

FACULTY

ABDEL, MATTHEW P. M.D.



Location

Rochester, Minnesota

[Clinical Profile](#)

SUMMARY

As an orthopedic clinician-scientist with broad-based training in orthopedic surgery, biomechanics and biochemistry, Matthew P. Abdel, M.D., is interested in studying clinically relevant pathologies while considering the functional impact on patients.

Dr. Abdel's laboratory is focused on investigating the genetic expression profiles of people predisposed to joint contractures (arthrofibrosis), osteolysis and deep periprosthetic infections through the use of both animal models and human trials. In addition, he is interested in studying the epidemiology and best treatment modalities for patients with periprosthetic infections and fractures.

As a clinician, Dr. Abdel's expertise is in complex revision total hip and knee procedures for the treatment of arthrofibrosis, osteolysis, oncologic resections, periprosthetic infections and periprosthetic fractures. As such, his research is directly translational to his clinical practice, reinforcing the clinician-scientist role.

Focus areas

- **Joint contractures (arthrofibrosis).** Dr. Abdel is interested in understanding the individual genetic host variation that leads to arthrofibrosis after common orthopedic procedures, such as total knee replacements. He and his colleagues have created and validated a number of findings, including a novel animal model of arthrofibrosis. They have also determined the most comprehensive temporal genetic expression profile of genes and pathways involved in arthrofibrosis, tested three potentially anti-fibrogenic pharmaceutical agents in the rabbit model, and found the single most comprehensive genetic expression profile of genes and pathways involved in humans with elbow arthrofibrosis. Recent discoveries in this area include single nucleotide polymorphisms (SNPs), genes and pathways involved in arthrofibrosis after total knee replacements.
- **Osteolysis.** Dr. Abdel is also working to characterize the genetic expression profile of individuals susceptible to osteolysis after both total hip replacements and total knee replacements.
- **Periprosthetic infections.** Dr. Abdel is interested in studying the factors that predispose an individual to a periprosthetic infection and mitigating those risk factors.