Limitations of the Vastus Lateralis Muscle as a Substitute for Lost Abductor Muscle Function: An Anatomical Study

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Abductor insufficiency after hip arthroplasty resulting from an impaired gluteus medius and minimus remains an unsolved problem in orthopaedic surgery. The vastus lateralis (VL) was described as a functional substitute for abductor insufficiency in 2004. We carried out a macrodissection of twelve cadaveric hemipelvises to investigate the innervation of the VL and adjacent muscles to assess the extent the VL can be safely transferred. Results showed that direct muscle branches to proximal portions of the VL are too short to allow a significant shift; the shift may be as small as 13 mm. Nerves that supply the VL also extend to the vastus intermedius. This innervation pattern makes it impossible to shift the VL significantly without damaging branches to both.

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