prophylactically at the time of the index amputation or as a staged procedure for symptomatic neuromas.

c. Agonist Antagonist Myoneural Interface

The AMI is another emerging technology in limb amputation surgical management that has shown promise to improve patient outcomes by providing bidirectional neural feedback and proprioceptive feedback in the residual limb.(126) This theory was developed using a rat animal model to connect agonist and antagonist muscles in the healthy tissues of the distal residual limb following amputation.(126, 127) The first description of AMIs being used in the human extremity was a case series of three below the knee amputations (BKA) with encouraging results for increased proprioception of the distal residual limb and decreased PLP.(128) Although trialed in persons with ULA, there is currently no published literature supporting the safety or outcomes of the AMI procedure in this population.(129)

d. Osseointegration

For the attachment of the prosthesis to the residual limb, OI has been used in Europe for more than 20 years for both lower and upper extremities and in the U.S. for over a decade. This includes emerging work with osseointegrated digits.(123, 129-131) It involves inserting a titanium implant into the distal bone of the residual limb. A percutaneous implant component allows the prosthesis to attach directly to the skeleton without the use of a socket. As a result, the residual limb is free of skin complications commonly associated with the use of a socket suspension system and is available for tactile feedback. The inclusion criteria for this procedure include skeletal maturity, sufficient bone stock to support the fixture, and the ability to complete rehabilitation.(132) Minor complications are most common, such as soft tissue infections, and may be mitigated in the future by improvements in surgical technique and implant design.(133)