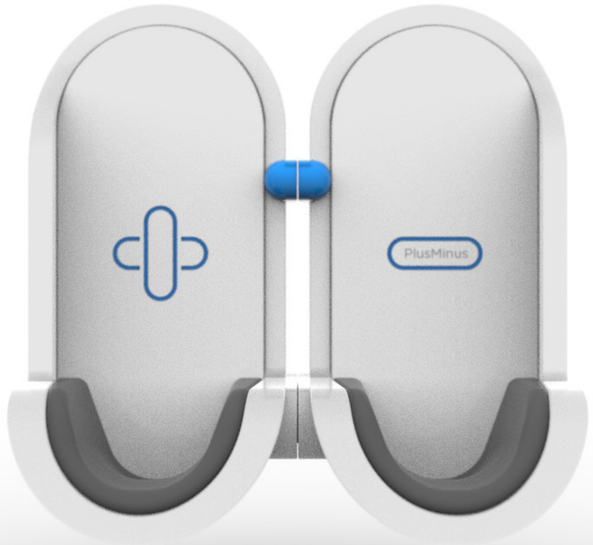
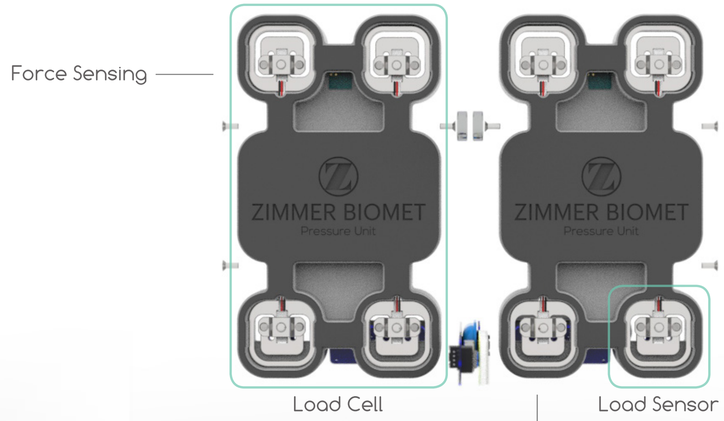
Evaluating Leg Length Discrepancy during Total Hip Arthroplasty

Enhancing Conventional Surgical Workflows

Introducing new workflows to medical professionals often entails neglecting the protocols they spent years practicing. Instead of introducing new methods and procedures, it was decided to build on existing ones. This was done by exploring common surgical workflows in respect to total hip replacement and determining an approach to enhance surgical team's capabilities in evaluating leg length discrepancy.

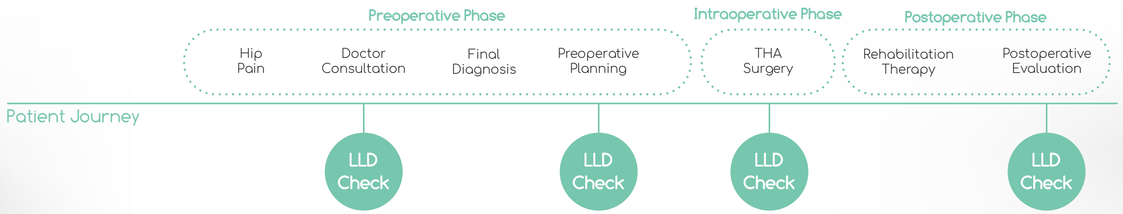
PlusMinus is a hand held device, for effortless assessment of leg length discrepancy. Its functionality is founded in a surgical method, during which the surgeon or circulating nurse will centre the patient's feet, apply pressure to the heels and try to evaluate the discrepancy. PlusMinus is designed to enhance this assessment by providing precision position sensing and haptic feedback on force exertion.

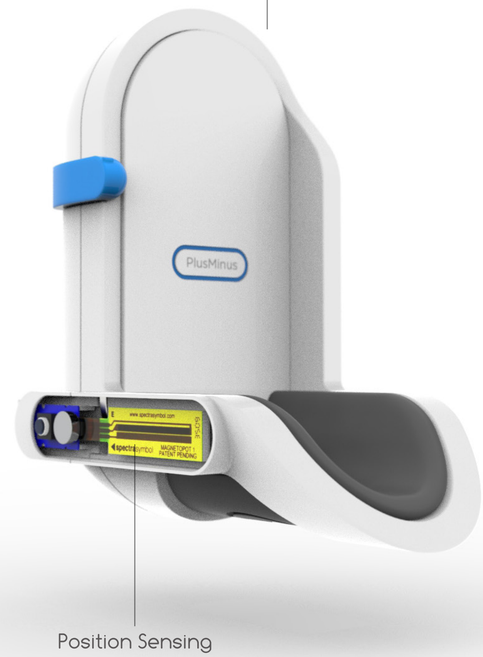




The meaning of the name PlusMinus is a playful analogy that originates from its primary function: constantly evaluating relative position of the units to one another. Similar in topology to a defibrillator, the device consists of two units and a charging station.

Originally developed for an intraoperative context, PlusMinus can be used pre- and postoperatively, thereby enabling interphase comparison of measurements, which will provide data driven insights into the relation between pre- and postoperative leg length discrepancy.





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