

Voice of LITERATURE

Biomechanical and Clinical Comparative Study of the New Elastic Stable Intramedullary Nailing "MJ-FLEX The New Metaizeau Nail™"

Denis D., Maucort-Boulch D., Suchier Y., Mamadou T., Metaizeau JD.

Aim of the study:

To compare the biomechanical stability and the safety of standard Metaizeau (MS) elastic intramedullary nails versus MJ-FLEX The New Metaizeau Nail™ (MJF) nails for the treatment of long-bone fractures in children.

Methods:

The biomechanical behaviour of MS and MJF nails was compared with a computer model developed by the bioengineering team of the University of Southampton performing a 4 points flexion test in three different planes. Moreover, a retrospective study was carried out on 137 fractures treated with MS (47 cases) or MJF (90 cases) nails to collect data on the clinical behaviour of the two nails in terms of stability and safety.

Results:

- The biomechanical study demonstrated that MJF provides greater stiffness than MS in frontal, sagittal and axial planes for both simple and comminuted transverse fractures, with a gain varying from 55% to 170%.
- The clinical study demonstrated that MJF significantly reduced the risk of frontal and sagittal malalignment: there were 31 patients (66%) with misalignment for MS and 13 patients (14.4%) for MJF.
- The use of MJF decreases the pre-operative radiation exposure by 66% and the operative time by 30%.

Conclusion:

MJF provides greater biomechanical stability than MS for the treatment of long bone fractures. Due to the design of MJF nail, post-operative safety was better in terms of reduced risk of complications, reduced x-ray exposure and shorter operative time.

Orthofix comments:

- Thanks to its unique design, MJF allows an optimal fill of the medullary canal leading to benefits for patients.
- Dedicated instrumentation and the patented shape of the MJF allow visual control of the nail orientation during insertion and the streamlined technique enables surgeons to decrease the operative time.

Reference:

[J Pediatr Orthop](#). 2018 Jul 2. doi: 10.1097/BPO.0000000000001206.

Disclaimers:

- Dr JD Metaizeau has currently in place a IP & royalty Agreement with Orthofix Srl.
- Results from this study may not be predictive of results in other cases. Results in other cases may vary.