



American Academy of Orthopaedic Surgeons®

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April 20, 2006

Stephen I. Katz, MD, PhD
National Institute of Arthritis and Musculoskeletal and Skin Diseases
31 Center Drive
Building 31, 4C32D
Bethesda, MD 20892-2350

Dear Dr. Katz:

We are writing on behalf of the American Academy of Orthopaedic Surgeons (AAOS) and the Orthopaedic Research Society (ORS) in response to the 2006-2009 National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) Long-Range Plan (Plan).

The Plan is comprehensive and well-conceived to fit the mission of NIAMS. The sections of the draft Plan appear to be consistent with strategies articulated across the National Institutes of Health (NIH). However, the scope of orthopaedic surgery goes beyond primary disease to include secondary effects of acquired conditions such as implant wear for total joint replacements, effects from bone reconstruction for trauma, and nerve, muscle, and tendon conditions with unaltered natural history and with interventions. The AAOS and ORS believe there is a need for more programs that focus on these areas. For example, under 3B-2.1, it is suggested that developments in the understanding of factors governing implant wear and the host tissue response to wear debris is added as an important research need and opportunity.

Additionally, we have comments regarding the cross-cutting programs.

1. The **Behavioral and Biopsychosocial Research in Arthritis and Musculoskeletal and Skin Diseases** program (2A) describes substantial study emphasis on social and behavioral studies. While these seem appropriate and important areas of study related to musculoskeletal disorders, it is unclear that NIAMS should be identifying these areas as an independent primary focus. This area fits well in the expertise of the behavior investigators in the neurosciences and also within the programs in complementary and alternative medicine. If this is an important area for NIAMS which we believe is likely true, it seems these programs should be partnered with the other appropriate NIH institutes. Otherwise, NIAMS may be repeating studies performed on other organ or disease systems, or may not be engaging the experts on this particular area of study. AAOS and ORS suggest that the area is de-emphasized and developed as a partnership with other institutes or centers in NIH.
2. The **Immunology in Arthritis and Musculoskeletal and Skin Diseases** program (2E) is appropriately broad-based. This could be enhanced by adding a bullet point on elucidating the role of the innate and acquired immune system in the pathogenesis of orthopaedic implant failure.
3. The **Regenerative Medicine** program (2F) depicts an open-minded discussion for basic and translational work in supporting biologic and engineering topics. The discussion about scaffolds is too focused. AAOS and ORS recommend broadening this topic to include the potential temporal, structural, and biologic role of scaffolds or matrices in regenerative therapies. As written, AAOS and ORS believe that this area constrains the definition of tissue engineering.



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4. An area missing from both the cross-cutting and disease-specific areas relates to cell imaging and tracking. The use of strategic therapies for diseases or regenerative approaches will likely involve cells, and progress may be hampered if there is no ability to track these cells. NIAMS should consider supporting or partnering with other institutes to support cell tracking studies using imaging techniques.

Additionally, AAOS and ORS suggest that bone tumors be included under section 3B-1.6: **Molecular and Cellular Biology of Bone Biology and Bone Diseases**. Although it might seem that bone tumor research would be better addressed by the National Cancer Institute, we contend that because of the rarity of these tumors, their unique features, their inevitable interaction with and relationship to bone and cartilage, and the fact that most of the research on these tumors is conducted by orthopaedists, they should be included in the Plan.

Finally, the NIH may wish to consider elevating the prevalence of healthcare disparities research throughout the Plan. Addressing disparities is mentioned briefly under the 3B-2.9, **Clinical Research** section, but is not mentioned elsewhere in the document. Most of diseases that affect the bones, joints, and muscles are chronic in nature and cause extensive pain, disfigurement, or disability. While these diseases affect people of all ages, races, ethnicities, and economic groups, many affect women and minorities disproportionately and in notably unique biological ways. There is an ongoing need to recognize and examine these differences and reduce such disparities, which requires the Plan to address disparities in relevant types of research, outcomes, and therapeutics.

Thank you for the opportunity to review the NIAMS Long Range Plan. The AAOS and ORS look forward to continuing to work with the NIAMS toward our mutual goals in furthering musculoskeletal research.

Sincerely,

Richard F. Kyle, MD
AAOS President

Joshua J. Jacobs, MD
ORS President

Chairman, AAOS Council on Research, Quality Assessment, and Technology

Andrew N. Pollak, MD

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