Introduction: The lumbar degenerative disc disease has been treated over the years with methods of stabilization and it has presented good results, but the completely lost of motion in a fused segment leads to overload the adjacent segments, pseudoarthrosis, and a long recovery time. Looking for reducing the adjacent disc degeneration incidence and the long recovery in post-op period; the artificial discs have been developed as an alternative for fusion to keep the range of motion of the spine attempt to decrease the adjacent disc degeneration. Charité prothesis has over than 20.000 patients worldwide and has been implanted since the early 1980's. Over these years, new prostheses have been developed, differing in disc materials, biomechanical features, indications and implantation approaches. Nowadays we can be supported by literature and clinical experience, what have directed lumbar technology to better developing strategies and results.

Methods: We have evaluated the pitfalls in the lumbar arthroplasty history and how is possible to minimize this problems. Along with surgical and basic science literature, Dr. Pimenta's wide clinical experience was analyzed, which covers more than 300 single or multi-level implanted prostheses with up to 8 years follow up. The clinical experience lay on different prostheses, including charité, prodisc, mobidisc, triumph, maverick, physio-L, active-L and lateral disc. Patients had been prospectively monitored, using the clinical and imagining outcomes assessment. Complications and success have been recorded and related to pre-existing conditions, prostheses design, approaches and indications.

Results: Overall clinical outcomes testify TDR benefits, but point out to long term complications appearance. Complications type depends on the prosthesis model, covering facet join pain, subsidence, bad positioning, core fracture, pedicle fracture, iatrogenic scoliosis, heterotopic ossification and CrCo allergy.

Conclusions: Our analyses can point out various lumbar arthroplasty aspects, including its pros: better biomechanical results, better clinical results, restoration of global motion, no bone graft needed; and its cons: expensive technology, short follow up in comparison to fusion, important adverse events, ideal prosthesis yet nonexistent. Constant patient monitoring, data sharing, concept and technology adapting are essential for achieve crescent success.