Rhode Island Hospital has received a grant of $2.2 million from the United States Department of Defense to support a research study on a treatment that may prevent post-traumatic osteoarthritis, a common condition in men and women who suffer joint injuries to the knee and hip.

The research will allow for further development of lubricin, a manufactured recombinant protein similar to a natural form of lubricant for the joints, that may prevent osteoarthritis following trauma.

In the general population, trauma accounts for 18 percent of the total cases of osteoarthritis (OA). Injuries such as tears to the anterior cruciate ligament (ACL) or meniscal injuries along with other forms of joint trauma are identified causes of the development of OA. In the military, orthopedic surgeons with the U.S. Army anticipate that almost one half of service men and women will acquire post-traumatic osteoarthritis following a new joint injury.

Recently, it has been recognized by the research community that treating the injured joint following trauma may be the best practice in preventing OA after injury. To do so, a manufactured product known as lubricin can be injected into the joint. Lubricin acts as the natural joint lubricant in synovial fluid, which and is lost following injury. However, the reintroduction of lubricin allows for the preservation of the cartilage.

Co-Principal investigator (co-PI) Gregory Jay, MD, PhD, is an emergency medicine physician and researcher with Rhode Island Hospital and an established investigator in lubricin. Jay, along with his co-PI Braden Fleming, PhD, a leading orthopaedic researcher in the study of knee joint injuries and arthritis, will lead this study to develop what they hope to be a prevention for post-traumatic OA.
As Jay explains, “By supplementing the joint’s natural lubricating ability, it offers the prospect of preserving the cells that line the surface of the articular cartilage. These cells are progenitor cells, which mean they provide the cartilage with a limited ability to repair itself. Preserving these cells is an important step in the prevention of osteoarthritis.”

Fleming comments, “We anticipate that through this study, we will be able to advance clinical knowledge of the use of lubricin in treating traumatic injuries to joints, which may prevent the development of OA later. This will have major implications in how these injuries are treated and the prognoses not only for service men and service women, but the general population as well.”

Jay and Fleming’s principal affiliation is Rhode Island Hospital. The grant for this project was received through the Lifespan Office of Research Administration. The researchers also hold academic appointments at The Warren Alpert Medical School of Brown University. Their labs are fully supported by Rhode Island Hospital and the Lifespan health system.

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