

# Programmed Aging and the Intelligent Design Effect

Why programmed aging seems “nuts” but is actually the best aging science

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## **Abstract:**

Programmed aging refers to the idea that organisms including humans possess biological mechanisms or programs that purposely limit their internally determined lifespans in order to obtain an evolutionary advantage. To most science-oriented people programmed aging appears to be scientifically ridiculous because it directly conflicts with Darwin’s survival-of-the-fittest concept. Some have compared programmed aging to Intelligent Design or evolution denial, obviously scientifically bogus ideas about evolution.

However, as described in this article, most gerontologists now believe in aging theories that are based on post-1950 *modifications* to Darwin’s concept and multiple modifications support programmed aging. Programmed aging now has strong theoretical support and provides the best match to scientific observations. Programmed aging theories suggest that in addition to the traditional methods dramatically different approaches to prevention and treatment of age-related diseases can be found. Substantially funded medical research efforts based on programmed aging have begun.

The existence of Intelligent Design and other pseudoscience concerning evolution has acted against wide distribution of these developments. This has a negative effect on medical research on aging and age-related diseases by inhibiting researchers and public funding.

Keywords: Evolution, senescence, gerontology, aging theories, programmed aging, intelligent design, diseases of aging

Intelligent Design is one of many non-science factors that are adversely affecting medical research on aging and highly age-related diseases like heart disease, cancer and stroke.

***Intelligent Design*** is the idea that evolution theory is wrong and that God, little green aliens, or some other source of supernatural intelligence and omnipotence has determined and implemented the designs of each of the current species. Proponents suggest that conflicts between Darwin’s 1859 theory and various observations prove that evolution theory is incorrect and consider that Intelligent Design is alternative “science” that should be taught in U.S. science

classes instead of or at least in addition to evolution theory. Religious organizations very successfully teach Creationism and Intelligent Design and a 2005 Harris poll found that 54 percent of Americans do not believe evolution theory. In the U.S. it is essentially mandatory for Republican politicians to deny evolution and global warming, even if they have a medical degree.

Scientists consider that Intelligent Design is not science and is appropriate for a comparative religion class, or even history class but not a science class. Intelligent Design is actually *generally anti-science* and if valid for biosciences would presumably be valid for any field of science and turn science into a branch of theology. Developing a theory is trivial if whenever the theorist is having a problem getting a theory to match some observation he/she can invoke God. Theologians could argue endlessly about why God made the moon's orbit circular, why God made mountains, etc. If in the past clerics had determined that God was directly responsible for lightning and thinking otherwise was heresy, would we have ever discovered and harnessed electricity? To a scientist Intelligent Design is, in a word, "nuts!" Intelligent Design and Creationism represent the largest current anti-science movement.

Scientists learn that attempting a scientific discussion with an Intelligent Design proponent is futile because they do not follow the same rules of evidence, logic, cause and effect, and scientific method. Internet forums on general science (much less Biology) tend to be perennially clogged with endless and generally heated arguments between science-oriented people and evolution deniers. Similarly, except for psychologists studying their mental processes, there is little reason for a scientist to read an Intelligent Design screed.

***Programmed aging*** is the idea that humans and most other organisms possess biological mechanisms (aging programs) that purposely limit their lifespans and that aging is ultimately the result of these mechanisms. As every student learns in high school Biology class, Darwin's theory says that the evolution process causes organisms to develop design characteristics that help them *live longer and breed more*. This idea fits at least 99 percent of all biological observations and explains why we have eyes, ears, skin, bones, organs, blood, and even inherited behaviors, all of which help us survive and reproduce. Students are *not* taught that there is any other *scientific* evolution theory or that there is any current *scientific* disagreement with Darwin's theory. Even a "C" student understands that obviously aging does not help us live longer or breed more. Therefore, according to Darwin's theory as generally understood, the idea that the evolution process purposely created suicide mechanisms is scientifically "nuts." As with Intelligent Design, people taking this position typically decline to engage in scientific discussions or read literature concerning programmed aging so their ideas are self-perpetuating.

***However***, in the intervening 150+ years there have been major developments, some very recent. First, despite all that time no one has been able to produce a theory that is compatible with Darwin's theory and simultaneously plausibly explains observations about aging (including the

huge variation in internally determined lifespans seen in nature). This problem was noted immediately after Darwin's publication of *Origin* in 1859 and still exists today. Second, genetics discoveries have exposed multiple issues concerning the evolution process (some of which led to multiple evolutionary mechanics theories that support programmed aging) and it is now clear that the evolution process is very much more complicated than previously thought. Third, not only is observed aging incompatible with Darwin but some other observations such as animal altruism, sexual reproduction, delayed male puberty, and some mating behaviors also do not make sense under Darwin's evolutionary mechanics concept.

These developments eventually led to a collection of *modifications to Darwin's concepts regarding the evolution process* (Fig. 1) that in turn led to the modern programmed and non-programmed aging theories that are the basis of current medical research on aging and age-related diseases. These now include Medawar's modification (1952), group selection (1962), kin selection (1963), gene-oriented theories (1975+), and evolvability theories (1996+). Note that all of the modifications and disagreements concern the *mechanics of the evolution process* and there is no *scientific* disagreement with the idea that evolution has occurred or that current species are descended from earlier different species. *All of the modern aging theories that provide an even minimal fit to observations are based on modifications to Darwin's theory.*

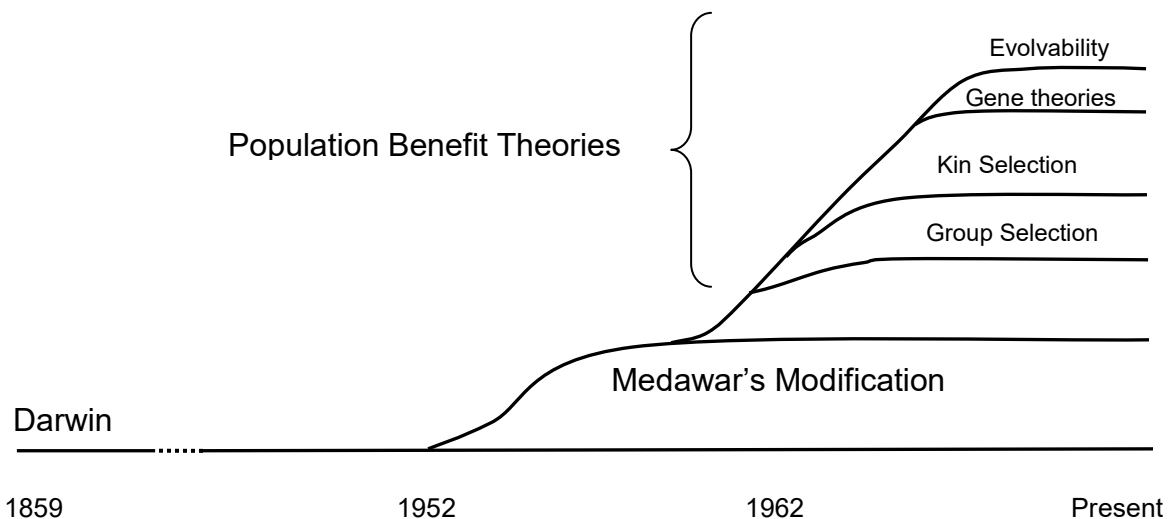


Fig 1. Proliferation of Evolutionary Mechanics Theories – 1859 to present. There are now at least six different theories not counting variations and combinations like Darwin + Medawar's Modification + Evolvability.

Modern non-programmed theories are based on the idea that the evolutionary need to live and reproduce longer declines after some species-specific age (Medawar's modification). British biologist Sir Peter Medawar (1915 – 1987) subsequently received the Nobel Prize for Medicine (in addition to knighthood) and so was apparently not considered scientifically “nuts” despite daring to propose a major modification to Darwin's theory! Medawar's idea was that under wild conditions external causes of death such as predators, infectious diseases, starvation, and lack of suitable habitat so dominated mortality that late-life internal causes due to aging had no significant effect on a wild population. There would therefore be no evolutionary motivation to evolve the ability to live longer than a species-specific period. In effect: “Wild animals (including our ancestors) don't live long enough to die of old age.” Medawar is now widely considered to be the “father” of modern gerontology. Programmed and non-programmed theories based on Medawar's modification provide a much better match to observations than earlier theories.

Programmed theories are based on the idea that, *in addition*, a limited lifespan *aids the survival of a population* (despite being somewhat adverse to *individual members* of the population) and thus led to an evolutionary need to limit lifespan. Programmed aging theories are supported by all of the post-1960 modifications mentioned above and suggest at least a dozen ways limiting lifespan beyond a species-specific age produces a population benefit.

Non-programmed theories suggest or explicitly state that attempts to treat or prevent the many age-related diseases and conditions must be separately devised for each disease or condition. Programmed theories suggest that, *in addition to treating individual conditions*, aging is itself a treatable condition and that ***therefore anti-aging agents and protocols can be developed***. Such agents would operate by interfering with the aging program that determines at what age and to what degree to produce symptoms of aging.

An even cursory review of *current* science (see further reading below) shows that modern programmed and non-programmed theories are actually much more similar to each other than to Darwin's idea. The difference between modern non-programmed and programmed theories hinges on a hair-splitting determination: Is the evolutionary value of living and reproducing longer than age “X” merely zero or at least minutely negative! Aging theories are essentially dictated by the underlying evolutionary mechanics concepts. Scientists who reject programmed aging also reject *all* of the supporting post-1960 evolutionary mechanics modifications.

Programmed aging was first proposed in 1882 but was dismissed as scientifically ridiculous because of the conflict with Darwin's theory. Reemergence of programmed aging has been very recent (mainly since 2005) so those not familiar with current developments tend to believe earlier theories.

Arguments between modern programmed and non-programmed factions still occur along the lines of: “*My* modification to Darwin’s theory is absolutely valid but *your* modification is totally bogus!” **However, there is now extensive theoretical support for an evolutionary process that supports programmed aging, scientific objections to programmed aging have declined, experimental evidence favoring programmed aging (like genes that *cause* aging and explicit suicide mechanisms seen in animals) is increasing, and substantially funded programmed aging research is underway. Programmed aging now represents the best science on aging.**

***The Intelligent Design effect:*** Intelligent Design is scientifically invalid but nevertheless has had a significant negative effect on bioscience regarding evolutionary mechanics theories and their dependent aging theories. Intelligent Design is superficially similar to the evolutionary mechanics modifications that support modern aging theories. They both contend that Darwin’s theory cannot explain certain observations. People who have been taught that any disagreement with Darwin’s theory is scientific heresy reject both. They are consequently logically forced toward early aging theories that are compatible with Darwin such as the idea that aging is the result of fundamental limitations like laws of physics or chemistry that cannot be overcome by the evolution process. Most gerontologists reject these theories because they utterly fail to explain multi-species observations.

Another similarity is that huge numbers of people are being taught theories that do not conform to current science. In order to learn about the current evolutionary mechanics ideas and their dependent aging theories you must take a course or read a book about modern gerontology or modern evolutionary mechanics. Everybody learns about Darwin and *survival-of-the-fittest* but a negligible fraction of those people go on to study gerontology. Even then, if their course material is controlled by a non-programmed proponent or was not recently updated they are unlikely to learn about modern programmed aging theories or their supporting evolutionary mechanics theories.

This situation has relegated programmed aging to a sort of “underground” science status. Publicly declaring a belief in programmed aging might result in career suicide if your boss or his boss still thinks programmed aging is “nuts.” Few bioscientists are in career situations that allow such declaration. Some scientists are performing research that does not make any sense except in a programmed aging context but studiously avoid any use of terms like “programmed aging.”

Medical research is substantially funded by the public and so researchers cannot be seen as performing research that is widely thought to be “nuts.” Scientists and organizations that deal with the public and are performing programmed aging research use circumlocutions like “interventions testing program” instead of “search for anti-aging agents” to finesse this issue. However, patients tend to be more concerned with results than theory issues so commercial medical research is less affected by this problem.

You can well imagine that the last thing the editor of a bioscience textbook wants to do is to suggest that there is any scientific disagreement whatsoever regarding the nature of evolution and thus lend support to the Intelligent Design folks. This leads to a situation in which students are still, in effect, being *trained* to believe that programmed aging is impossible despite its current scientific support. This also has made it easy for some in the non-programmed faction to merely dismiss programmed aging as scientifically equivalent to Intelligent Design without providing a *current* scientific rationale for doing so.

If this issue was merely “academic” the situation would just be annoying. However, programmed and non-programmed theories suggest that very different mechanisms are behind age-related diseases and so the programmed/ non-programmed issue has major consequences for medical research and public health.

For more about modern aging theories see: [\*An Introduction to Biological Aging Theory 2<sup>nd</sup> ed.\*](#) ISBN 0978870913 2014.

[\*Solving the Programmed/ Non-Programmed Aging Conundrum\*](#) (Current Aging Science 8, 34-40, 2015) provides a review of current evolutionary mechanics concepts and dependent aging theories.

For more about the non-science factors that are adversely affecting medical research on aging see: [\*The Evolution of Aging 3<sup>rd</sup> ed.\*](#) ISBN 0978870956 paperback 180pp Azinet Press 2014.

### [\*Aging Info\*](#)

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