Military Advanced Surgical Treatment (MAST) Summit Research Initiative

Research Grant Request for Applications

Grant Overview:

The Arthroscopy Association of North America (AANA), in conjunction with the American Orthopaedic Society for Sports Medicine (AOSSM), and the Society for Military Orthopaedic Surgeons (SOMOS), are seeking research proposals to support the following initiatives:

- Biologics
- Surgical Skills Development
- Return to Sport or Duty
- Patient Reported Outcomes

All applications will be reviewed, discussed, and deliberated on by representatives of the three partner organizations. The finalist will be presented to a panel of representatives convening at the MAST Summit, November 3-4, 2023. A winner will be selected and announced after the MAST Summit. The recipient will receive a $200,000 grant from the AANA Military Advanced Surgical Treatment Program (MAST). This research initiative is a collaborative venture of AANA, AOSSM and SOMOS.

Primary Objective:

This grant aims to support projects that contribute to advancements in the areas of biologics, surgical skill development, return to sport or duty, and patient reported outcomes.

Applications must pertain to pre-clinical or clinical research that aims to improve orthopaedic treatment, techniques, and/or populations within the initiatives outlined. Applications may focus on any population, subset, or demographic; however certain consideration may be applied to submissions with a military populace focus. Collaboration among military and civilian programs is encouraged.

Eligibility:

Any investigative team seeking to be awarded the MAST Summit grant must include at least one member of AANA, AOSSM, or SOMOS in good standing. Residents and Attending Faculty within 2 years

of completion of training at the time of application are eligible to serve as principal investigators. Resident submissions must have an active AANA, SOMOS, or AOSSM member on their protocol. Studies addressing common musculoskeletal joint or soft tissue traumatic injuries, combat injuries, epidemiological assessment and/or surgical interventions are ideal for this grant opportunity.

MAST Summit Research Initiative Timeline:

August 16, 2023	Submissions Open
October 13, 2023	Submissions Close
October 14, 2023 – November 01, 2023	Submission Review Finalists Chosen for MAST Summit panel review
November 04, 2023	MAST Research Initiative winner selected
Mid – November, 2023	MAST Research Initiative winner notified
November 11, 2023 – December 31, 2023	Standardization and finalization of project contracts
January 01, 2024	Research Initiative Begins 1*st* Disbursement (50%) of funding provided
September 01, 2024	Progress Report due to AANA Research team
September 15, 2024	2*nd* Disbursement (25%) of funding provided
May 01, 2025	2*nd* Progress Report due to AANA Research team
May 15, 2025	3*rd* Disbursement (25%) of funding provided
December 31, 2025	Research Initiative Complete
January 31, 2026	Final Progress Report Due to AANA Research team

Application Requirements:

All applications must be submitted in full and contain the components requested in these grant guidelines. Incomplete applications will not be considered. **The following elements are required by the submission closing date of October 13, 2023:**

- **Technical Abstract (1-2 pages) showing:**
  - A brief overview of the problem or issue within the orthopaedic community.
  - Objective/Specific Aims: List the broad, long-term objectives and specific aims to be accomplished by your project. This should be the focal point of your submission and emphasize the definitive and applicable impact of your proposal.
  - Implementation plan.
  - The anticipated results and longitudinal impact within the orthopaedic community.
  - Military Relevance [*Optional*]*:* Describe how your project is relevant to military populations.
- **Biographical Sketch (CV) - (3 pages maximum per investigator)**
  - Please include the biographical sketches of all key personnel, including PIs, coordinators, faculty, and consultants.
  - A biographical sketch documents an individual's qualifications and experience for a specific role in the project.
- **References Cited**
  - Each reference must include:
    - Title.
    - Names of all authors.
    - Source (book or journal).
    - Volume number.
    - Page numbers.
    - Year of publication.
  - The reference should be limited to relevant, applicable, and current literature. While there is not a page limitation, please be concise and select only those literature references pertinent to the proposed research.
- **Budget Outline showing:**
  - Budget summary
  - Breakdown of phases, tasks, and activities

- Preliminary cost of materials, staffing, and instruments

- **Research Plan (5 pages maximum):**
  - A successful Research Plan should answer the following questions:
    - What do you and your study team intend to present?
    - Why is the proposed work important to the orthopaedic community?
    - What has already been done? If nothing has been done, why?
    - How are you going to do the work?

A comprehensive guideline of a recommended research plan is provided later in the document.

Grant Objectives:

The goal of the MAST Research Initiative is to award a singular research project that promotes the improvement of skills and capabilities of the orthopaedic surgery community, with an emphasis on military orthopaedic surgeons.

- **Biologics:** Research focused on the development of novel biologic approaches for joint preservation, tissue repair, and accelerated healing in arthroscopic procedures. Projects should aim to address critical challenges in joint preservation, tissue repair, and accelerated healing. Proposals that explore the potential of regenerative medicine, such as stem cell therapies, platelet-rich plasma (PRP), and growth factors, in enhancing patient outcomes and improving the efficacy of clinically based or arthroscopic interventions

- **Surgical Skill Development:** Research projects that aim to design, develop, and implement high-fidelity surgical simulation tools and platforms. The proposed simulations should closely mimic real-world arthroscopic scenarios, enabling trainees to acquire and refine their surgical skills in a risk-free and controlled environment. Innovative proposals that integrate state-of-the-art technologies, such as virtual reality (VR), haptic feedback, and artificial intelligence (AI) assistance, are encouraged. The project should demonstrate the effectiveness of simulation-based training in improving surgical proficiency, reducing errors, shortening learning curves, and ultimately elevating patient safety and quality of care.

- **Return to Sport or Duty:** We welcome proposals that explore various aspects of optimization of surgical treatment and/or related to patient recovery and rehabilitation. This may include studies investigating optimal surgical approaches, postoperative protocols, individualized rehabilitation plans, and evidence-based interventions to expedite functional recovery and prevent complications. The program seeks projects that employ digital health solutions, wearable devices, and patient-reported outcome measures (PROMs) to monitor patients' progress and enhance the continuum of care. Research addressing specific sports-related challenges and tailored approaches for athletes undergoing arthroscopic procedures will also be highly valued. Ultimately, this priority aims to support projects that contribute to achieving the

best possible postoperative outcomes, empowering patients to resume an active lifestyle with confidence and efficiency.

- **Patient Reported Outcomes (PRO):** Develop strategies, clinical tools, and patient tools utilizing PROs, sports/occupation specific and clinical variables to develop a tailored/precision medicine capability that predicts effective return to sport/duty and outcomes for extremity injury. Development of evidenced-based and patient-tailored predictive modeling to determine successful return to unrestricted return to activity.

Please note that while the topics mentioned above serve as primary focal points for the grant, we remain open to innovative proposals that push the boundaries of arthroscopy, sports medicine, and orthopedics in other pertinent areas. We encourage applicants to articulate how their proposed projects align with the organization's mission and vision, fostering advancements in patient care, research, education, and innovation within the field of arthroscopic surgery. Applications that are submitted in a format other than a word file or PDF may be subject to formatting or readability issues.

Funding:

This program provides an award of $200,000 disbursed in three increments over a 24-month period. Funding will begin on January 01, 2024, with 50% of the overall grant initially distributed. A subsequent payment of 25% will be disbursed on September 15, 2024, contingent upon the successful submission of a project status report provided to the AANA Research Team. The last payment will be disbursed on May 15, 2025, after a second progress report is submitted. The research initiative will be completed by December 31, 2025 with a final progress report due to the AANA Research Team no later than January 31, 2026.

January 01, 2024	Research Initiative Begins 1*st* Disbursement (50%) of funding provided
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Grant recipients are required to submit status updates to Nick Sautter, Research and Data Analyst with AANA, at the 8- and 16-month timepoints. The progress report will be reviewed by the AANA Research Committee to ensure the project is adequately progressing. A final report submitted within the project period must be provided to the AANA Research Team to be considered complete.

Final Progress Report:

At the end of the funded study, the grantee(s) must prepare, sign (together with the countersignature of the responsible financial official of the parent institution where appropriate) and submit to AANA a report of grant expenditures. A final report is also required at the completion of the study that

summarizes research findings, potential impacts, and continued areas of research. This final narrative may be used, presented, or mentioned at the AANA Annual Meeting. Manuscripts under consideration for or accepted for publication are also acceptable as a final report.

Recommended Research Plan Outline

An ideal and comprehensive research plan should be composed of the following:

A. Background:

Describe in detail the rationale for the study and include:

- Literature review
- Preliminary studies
- Preliminary data that led to the development of the proposed project.

The Background section should clearly explain the basis for study objectives and/or hypothesis and specific aims.

B. Relevance:

Identify the required Focus Area(s) to be addressed by the proposed project.

Explain the study's relevance to the applicable areas of focus and how they impact return to activity or duty performance.

- Describe the significance of the project's objective and/or subjective measures or metrics.
- Explain how the proposed project improves:
    - Understanding of return to activity and/or duty.
    - Assessment measures for return to activity and/or duty.
    - Direct measures regarding return to activity and/or duty.
    - Behaviors or practices implemented to improve return to activity and/or duty.
- Explain the relevance of your project to the orthopaedic, and/or biologic community and how the tool/technology/analysis can be utilized by participants.
- Identify and describe an ultimate deliverable regarding improving return to activity and/or duty.

C. Objectives/Specific Aims/Hypotheses:

Provide a description of the purpose and objectives of the study with detailed specific aims and/or study questions/hypotheses.

D. Research Design and Methods:

- Describe the experimental design, methods, and analyses, including appropriate controls, in sufficient detail for evaluation.
- If applicable, describe the research objective(s) of the animal study. Explain how and why the animal species, strain, and model(s) being used can address the scientific objectives.
- Document the availability and accessibility of the samples, data, and/or other materials/resources needed for the proposed research, as applicable.
- Address potential problem areas and present alternative methods and approaches.
- Outline the proposed methodology needed to conduct your proposal in sufficient detail to show a clear course of action.
- Define the study variables and describe how they will be measured. Include a description of appropriate controls and the endpoints to be tested.
- Describe the study population, criteria for inclusion/exclusion, and the methods that will be used for recruitment/accrual of human subjects and/or samples (i.e., convenience, simple random, stratified random).
    - Specify the approximate number of human subjects that will be accrued.
    - Address any potential barriers to human subjects' accrual and plans for addressing potential delays.
- Describe how the subject-to-group assignments process will be conducted (e.g., randomization, block randomization, stratified randomization, age- matched controls, alternating group, or other procedures), if applicable.
- Data and Statistical Analysis Plan: Describe how data will be collected and analyzed in a manner that is consistent with the study objectives.
    - If applicable, specify the approximate number of human subjects/samples that will be accrued. If multiple study sites are involved, state the approximate number to be enrolled at each site.
    - If applicable, describe how data will be reported and how the PI will assure that the documentation will support a regulatory filing with the FDA.

E. Study Personnel:

Identify the key members of the study team and briefly describe their roles and objectives for the project. Please include any conflicts of interest present amongst all staff members.

F. References Cited [does not count toward page limit]:

List all references used in the Research Plan.

G. Budget:

Applicants are free to present their proposed budget in any format but must identify and list any anticipated major expense individually, along with a brief description and total amount. Supplies under $500 do not need to be itemized. Budget updates may be requested by the partner associations at the time of a 8-month or 16-month status update.

- Financial Records: Separate accounts must be maintained for each grant. These accounts, with substantiating invoices and other expenditure data, must be always available to representatives of AANA.
- Completed Grants: Any unexpended balances of $500 or more at the scheduled conclusion, must be refunded to AANA within sixty (60) days or by the agreed upon end date of the project.

H. Appendix:

Applications may include the following materials in the appendix:

- Surveys
- Questionnaires.
- data collection instruments.
- Clinical protocols.
- Raw data.
- Figures, tables, or photographs relevant to the submission.

Fiscal Procedures and Policies:

The grant recipient, and their institutions, are expected to provide all the necessary basic facilities and services normally expected in professional environments qualified to undertake the research.

The MAST Research Initiative expects grantee(s) to have available, unless otherwise agreed upon:

- Laboratory space, furniture, or operational expenses
- Maintenance services, including maintenance supplies and service contracts.
- Library services, including subscriptions to periodicals and the purchase of books.
- Salaries of principal investigator or co-investigators, unless otherwise agreed upon.
- Foreign and local travel expenses of personnel
- Society dues and memberships of personnel
- Workers' compensation, public liability or other hazard and special insurance
- Employee, or key personnel, group life, disability, medical expense, or hospitalization insurance
- Hospital bed expense, nursing, or related services

Grant funding may not be spent remodeling or building construction costs. Additionally, the grant funds may not be used to pay institutional overhead/indirect (facilities and administrative) expenses. The intention of the grant should generally be dedicated to purchasing those materials that are directly related towards successful completion of the project.

Ethical Guidelines:

Submissions to the MAST Summit Research Initiative confirm that their proposals are ethically suitable and meet industry-recognized standards that include, but are not limited to:

- Accurately presenting their research findings and comprise an objective examination of the significance of their findings in the field of orthopaedics.
- Uphold accurate authorship and accreditation, by including all and only those who qualify while clearly stating their contribution.
- Disclose any facts that might be perceived as a possible conflict of interest at submission.
- Present their data and methods with attention to detail.

Plagiarism, such as the copying of text, theories, images, or data from an uncredited source, will not be tolerated. Reuse of text that is copied in any manner must be fully cited from the original source.

Data and image files must be presented without manipulation, enhancement, or fabrication. This includes, but is not limited to:

- Exclusion of data points to demonstrate significance of conclusions.
- Selection of results supporting a presented conclusion while obscuring contradictory data.
- Intentional selection of analysis tools or methods that support a particular conclusion.
- Introduction, enhancement, or alteration of features from the original interpretation.

For research involving human subjects, an approval from the local institutional review board (IRB) must be obtained before undertaking the research to confirm Good Clinical Practices (GCP) are observed and the study meets national and international guidelines.

For non-interventional studies (e.g., surveys, questionnaires), participants must be fully informed of all project parameters that include, but are not limited to:

- Why the research is being conducted.
- How their data will be used.
- Risks associated with their participation.

A written or electronic informed consent for publication must be obtained from participating patients. If the study reports research involving vulnerable groups, an additional review may be requested by the members of the AANA Research Committee. Any violation of the ethical guidelines invokes the authority of the grant provider to rescind any future installments of funding, recognition, and liabilities. Furthermore, violators may be pursuant to legal action. By submitting a proposal for the MAST Research Initiative, you hereby adhere and consent that your project follows all proposed ethical regulations.

Correspondence:

Any questions or requests should be directed to Nick Sautter, M.S., Research and Data Analyst with AANA: Nick@aana.org.