

6300 North River Road
Rosemont, Illinois 60018

T. 847.823.7186

F. 847.823.8125

www.aaos.org

June 27, 2007

Richard J. Hodes, MD
Director
National Institute on Aging
National Institutes of Health
Building 31, Room 5C27
31 Center Drive, MSC 2292
Bethesda, MD 20892

Dear Dr. Hodes:

The American Academy of Orthopaedic Surgeons (AAOS), representing over 19,000 Board certified orthopaedic surgeons and researchers, welcomes the opportunity to respond to the National Institute on Aging (NIA) Strategic Directions for Research on Aging.

Overall, we found the document to be an extremely comprehensive, well composed outline of the broad goals of the NIA. We are pleased with your stated willingness to collaborate with other organizations, ensuring the NIA will address a spectrum of concerns.

As representatives of the orthopaedic community, we have made several observations regarding the proposed Strategic Directions for Research on Aging. Consequently, we request that you consider the following points for inclusion in your document:

- **The AAOS recommends increased attention on musculoskeletal conditions and bone health:**
 - There is ample discussion on the immune system, neurological diseases, and emotional well-being, but a lack of similar discussion of musculoskeletal conditions. Specifically, arthritis (both osteoarthritis and rheumatoid arthritis) and osteoporosis are not addressed. Arthritis and osteoporosis present a significantly high burden of disease on society and are two of the top research priorities addressed in the Unified Musculoskeletal Research Agenda of the AAOS (*attached*).

- In **Goal A-1, the NIA states its goal of understanding “the role of stem cells in tissue maintenance and how stem cells and their environments change with age”** (page 5). The AAOS suggests that the language be rephrased to be inclusive of burdensome musculoskeletal disorders and diseases, so as to read, “This is especially critical for older people who experience the greatest loss of *muscle strength, bone stability*, and organ function...”
- Under **Goal A-1, “Understand the influence of obesity and metabolic status in healthy aging”** (page 5), the AAOS requests that the NIA include musculoskeletal conditions (e.g. osteoarthritis) in the list of conditions to which the NIA plans to research correlative relationships. Osteoarthritis is the most common form of arthritis and a leading cause of disability worldwide. Further, it has been observed that obese individuals, as opposed to those with a normal body mass index, have worse outcomes from orthopaedic procedures such as joint replacement.
- In **Goal A-2, “Improve our understanding of how the inflammatory process is affected by aging and how these changes impact tissue function”** (page 8), the language attempts to distinguish between “fragilities” or disorders resulting from the aging process and those which are common among the aging. While inflammation is discussed, the document fails to address what could be termed “wear and tear” or the breakdown and/or degradation of structures and systems that appear to accompany aging. In the orthopaedic arena, this relates to conditions ranging from osteoarthritis to osteoporosis. These are very distinct, for example, from inflammatory-based alterations and relate to degeneration of supporting extracellular matrices, signaling processes, and other functions.
- **Goal B-1** states NIA’s attempt to develop “**efficacious and cost effective strategies for promoting healthy and safe behaviors among older adults**” (pages 10, 11).
 - In the second paragraph, “use our increased understanding of exercise physiology...,” should mention that weight bearing exercise can build bone strength, consequently preventing osteoporosis and subsequent fragility fractures.
 - In the third paragraph, “continue research to understand hormone changes...,” hormone receptor modulators should be included.
- **The AAOS recommends the addition of gender differences in disease processes and clinical treatments:**
 - In **Goal D-2, “Understand how social, economic, and health system factors produce disparities in health at older ages and develop interventions to reduce disparities”** (pages 22-23), there is not significant mention of gender disparities. The second bullet point states the goal of encouraging “interdisciplinary biodemographic, health systems, social, and economic perspectives to understand gender differences in health at older ages.” While this provision discusses gender in regard to social and economic well-being, research has proven that males and females can have distinctly different disease processes. Men and women age differently and have different biological compositions. The document as a whole does not address gender disparities on the cellular level although the AAOS does appreciate the brief mention

of observed gender differences in health and longevity across racial and ethnic groups (page 24, paragraph 2).

- **The AAOS recommends increased emphasis on the education of health care providers.**
 - **Goal F-5** (page 31) should further separate the dissemination of information to the public, scientific community, and health care professionals. The second bullet point discusses developing materials for “special audiences, including materials for minority investigators and diverse populations, non-English language materials, and materials for those with limited literacy.” Minority investigators (along with young investigators, and researchers in general) should be in a separate bullet point. Additionally, it would be beneficial to list the methods NIA will employ to educate the scientific community, specifically clinical medical professionals, other than the information posted on the NIA Web site. Lastly, it would be helpful to educate Congress about these research findings and the presence of any knowledge gaps.

Again, the AAOS thanks you for the opportunity to provide feedback. We look forward to valuable partnerships with the NIA in the future. If you have any questions about our comments, please feel free to contact either one of us or Christy M.P. Gilmour, AAOS Manager, Medical Research, Office of Government Relations, at 847-384-4323 or gilmour@aaos.org.

Respectfully submitted,



Joshua J. Jacobs, MD

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

312-432-2344

joshua.jacobs@rushortho.com



Denis R. Clohisy, MD

Chair, AAOS Research Development Committee

612-626-0944

clohi001@umn.edu