

TESTIMONY IN SUPPORT OF BIOMEDICAL AGING RESEARCH

U.S. House of Representatives
Committee on Appropriations
Subcommittee on Labor, Health and Human Services,
Education and Related Agencies

Honorable William H. Natcher, *Chairman*

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by

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INTRODUCTION

I appreciate the opportunity to testify and to explain why it is imperative that we increase funding for basic biomedical aging research. My name is Arthur Balin, and I have been trained as a physician and a scientist. I am speaking to you today as the Executive Director of the American Aging Association. The American Aging Association is a national lay-scientific health organization formed in 1970 whose purpose is to promote biomedical research directed to increasing our healthy functional life span.

The Institute of Medicine of the National Academy of Science has recently published its recommendations for a national research agenda on aging in a book entitled *Extending Life, Enhancing Life*. Their report states "the committee believes that elucidation of the biological mechanisms of aging is an achievable goal." I agree. We have the technology now to discover the causes of the aging process. It is only a matter of committing sufficient resources to this problem.

Much medical research has been targeted at disease-specific issues such as illness caused by infectious diseases, heart disease, cancer, and diabetes. Generally the focus of this research has been to develop treatments for people who suffer from these conditions. This is a costly and inefficient approach. It is the underlying aging process that predisposes a person to all of the associated diseases that accompany aging.

Aging is not the same as disease, although aging makes us more vulnerable to disease. It is the aging process itself, not the specific diseases, that blocks our effort to increase the functional healthy life span. For example, if all heart disease, strokes, and cancer could be totally eliminated, the average life span would only increase by about ten years. Aging results in a diminished ability to respond when challenged, and leads to a progressive increase in an organism's vulnerability. By understanding the basic mechanisms involved in aging, it may be possible to delay or prevent illnesses and diseases that are associated with aging. This research would lead to a better quality of life for all individuals.

THE BENEFITS OF MEDICAL RESEARCH

Recently, President Clinton proposed that every eligible child be immunized. He said that every dollar that the government spent in funding childhood immunizations would save ten dollars in health care costs. This is a worthy goal. However, it pales in comparison to the savings that could be achieved through basic aging research. Medical research has a dramatic ability to reduce health care costs. The cost for a lifetime of care for two Rh brain damaged children, or for two children severely crippled by polio, is greater than all of the money that was spent on the research that eliminated these disorders. Treatments that could delay admission to a nursing home by one month would save our health care system three billion dollars per year. The National Institute on Aging recently reported that if the onset of Alzheimer's disease could be delayed by five years, the nation would save forty billion dollars per year. This would be in addition to the relief that would be experienced by families who are forced to watch a parent or spouse deteriorate from this condition. Research to prevent urinary incontinence in the elderly would save the health care system 10.8 billion dollars per year. These savings represent only the tip of the iceberg when compared to those that could be achieved by a delay in the rate of the aging process. Every year of productive life we could add to our population by retarding the aging process would add five trillion dollars to our economy in wages earned.

We stand on the threshold of a revolution of unparalleled magnitude in biomedical sciences and biotechnology. Harvesting these discoveries will profoundly change our world for the better. It should be possible to produce and utilize, for the benefit of mankind, any chemical, any enzyme, and any biological process that any living organism has evolved.

CURRENT FUNDING STATUS

The present funding for basic biomedical aging research is meager and is unlikely to provide sufficient

resources to allow us to discover the causes of aging before we are overwhelmed by the health costs of an aging population. In 1990, the cost of providing health care to people over age 65 was more than 200 billion dollars. As of February 1993, there were only 275 grants on the biology of aging being funded at a total cost of 50 million dollars. There were an additional 1,070 grants costing about 250 million dollars on behavioral and social research, geriatrics, neuroscience and neuropsychology, and Alzheimer's centers. This is meager funding in view of the fact that our country is being overwhelmed by health care costs and it is basic aging research that will provide the answers to decrease these costs.

Human scientific talent is, in fact, one of our true precious resources. At present, we are squandering this resource. Each grant to the National Institute on Aging is evaluated by a committee of scientists and, if the grant is scientifically sound and worthwhile, the grant is approved for funding. Because of budget constraints, the National Institute on Aging is only able to fund about 20% of the scientifically approved grants it receives. This is wasteful of our most precious resource, human scientific talent. Each of the grant proposals was submitted by a scientist. Each scientist went to college, completed graduate school, holds a Ph.D. or M.D. degree, and often works for several years as a post-doc in a senior scientist's laboratory before submitting a grant proposal. Their education involved years of close supervision by senior scientists. The senior scientists can only train a small number of graduate students during their entire scientific careers. I believe that every one of these scientifically approved grants should be funded. Our country cannot afford to waste the talent of 80% of the most highly educated, motivated, competent scientists that our educational system can produce. I believe that the present NIA budget for basic biomedical aging research is only 1% of the amount that it should be.

FUNDING THE INCREASED RESEARCH

The main problem that arises is how to fund the increased research. I would propose that the federal government create an "Investment in Research" bank. All federal money for research would be funnelled through this "Investment in Research" bank. Allocations for research projects, training grants, and career development awards would be awarded as they are now through the appropriate NIH councils and study sections from money allocated to the "Investment in Research" bank. Money in the "Investment in Research" bank would also be used by other agencies that sponsor research. The main difference between this proposal and our current system of funding is that the American taxpayer would more directly benefit from discoveries made by their money which was obtained from the "Investment in Research" bank. This would be done by requiring individuals who obtained money from the "Investment in Research" bank to pay the

bank one-third of any royalties obtained on products, patents, or inventions that were developed utilizing funding obtained from the "Investment in Research" bank. I propose that any patent granted with money used from the "Investment in Research" bank would be lengthened by four years to 21 years, which would increase royalties to the "Investment in Research" bank and would help to compensate the inventors for the one-third royalty they were required to pay to the "Investment in Research" bank. Additionally, individuals who chose to be educated at public expense could have their graduate education paid for if they agree to pay 10% of any royalties from patents that they developed through their careers directly to the "Investment in Research" bank. The money obtained through these mechanisms would be retained by the bank and would be reinvested in research until such time as the level of research funding was at least 100 times what it is today. Additional money obtained after that point could be used at the discretion of the President and Congress to retire the national debt. This "Investment in Research" bank provides a mechanism whereby the American public will gain both directly, through return on their investment, and indirectly, through expansion of knowledge, a better quality of life, creation of jobs and wealth, and a mechanism whereby all citizens could avail themselves of higher education. This mechanism would be essentially self-funding as it bootstraps itself up to greater and greater levels. I believe that an "Investment in Research" bank that explicitly recognizes that the American public is investing its resources in research will prove highly profitable to the American public, both in terms of financial return and an enhanced quality of life.

Thank you, Chairman Natcher and members of the Subcommittee, for the opportunity to testify. We look to you as policymakers for our nation to help us seize the opportunities at hand.