

# ***The Non-Science Witch Hunt Against Hormone Replacement Therapies for Deficiency Syndromes Must End:*** **An A4M Position Paper on Physician-Prescribed HRT** **Issue Date: 23 September 2013**

## **SUPPLEMENTAL RESOURCES**

White Paper "Guidance for Physicians on Hormone Replacement Therapy"; A4M, May 2007; available at: <http://www.worldhealth.net/white-papers-official-statements/>

"Is consensus in anti-aging medical intervention an elusive expectation or a realistic goal?"; Archives of Gerontology & Geriatrics (Elsevier); 48(3):271-276; (May 2009); available at: [http://www.sciencedirect.com/science?\\_ob=ArticleURL&\\_udi=B6T4H-4VT0GW8-1&\\_user=10&\\_rdoc=1&\\_fmt=&\\_orig=search&\\_sort=d&view=c&\\_acct=C000050221&\\_version=1&\\_urlVersion=0&\\_userid=10&md5=7c846ae92417c7b587d070eeb4f71149](http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6T4H-4VT0GW8-1&_user=10&_rdoc=1&_fmt=&_orig=search&_sort=d&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=7c846ae92417c7b587d070eeb4f71149)

## **INTRODUCTION**

*"Unless we put medical freedom into the Constitution, the time will come when medicine will organize into an undercover dictatorship to restrict the art of healing to one class of Men and deny equal privileges to others; the Constitution of the Republic should make a Special privilege for medical freedoms as well as religious freedom."*

*-- Benjamin Rush (1745-1813), physician, writer, educator, humanitarian, and Founding Father of the United States*

Since the inception of the anti-aging medical movement in 1991, various establishment parties have ruthlessly leveraged their positions of power in academic, political, and regulatory arenas for the purpose of attempting to limit the use of hormone replacement therapies (HRT) in adults with documented clinical deficiencies. For over 15 years, a prolonged and calculated campaign of deceit, fraud, and suppression has threatened physician licensures and liberties to treat and prescribe life-improving therapies, leading potentially to the direct compromise of patients' health and longevity. Dozens of physicians have been sanctioned and punished with loss of license and academic standing. This pernicious abuse of position and power is particularly prevalent with regard to RECENT challenges made against human growth hormone (HGH), testosterone (TRT), and DHEA replacement therapies that are trumpeted by the mainstream media. Biased reporters frequently – and inappropriately – demonize legitimate physicians and clinical compounding pharmacies who are reluctantly positioned on the frontline of a decades' old agenda to limit freedom of choice and information, and the physician's most essential responsibility to select the best course of therapy and medication for their patients.

This conflict is being played out of late in the arena of anti-aging medicine, a clinical specialty that has flourished in its twenty-two year long history, garnering the support of more than 100,000 physicians and scientists worldwide who practice or research life enhancing, life extending interventions today. Prof. Dr. Imre Zs.-Nagy, of the University of Debrecen Medical and Health Science Center (Hungary), and founder of the Archives of Gerontology and Geriatrics (published by Elsevier), observes<sup>1</sup> that: "In my role as a basic and clinical scientist, I have had an opportunity to witness more than four decades of advances and declines in the arena of preventive medical care ... there has been little else as dramatic, important, beneficial, and significant as the anti-aging medical movement."

Continual vigilance is necessary to countermand those whose financial and professional successes depend on repeated, calculated attempts to discredit the science and substance of anti-aging medicine.

Remarks<sup>2</sup> Tanjung Subrata, MD, of Udayana University School of Medicine (Indonesia):

“Anyone who does not believe in evil is not paying attention to the recent affairs of the past twenty years. We are living in a time of unprecedented tribulation and changes at-large – and in healthcare, in particular. All that is necessary for evil to prevail is for men of good will to do nothing. In this modern age of zero tolerance for alternatives to establishment medicine, and the willingness of our governmental officials to resort to police state tactics to suppress innovative schools of thought, progress in medicine halts and dies.”

## **A4M POSITION**

The American Academy of Anti-Aging Medicine (A4M), its numerous worldwide affiliated scientific and medical societies, and befriended organizations, supports the judicious application of modern and advanced medical technologies to address the changes in chemical, hormonal, physical, and nutritional needs that occurs with aging. Such repletion includes the restoration of hormones to an optimal physiological state when deficiency is determined by objective assessment.

Hormone replacement therapy (HRT) is an essential and extensively documented protocol for clinical intervention in the disorders of aging. HRT maintains an unblemished safety and efficacy profile that has been documented by 20 years of clinical application. Yet, a perfect storm of misguided media combined with biased parties whose livelihoods hinge on disparaging the anti-aging medical movement has grossly compromised access to HRT, placing the lives of hundreds of thousands of patients worldwide in potential jeopardy.

Experienced anti-aging physicians have been prescribing HRT for more than 20 years. PubMed contains more than 20,000 peer-reviewed studies of HRT, of which a preponderance document the life-enhancing and/or life extending benefits of HRT in aging adults. See Appendix A “Literature Review” which presents a selection of such studies that represent the objective evidence that supports the A4M position.

## **THE ANTI-AGING MEDICAL MOVEMENT**

The goal of anti-aging medicine is not to merely prolong the total years of an individual's life, but to ensure that those years are enjoyed in a productive and vital fashion. As established in 1991 by the physicians of the American Academy of Anti-Aging Medicine (A4M), the field of anti-aging medicine was established as a direct extension to the science of elite sports medicine of the 1980s. Just as sports medicine aims to keep the athlete's body functioning at its optimum level, anti-aging medicine seeks to keep the human physiology performing at its peak. In other words, the similar principle, of extending and maximizing the healthy human lifespan, is at the core of both anti-aging medicine and sports medicine.

### ***The Official Definition of “Anti-Aging Medicine”***

The clinical specialty of anti-aging medicine was established in 1991 by the physicians of the A4M, and thus is defined as follows:

Anti-aging medicine is a clinical specialty is founded on the application of advanced scientific and medical technologies for the early detection, prevention, treatment, and reversal of age-related dysfunction, disorders, and diseases. It is a healthcare model

promoting innovative science and research to prolong the healthy lifespan in humans. As such, anti-aging medicine is based on principles of sound and responsible medical care that are consistent with those applied in other preventive health specialties. The phrase "anti-aging," as such, relates to the application of advanced biomedical technologies focused on the early detection, prevention, and treatment of aging-related disease.

The clinical specialty of anti-aging medicine utilizes diagnostic protocols that are supported by scientific evidence to arrive at an objective assessment upon which effective treatment is assigned. Physicians who dispense anti-aging medical care are concerned with the restoration of optimal functioning of the human body's systems, organs, tissues, and cells. Attempting to rebrand what it cannot deny, those in positions of power in academic, political, and regulatory arenas are inventing new catch phrases including "longevity medicine," "successful aging," "healthy aging," and the like, in an effort to dilute and absorb the A4M's original definition of anti-aging medicine. To implement this campaign, we suspect that these individuals have pejoratively solicited major media outlets to denigrate the A4M, its officers, and its members.

Anti-aging medicine is, in essence, a euphemism for early detection and advanced preventative medicine. It is a healthcare model that emphasizes personalized, patient-focused, high-quality metabolic-specific medical care.

### ***Critics with A Dark Agenda (Political Elites)***

Scientifically based and well documented in leading medical journals, anti-aging medicine is among the fastest growing medical specialties throughout the world. As an innovative model for advanced preventive healthcare that cannot be denied, individuals with their own political and financial agendas have disparaged anti-aging medicine in attempts to restore monopolistic control over the field of aging intervention. Critics of the science of anti-aging medicine most commonly hail from academia: as such, these naysayers many times have little or no medical training in aging intervention, and may be non-clinicians.

Perhaps the most inconceivable reality is that at the very highest levels of academia, government, and science, truth and objective scientific method are not at all sacred to the political elites. We in clinical medicine via our training, discipline, and conditioning naively believe and act in the public interest, for the good of our patients' health, and by professional standards of medical ethics. The (elite) medical establishment operates contrary to this position, reports investigative reporter Tim Bolen ([www.bolenreport.com](http://www.bolenreport.com)), who for 30 years has amassed data and evidence exposing a calculated effort to deride innovative medical therapeutics. Mr. Bolen observes<sup>3</sup> that:

"Without a doubt, a stealthy control group – a cabal, if you will, in status-quo medicine exists. Approved by Big Pharma, parts of academia, and segments of the government, this group exerts its control in many different ways. I have uncovered information showing anonymous, and not-so-anonymous, funding of groups, loosely describing themselves as "Quackbusters or Skeptics" whose only purpose is to attack cutting-edge health care offerings. Those groups, in turn, train, and fund sub-groups. Data suggests that the "Quackbusters or Skeptics" donated over \$1 Million US to Wikipedia to purchase control over pages with medical content. More, the Skeptic training camps teach their recruits how to operate together to control that same Wikipedia and Search Engines. Further, these covert groups drive media on issues particularly pertaining to alternative healthcare, in an effort to limit coverage of innovative discoveries and to vilify therapies that are not part of AMA/FDA/Big Pharma establishment medicine healthcare.

There are TWO main "skeptical" organizations - the James Randi Educational Foundation (JREF) and the Center For Inquiry (CFI). Both are well funded from secret sources.

JREF reported, in 2010, a total income of \$999,971.00 and a Total Asset claim of \$1,736,101.

The Center For Inquiry, Inc (CFI), based in Amherst, New York shows on their Form 990 that they took in \$5,242,304 in Total 2009 Income, and they had, that year, Total Assets of \$3,017,144. Their Schedule B ANONYMOUS contributions totaled \$2,318,652.

More, CFI claimed that they received, in 2009, in addition to their anonymous contributions, a so-called "Management Fee Income" of \$2,458,156. What do you suppose they managed? And who paid them to manage it? Maybe they manage Wikipedia health care articles? How about Search Engine Optimization (SEO) bringing skeptical, including Stephen Barrett's (Quackwatch), articles to the first page of Google?

Much more - This cabal minimizes and delays innovative medical advancements by lodging anonymous complaints to state licensing boards against cutting-edge practitioners. Their insidious campaign also controls grant monies and research funding, somewhat silencing the voices of innovative medicine in favor of mainstream views. By leveraging control of the media in direct jeopardy of journalistic integrity, this control group seeks to suppress all in medicine that is not fully controlled by the establishment. To permit this level of manipulation and disinformation is wrong and ethically corrupt. The fate of a valuable avenue of medical innovation for the public interest – anti-aging medicine – stands at-risk.”

A JAMA commentary<sup>4</sup> purported to address the legality of Human Growth Hormone (HGH, GH) treatment by physicians for growth hormone deficient (GHD) patients. It is the view of A4M that the commentary contained a number of incorrect, misplaced references and studies, and multiple basic scientific errors, in what A4M views as an apparent attempt to damage the anti-aging medical profession and the physicians practicing solid, evidence-based medical healthcare focused on improving and maintaining patients' quality of life. It is A4M's further opinion that the authors selected self-serving studies, in which they failed to qualify the conclusions in an effort to bolster what A4M believes is a disinformation campaign. It is A4M's opinion, for example, that they incorrectly intermingled internet sales of homeopathic pseudo "GH" sprays, amino acids, and sports nutritional over the counter products in order to inflate their incorrect claims suggesting an illegal diversion of HGH by physicians and pharmacies, implying a black market in FDA approved prescription injectable HGH for hormone replacement treatments by anti-aging physicians where none exists.

### ***Misrepresentation in Competitive Sports***

As an unfortunate consequence of media confusion and outright deception aiming to deliberately misrepresent anti-aging medical care, the reality of the clinical practice of hormone replacement therapy has become muddled. A recent *Sports Illustrated* article states<sup>5</sup> that: “In the sports world, the term ‘anti-aging’ has often come to signify therapy that uses hormones – usually testosterone and HGH – and ... DHEA.” This erroneous definition grossly misrepresents the legal and ethical physiological use of hormones and supplements as being synonymous with the inappropriate use of hormones for sports enhancement. The

A4M is squarely opposed to this myopic interpretation of “anti-aging” and urges reference to the official definition of anti-aging medicine as presented above.

Any use of performance enhancing drugs or hormones banned from professional sports constitutes inappropriate misuse. It is a violation of the A4M Physician Member Code of Ethics to prescribe for the explicit purposes of performance enhancement. The A4M does not endorse or condone the use of any illicit substances for sports cheating. However, the A4M does support the continued availability of such substances to adult patients with objectively assessed hormone deficiencies. Such judicious use of HRT does not equate to a banned drug issue.

A4M’s physician co-founders Dr. Robert Goldman, MD, PhD, DO, FAASP, Chairman; and Dr. Ronald Klatz, MD, DO, President, are co-authors of *Death In the Locker Room* (1984), a first-ever expose of the illicit use of anabolic steroids in sports, and *Grow Young with HGH* (1997), a best-selling book that explored the clinical benefits of judicious and appropriate HGH therapy in deficient adults. *Death in the Locker Room* is widely regarded as the seminal text on the dangers of anabolic and performance enhancing substances in sports. *Death in the Locker Room* was the first book to alert the public and the medical community to such issues, and the book subsequently led directly to much of the drug testing, control, and educational programs now in-place across a number of professional sports and on the global level.

Statute<sup>6</sup> 21 U.S.C. § 333(e), a provision of the Food, Drug, and Cosmetic Act (FDCA), states, in pertinent part, that “whoever knowingly distributes, or possesses with intent to distribute, human growth hormone for any use in humans other than the treatment of a disease or other recognized medical condition, where such use has been authorized by [FDA] and pursuant to the order of a physician, is guilty of an offense punishable by not more than 5 years in prison.” We need to take a critical look at the historical context and legislative intent of a law before we interpret it. The law did not originally address HGH. The 1988 law was written and passed regarding anabolic steroids. The legislative history of the statute shows an intent to focus on steroid trafficking to athletes, particularly adolescent athletes, amid increasing reports of amateur and professional sports doping and concerns about the 1988 Summer Olympics (at which, ironically, Canadian sprinter Ben Johnson’s steroid positive ignited a global firestorm).

Dr. Goldman served as Special Adviser & Lecturer to the US Drug Enforcement Agency (DEA) Demand Reduction Education Programs nationally, as well as to the US Olympic Committee, spearheading the design of drug policy and testing procedures. In his activities with the DEA, Dr. Goldman was directly involved in an advisory capacity with the process that led to the creation of the Anabolic Steroid Control Act of 1990. “The Anabolic Steroid Control Act was never intended to restrict practicing physicians involved in the clinical treatment of hormone deficiency syndromes,” comments<sup>7</sup> Dr. Goldman, who explains that: “Rather, this law was specifically directed to prevent the trafficking of anabolic steroids to athletes.”

The Anabolic Steroid Control Act of 1990 lifted steroids out of the FDCA and into the Controlled Substances Act. Congress was presented with the option of making HGH into a controlled substance, too. However, following expert medical testimony that HGH lacks the adverse psychological and physical effects of steroids, Congress chose not to take such a drastic approach to HGH.<sup>8,9</sup> Instead, Congress took the lesser approach of inserting HGH, to replace steroids, in the FDCA law that was written to stop trafficking to cheating athletes. In fact, HGH was inserted as an afterthought, with no penalties mentioned, as editorial

comment; there was no intention to criminalize its judicious use in the clinical setting by trained physicians. The focus of lawmakers and Congress has always been to address non-medical use, i.e., improper use by competitive elite athletes, sports people and teenagers. It is A4M's view that the JAMA commentary<sup>4</sup> fails to understand or appreciate such legislative history and legislative purpose. A4M is advised that one of the authors of the JAMA commentary stated to United Press International (UPI) in reference to the statute, "They basically put in language that made it crystal clear that it is illegal to use growth hormone as an anti-aging intervention".<sup>10</sup> This is a very odd and A4M believes, an incorrect statement, considering the fact that when the law was written, there were no anti-aging doctors or profession in existence. In fact, the anti-aging medical profession did not even exist until five years after the 1988 statute was enacted. The concept of HGH as an anti-aging drug did not exist until the problem of Rudman's study.<sup>12</sup>

The Anabolic Steroid Control Act never intended to infringe upon physician freedoms to prescribe hormone therapy when clinically appropriate. It was specifically intended to prevent steroid trafficking in professional sports. Whereas education should have been a primary goal in implementing the Anabolic Steroid Control Act, instead an enforcement environment that granted limitless power unto itself was created. A multi-million dollar industry of drug testing was born and subsequently flourishes.

## **DISINFORMATION CAMPAIGN**

History is replete with examples of medical pioneers whose innovations and foresight were trivialized, ignored, challenged, or violently opposed by the establishment, only to ultimately become accepted by society at-large. Leopold Auenbrugger was ridiculed for percussing and auscultating his patients' chests; Ignaz Semmelweiss' recommendation for doctors to wash their hands before each patient landed him in a mental asylum; and more recently, cardiologists denied Nathan Pritikin's program for dietary modification to modulate cardiovascular risk until after his death. Given time and objective, undeniable evidence, scientific truths are ultimately borne out. In the words of Dr. Augenbrugger, "It has always been the fate of those who have illustrated the arts and sciences by their discoveries to be beset by envy, malice, hatred, destruction, and calumny."

### ***Misguided Attacks on HRT***

Statute<sup>6</sup> 21 U.S.C. § 333(e), a provision of the Food, Drug, and Cosmetic Act (FDCA), supports the use of hormone replacement in mature, clinically GH-deficient adults as both treatment of a disease and a medically authorized use granted by the FDA. Any implication that the statute was intended to target medical hormone replacement by ethical doctors in the new and emerging field of anti-aging medicine is therefore incorrect and misleading.

To obfuscate the truth, critics of the anti-aging medical science offer deliberately misleading claims concerning HRT with the specific and ultimate goal to severely restrict the use of hormone therapy. Most notably, the JAMA commentary<sup>4</sup> purported to address the legality of Human Growth Hormone (HGH, GH) treatment by physicians for growth hormone deficient (GHD) patients. The commentary, however, was flawed by a number of incorrect, misplaced references and studies, and multiple basic scientific errors.

In the May-June 2009 issue<sup>1</sup> of the prestigious *Archives of Gerontology and Geriatrics*, an international journal integrating experimental, clinical, and social studies on aging published by Elsevier, founder and Editor-in-Chief Prof. Dr. Imre Zs.-Nagy expresses his opinions on the use of the HGH as an anti-aging medical intervention. Prof. Dr. Nagy's Editorial points out the main clinical results of HGH replacement therapy (hGHRT) in light of the "Membrane

Hypothesis of Aging” (MHA), which he submits as offering a solid basis for the interpretation of the observed beneficial effects of HGH. Prof. Dr. Zs.-Nagy’s profile of the sharp and protracted conflict of views between the gerontological establishment and the A4M exposes a “disregard by certain individuals bearing some of the most prestigious affiliations in the gerontological establishment, for truth, academic integrity, and scientific professionalism.” Dr. Zs.-Nagy submits that: “[T]he gerontological elite has ... sought to obfuscate the facts of the anti-aging medical movement. I submit that the reason for this is nothing less than an abject fear by the gerontological elite to avert their loss of control, power, prestige, and position in the multi-billion dollar industry of gerontological medicine. “

Elite athlete and professional sports/medical writer Monica Mollica observes<sup>11</sup> that: “For reasons that are not readily apparent, there appears to be a conservative political movement that opposes the use of testosterone in older men. Continuing, Ms. Mollica observes that: “The political climate is working against testosterone replacement therapy in older men despite overwhelming scientific data supporting this appropriate pursuit as a strategy to prolong healthy longevity.”

### *HGH*

On July 5, 1990, Daniel Rudman, M.D., a pioneer researcher in the use of HGH, and his colleagues at the Medical College of Wisconsin made medical history with an article<sup>12</sup> in the *New England Journal of Medicine*. It detailed the first clinical trial of elderly men on HGH therapy, which compared the effects of 6 months of HGH injections on 12 men, aged 61 to 81 years, with an age-matched control group. The result made headlines all over the world. Those taking the hormone injections gained an average of 8.8% in lean body mass and lost 14% fat, without diets or exercise. Their skin became thicker and firmer and the lumbar bones of the spine increased. In other words, HGH had virtually turned their flabby, frail, bodies into their sleeker, stronger, younger selves. In language rarely used in conservative medical journals, the researchers wrote: “The effects of 6 months of HGH on lean body mass and adipose-tissue mass were equivalent in magnitude to the changes incurred during 10 to 20 years of aging.”

HGH is one of the most studied compounds in medicine with almost 100,000 journal references currently in PubMed. The majority of these data demonstrate the positive benefits of HGH therapy in multi-year studies, well beyond the typical 6-12 month study protocols.<sup>13,14</sup>

Growth hormone replacement therapy has been shown to improve muscle strength and mobility, cognitive function, cardiovascular disease, osteoporosis, immune function, body composition, obesity and sarcopenia, fibromyalgia, Crohn's disease, other illnesses, and quality of life issues.<sup>15,16,17,18,19,20,21</sup>

Low GH<sup>22</sup> is associated with decreased longevity in humans, with more than 20 years decreased lifespan with low GH.<sup>23</sup> Older men with higher IGF-1 do not show the same decrease in lean body mass and increase in fat mass. “GH determines life’s potential.”<sup>24</sup> Childhood or adult GH deficiency is associated with 2-3 times increase in mortality.<sup>25</sup>

Low GH<sup>22</sup> and its downstream hormone IGF-1 are associated with poor health and quality of life outcomes. The June 2012 issue<sup>26</sup> of *The Journals of Gerontology: Series A* published a series of articles documenting the clinical benefits of IGF-1. Of note, Higashi et al<sup>27</sup> provide “a comprehensive update on IGF-1’s ability to modulate vascular oxidative stress and to limit atherogenesis and the vascular complications of aging.” Further, Ungvari et al<sup>28</sup> cite the “cardiovascular protective effects of insulin-like growth factor (IGF)-1” [to] “[provide] a

landscape of molecular mechanisms involved in cardiovascular alterations in patients and animal models with ... adult-onset IGF-1 deficiency,” submitting that: “Microvascular protection conferred by endocrine and paracrine IGF-1 signaling” suggest “its implications for the pathophysiology of cardiac failure and vascular cognitive impairment, and the role of impaired cellular stress resistance in cardiovascular aging.”

The “2013 ACCF/AHA Guideline for the Management of Heart Failure: A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines” reports<sup>29</sup> that treating GH deficiency in patients with chronic heart failure beneficially affects the primary endpoint of peak oxygen consumption, which showed “remarkable” increases of 7.1 ml/kg/m in GH-treated patients, as compared to a decrease of 1.8 ml/kg/m among control subjects. In that left ejection fraction rose by 10% in the GH-treated patients (declined 2% in controls); with a greater effect on left ventricular and systolic volume index of -22 ml/m<sup>2</sup> (as compared to increase of 8 ml/m<sup>2</sup> in controls), the American College of Cardiology Foundation/American Heart Association Task Force writes that: “The improvements ... are consolidated predictors of survival.” Notably, there were no major adverse events among the GH-treated patients.

As stated by Savine: “If mean IGF-1 of 300 is mean normal for 20-30 year olds, almost all men and women over the age of 40 have an IGF-1 deficit.”<sup>30</sup> Most patients beyond age 60 have total 24 hour HGH secretion rates indistinguishable from those of hypopituitary patients with organic pituitary gland lesions.<sup>30</sup> Therefore the A4M submits that the empirical data suggests that when treating Adult Growth Hormone Deficiency (AGHD, GHD), physicians are treating a documented deficiency disease and not performing off-label treatment as the JAMA commentary<sup>4</sup> authors suggest. In fact, HGH deficiency is associated with significantly decreased longevity in human siblings. Longevity and healthy aging are directly related to GH/IGF-1 levels.<sup>31</sup> As Savine points out, “Life without GH is poor in quantity and quality.”<sup>30</sup>

When AGHD is treated with GH, there are usually increases in GH, IGF-1 and IGF Binding Protein 3 (IGFBP-3) which all have a role in clinical results. Although IGF-1 is pro-mitotic and taken out of context could promote cancer, IGFBP-3 is anti cancer.<sup>32</sup> The mechanism is explained by stimulation of anti-cancer gene p53. Teenagers with the highest GH and IGF-1 have low rates of cancer. When treating with GH a balance is produced between IGF-1 and IGFBP-3.<sup>33</sup> A central question in GHRT is “Does GHRT increase the risk of cancer.” Multiple studies and reviews have concluded that there is no increase in cancer risk compared to the general population. Jenkins<sup>34</sup> review is aptly titled, “Does Growth Hormone cause cancer?” and provides the conclusion:

“Extensive studies of the outcome of GH replacement in childhood cancer survivors show no evidence of an excess of de novo cancers, and more recent surveillance of children and adults treated with GH has revealed no increase in observed cancer risk.”

Moltich’s<sup>35</sup> review has similar conclusions:

“Although there has been some concern about an increased risk of cancer, reviews of existing, well-maintained databases of treated patients have shown this theoretical risk to be nonexistent”

With regard for the potential for an increased cancer risk with HGH treatment, peer-reviewed literature suggests the opposite. HGH treatment may up-regulate binding proteins of IGF, specifically IGF-6; this has been noted in studies to prevent many types of cancer, such as



prostate, ovarian, brain and endometrial.<sup>36,37,38,39,40,42</sup> It is also well documented that cancer survivor children who received HGH did not exhibit any increased cancer risks. In fact, there are no peer reviewed long-term clinical studies that document human cancer risks from HGH administration.<sup>38,39,40</sup> To the contrary, cancer mortality and recurrence has been found to be reduced, or survival time increased in cancer patients on HGH. Patients deficient in HGH are reported to have a 400% increase in cancer mortality and a 200% increase of cancer incidence.<sup>41,42</sup> Noted was also a reduction by 50% of cancer risk to patients with long term HGH replacement (60 months).<sup>21</sup> Additionally, the Growth Hormone Research Society has stated that "Current labeling for GH states that active malignancy is a contraindication. ... There are no data to support this labeling. Current knowledge does not warrant additional warning about cancer risk."<sup>43</sup> However, caution should always be exercised in patients with a history of cancer; and HGH therapy is not for every patient.

Ruiz-Torres et al<sup>24</sup> completed a study that compared ageing parameters of young (up to 39 years) and old (over 70 years) individuals having similar insulin-like growth factor-1 (IGF-1) blood levels. In follow-up, the researchers studied the decline in IGF-1 levels, comparing its behavior in the first half with that in the second half of adult life. The investigators concluded that: "GH secretion in adulthood plays a determinant role not only for some regressive manifestations, but also for life potential."

Media reports about the federal law concerning HGH have created unnecessary confusion, and some reports have confused non-medical over-the-counter homeopathic sprays and nutritional products with pharmaceutical-grade, FDA-approved injection medications for AGHD patients. It is A4M's opinion that such misleading journalism incorrectly equates sports and homeopathic nutritional supplements sold through websites with pharmaceutical-grade injectable HGH prescribed for patients with diagnosed AGHD. Such poor presentations of the science and commentary, in A4M's view, have erroneously suggested that the replacement of HGH in aging adults is illegal, and has led to sensationalized headlines. Patients are not given HGH for a diagnosis or treatment of "anti-aging," but for on-label use for AGHD syndrome, a diagnosed disease. It should be noted, that before initiating HGH supplementation, anti-aging physicians first encourage the increase of growth hormone by increasing exercise, enhancing sleep cycles, balancing other hormone deficiencies and decreasing of sugar intake, as evaluated by Gardner, et al.<sup>44</sup>

In a landmark court case<sup>45</sup>, James Forsythe, MD, HMD won a clear and unanimous victory that reaffirmed the right of a physician to prescribe HGH to adults with deficiency conditions, including aging and arthritis. Dr. Forsythe comments<sup>46</sup> that: "It is a perversion of the law for state licensing boards to mistreat and harass physicians for this legal, just, and appropriate use of this lifesaving medication – human growth hormone."

### ***DHEA***

Dehydroepiandrosterone (DHEA) is the most abundant steroid in the human body and is involved in the manufacture of testosterone, estrogen, progesterone, and corticosterone.

There is evidence to suggest that DHEA may stimulate human growth hormone (HGH). Morales et al<sup>47</sup> published results of a double blind, placebo-controlled, crossover study involving 71 women and 13 men, ages of 40 to 70 years. Subjects took 50 mg of DHEA for three months, followed by a placebo for three months. While subjects were receiving DHEA, their levels of DHEA and DHEA-S rose to that of a young adult within 2 weeks of DHEA replacement and were sustained throughout the 3 months of the study. Furthermore 84% of women and 67% of men reported an improved sense of both physical and psychological well-being, including improved sleep quality, increased energy levels, improved ability to

handle stress, and increased sense of relaxation. Five of the volunteers also noted improvement in chronic joint pain and mobility. The researchers also found that DHEA caused a significant rise in IGF-1 levels, although it did not affect the 24-hour measurement of HGH levels. They speculate that restoring the levels of DHEA may stimulate the liver to produce more IGF-1 or generate more HGH receptors. In other words, we may find that the anti-aging benefits attributed to DHEA may actually be due to the stimulation of the HGH-IGF-1 system.

When<sup>22</sup> DHEA levels are in an optimal range, there can be less risk of developing atherosclerosis. Rabijewski<sup>48</sup> found that DHEA could lower insulin levels and decrease the risk for developing type II diabetes. DHEA also decreases the risk of cancer because it enhances the immune system response. DHEA is also thought to be neuroprotective.

Prof. Etienne-Emile Baulieu, world known researcher and endocrinologists at INSERM in Paris, former president of the French Academy of science, Honorary member of College of France, known for his work on contraception and on steroid hormones was the first to synthesize DHEA in the sixties. Prof. Baulieu conducted numerous conclusive researches on the efficiency and benefits of DHEA. His findings underline the systematic positive results of administrating DHEA in his experimental and clinical studies, especially in men. His findings demonstrate that 50 mg of DHEA in 280 participants during a year had significantly improved their bone mass, skin thickness and pigmentation, as well as the libido in both men and women, the general physical and mental well-being were improved too.<sup>49,50</sup> In an interview for a study on anti-aging medicine, Prof. Baulieu declares: "One of the most important effects of DHEA has not yet received enough attention: it acts on the receptors of neurotransmitters. There are very encourageing research on the well being and improvement of memory in old age"<sup>51</sup>

### *Testosterone*

Testosterone is the main hormone produced in the testicles and secreted by the testes. Testosterone deficiency has pleiotropic deleterious effects. There is increased cardiovascular system dysfunction, which can lead to the increased incidence of AMI's and strokes. Citing separately published data finding that: "serum testosterone levels were proved to be an independent negative predictor for developing arterial stiffness, assessed from the peak systolic and end diastolic diameters of the common carotid artery and simultaneous brachial artery blood pressure," Kelly and Jones<sup>62</sup> submit that: "testosterone has demonstrated anti-inflammatory effects clinically and [testosterone replacement therapy] can improve atherosclerosis assessed non-invasively in hypogonadal men and in animal studies."

Testosterone<sup>22</sup> optimization is anti-inflammatory. Testosterone prevents cytokine production and initiates the acute phase response, which elevates C-reactive protein, serum amyloid A and fibrinogen. Testosterone also prevents the formation of the adhesion molecules vascular cell adhesive molecule (VCAM) and intercellular adhesive molecule, (CD 54/ICAM), which are necessary components of the process of atherosclerosis. Thus, testosterone replacement is a very powerful anti-inflammatory treatment that can help to prevent atherosclerosis. Testosterone has also been shown to be of benefit in the treatment of chronic heart failure. Pugh et al.<sup>53</sup> found that testosterone increases cardiac output, decreases left ventricular load, and has no adverse cardiovascular effects. Malkin et al.<sup>54</sup> show that testosterone replacement moderates inflammatory cytokines and improves heart failure outcomes. Turhan et al.<sup>55</sup> found that men with low free testosterone levels have greater than 3 times the risk for the development of coronary artery disease.

There<sup>22</sup> is a common misconception that testosterone has adverse cardiovascular effects. However, the opposite has been shown with current research. The lower the free testosterone level the more likely coronary artery disease will be present. Testosterone replacement therapy (TRT) improves ST depression and dilates coronary arteries. TRT also may improve lipids and low testosterone is associated with dyslipidemia. English et al. found that low-dose transdermal testosterone therapy improves angina threshold in men with chronic stable angina. Rosano et al.<sup>56</sup> found that "Short-term administration of testosterone induces a beneficial effect on exercise-induced myocardial ischemia in men with coronary artery disease." The same researchers also concluded that intracoronary testosterone has direct dilating effects on the coronary arteries. Finally, Hak et al.<sup>57</sup> found that low levels of endogenous androgens increase the risk of atherosclerosis in elderly men.

Testosterone<sup>22</sup> can be a very powerful tool for the control of insulin resistance. Replacement doses decrease insulin resistance. Low levels of testosterone play a role in the development of type 2 diabetes. Low testosterone is associated with metabolic syndrome, hypertension, type II diabetes, fibromyalgia, and coronary artery disease. Boyanov et al.<sup>58</sup> studied the effect of testosterone supplementation in men with type 2 diabetes, visceral obesity, and partial androgen deficiency. Subjects received testosterone undecanoate, and the results reflect that supplementary testosterone reduced hemoglobin A1C levels by 17.3%, led to a decrease in visceral obesity, and improved symptoms of androgen deficiency including erectile dysfunction. Observing that: "There is strong evidence that a low testosterone level and clinical hypogonadism have a high prevalence in men with metabolic syndrome and/or type 2 diabetes," Muraleedharan and Jones<sup>59</sup> conclude that: "Testosterone deficiency is a risk factor in itself for the subsequent development of the metabolic syndrome and type 2 diabetes."

Testosterone<sup>22</sup> is the major predictor of skeletal mass, and it is synergistic with growth hormone (GH) and insulin-like growth factor-1 (IGF-1). Bhasin et al.<sup>60</sup> show that testosterone can improve strength even without exercise, but there is a marked improvement if testosterone is taken in combination with exercise. Declining testosterone levels are associated with accelerated osteoporosis, decreased muscle mass, and anemia – i.e., frailty.

Numerous studies have documented testosterone's positive effects on body composition. Mudali and Dobs<sup>61</sup> write: "Studies in hypogonadal men have shown that testosterone replacement is effective in increasing muscle mass and strength and decreasing fat mass... Current evidence suggests that testosterone replacement may be effective in reversing age-dependent body composition changes and associated morbidity." LeBlanc et al.<sup>62</sup> analyzed data collected on 1,183 men, ages 65 years and older, following the subjects for 4.5 years. Body composition was measured using dual energy x-ray absorptiometry (DXA) scans and physical performance was measured through a series of exercises that assessed grip strength, lower extremity power, walking speed and the ability to rise from a chair without the use of arms. Results showed that higher levels of testosterone were associated with reduced loss of lean muscle mass in older men, especially in those who were losing weight. In these men, higher testosterone levels were also associated with less loss of lower body strength. The study authors concluded: "Higher endogenous testosterone is associated with reduced loss of lean mass and lower extremity function in older men losing weight. Endogenous testosterone may contribute to healthy aging." Kovacheva et al.<sup>63</sup> report that testosterone supplementation reverses sarcopenia in aging via regulation of myostatin and "multiple signal transduction pathways in sarcopenia," concluding that: "Testosterone reverses sarcopenia through stimulation of cellular metabolism and survival pathway together with inhibition of death pathway."

Testosterone<sup>22</sup> levels correlate with cognitive function, and TRT can improve cognitive function. Moffat et al.<sup>64</sup> found that serum free testosterone concentration can be used to predict memory performance and cognitive status in elderly men. Gouras et al.<sup>65</sup> showed that testosterone replacement therapy prevents the production of beta amyloid precursor protein in men, which suggests that testosterone replacement may play a role in the prevention of Alzheimer's disease. A pilot study by Tan<sup>66</sup> on the effects of testosterone in hypogonadal aging male patients with Alzheimer's disease revealed that mental status of those given testosterone replacement therapy improved over one year, whereas the mental status of those given a placebo declined. Janowsky et al.<sup>67</sup> found that increasing testosterone to 150% of baseline levels in older men resulted in a significant enhancement of spatial cognition. A review of testosterone and cognition in elderly men, Holland et al.<sup>68</sup> concluded that: "Results from cell culture and animal studies provide convincing evidence that testosterone could have protective effects on brain function. Testosterone levels are lower in Alzheimer's disease cases compared to controls, and some studies have suggested that low free testosterone (FT) may precede Alzheimer's disease onset...Positive associations have been found between testosterone levels and global cognition, memory, executive functions, and spatial performance in observational studies."

Studies have shown that men who have their testosterone levels restored with TRT are less likely to suffer from depression, are less moody, more sociable, and have more energy. O'Connor et al.<sup>69</sup> investigated the effects of TRT on self- and partner-reported aggression and mood. Eight hypogonadal men received 200 mg intramuscular testosterone biweekly for 8 weeks. Results showed that TRT led to significant reductions in negative mood, tension, anger, and fatigue. Aydogan et al.<sup>70</sup> assessed the relationship with testosterone levels and psychological symptoms in young male patients with congenital hypogonadotropic hypogonadism (CHH). 39 young male patients with CHH and 40 age-matched healthy males were enrolled in the study. Results showed that hypogonadal participants had more severe symptoms of sexual dysfunction, anxiety, depression, and worse quality of life. However, 6 months of TRT led to improvements in anxiety and depression scores and the life qualities of participants. TRT also improves sexual function. Khera et al.<sup>71</sup> investigated if 12-months of treatment with a testosterone gel improved sexual function in hypogonadal men, as measured by the Brief Male Sexual Function Inventory (BMSFI). Results showed that the mean total BMSFI score significantly increased from baseline at 12 months ( $27.4 \pm 10.3$  to  $33.8 \pm 9.8$ ,  $P < 0.001$ ) and at each visit in all domains (sex drive/libido, erectile function, ejaculatory function, level of bother). Regression analysis indicated that increased total BMSFI score was significantly associated with increased total testosterone levels at 6 months. The authors concluded: "In hypogonadal patients, 12-month administration of topical testosterone gel resulted in increased total testosterone and free testosterone levels and significantly improved sexual function."

A Cochrane systematic study reviewed the benefits of testosterone for peri- and postmenopausal women. The authors concluded that "there is evidence that adding testosterone to hormone therapy has a beneficial effect on sexual function in postmenopausal women. There was a reduction in HDL cholesterol associated with the addition of testosterone to the hormone therapy regimens. Due to lack of targeted research, it is difficult to estimate the effect of testosterone on sexual function in association with any individual hormone treatment regimen."<sup>72</sup>

Rhoden<sup>22</sup> et al.<sup>73</sup> point out that benign prostatic hyperplasia (BPH) symptoms are not exacerbated with testosterone supplementation. Cooper et al.<sup>74</sup> studied the effect of exogenous testosterone on prostate volume, serum and semen prostate specific antigen (PSA) levels in healthy young men. Participants were given testosterone intramuscularly at

doses of 100, 250, or 500 mg a week. Serum testosterone increased, and there was no change in prostate volume or serum and semen PSA. Morales<sup>75</sup> and Prehn<sup>76</sup> both concluded that there is no evidence to suggest that exogenous androgens promote the development of prostate cancer. Morley<sup>77</sup> states that “There is no clinical evidence that the risk of either prostate cancer or BPH increases with testosterone replacement therapy.” A collaborative analysis published in the *Journal of the National Cancer Institute* in 2008 found that there was no association between the risk of prostate cancer and any hormone measured, including testosterone, DHT, estradiol and others. Gould et al.<sup>78</sup> review of 15 studies of testosterone replacement, up to 15 years in duration, showed no increase of prostate cancer risk. Agarwal<sup>79</sup> and Sarosdy<sup>80</sup> found that testosterone treatment studies of patients with prostate cancer after radical prostatectomy and brachytherapy have shown no recurrences or significant increases of PSA. Morgantaler’s<sup>81</sup> study reported dramatic evidence on the safety profile of TRT: 13 testosterone deficient men with biopsy proven prostate cancer were treated with TRT. After 2.5 years repeat biopsies were done and no cancer was found in 54%, there was also no local progression or metastasis found.

### ***Attacks on Compounding Pharmacies***

Compounding by pharmacists has been a foundational aspect of the practice of pharmacy. While today the majority of prescription medication is mass-produced by pharmaceutical companies, many patients require custom-made preparations that are prescribed by their physician and compounded by a trained pharmacist.

Compounding pharmacies are strictly regulated the respective state boards of pharmacy. Presently, U.S. Senate Bill S.959 would transfer control of compounding pharmacies to the Food and Drug Administration (FDA). This legislation would give sole authority of the FDA to determine what medications could be used in the practice of compounding pharmacy. Knowing its long time antipathy to bio-identical hormones, you can rest assured that the FDA would inevitably ban compounded bio-identical hormones. This has been its plan since the late 1980s. A series of federal court cases has prevented this. Despite this pending legislation, courts have repeatedly upheld pharmacists’ rights to compound despite repeated attempts by the FDA to challenge the activity. In May 2006, a U.S. District court judge ruled that the compounding of ingredients to create a customized medication in accordance with a valid prescription does not create a new drug subject to the FDA’s approval process (see *Medical Center Pharmacy et al. v. Gonzales et al.*). Additionally, the U.S. Supreme Court has held as unconstitutional FDA’s repeated attempts to regulate pharmacist compounding.

### ***Attacks on Credentialed Physicians***

The American Board of Anti-Aging & Regenerative Medicine (ABAARM) issues Board Certification to individuals with M.D. (Doctor of Medicine), D.O. (Doctor of Osteopathic Medicine), Doctors of Podiatric Medicine (DPM), and M.B.B.S. (Bachelor of Medicine/Bachelor of Science) degrees. The American Board of Anti-Aging Health Practitioners (ABAHP) issues Diplomate Certification to Doctors of Chiropractic (DC), Doctors of Dentistry (DDS), Naturopathic Doctors (ND), Registered Pharmacists (RPh), scientists (PhD and similar), Registered Nurses, Nurse Practitioners, and Physician Assistants, and Licensed Acupuncturists (L.Ac.).

Through ABAARM and ABAHP, the A4M is one of approximately 270 specialist medical societies and medical boards, only 24 of which in total have been approved by the American Board of Medical Specialties (the “ABMS”). A self-appointed organization, ABMS most recently approved a medical specialty – nuclear medicine – in 1985, 28 years ago as of this writing. In a field of over 270 specialist medical societies, ABMS approval is an arduous, time intensive, and resource depleting process. The A4M is one of nearly 250 societies that

have yet to receive ABMS approval,. Statements that anti-aging medicine is not yet an ABMS-recognized medical specialty mischaracterize the reality of gaining such approval and to infer – improperly – a lack of credibility on the part of A4M.

Currently, A4M's educational programming awards category 1 AMA/Physician's Recognition Award (PRA) physician credits, the highest level available for physicians and surgeons. The content of A4M's academic congresses are closely monitored and supervised by AMA-approved CME accreditation bodies. A4M's educational programming has consistently received the highest ratings and excellent reviews for the quality of medical educational content by peer-reviewed organizations. A4M's educational programming has received recognition and support of national governments and universities worldwide.

## **HORMONE REPLACEMENT THERAPY**

### ***History***

Hormone replacement therapies with controlled substances such as testosterone and growth hormone have been used since many years. The first testosterone treatment of testosterone deficiency in adult men started around 1940 and since then, for more than 40 years growth hormone has been administered to treat short stature children and since 1985 with the safer, not contaminated recombinant growth hormone, product of biotechnology. In the latter 1980's, the first clinical trial of adults with growth hormone deficiency were published, and since the beginning of the 1990s, growth hormone treatment of adult patients started in private medical practice.

The concept of Interventional Endocrinology acknowledges the fact that not everyone experiences symptoms of deficiency – relative or absolute - at the same levels. Therefore, taking a comprehensive medical history and physical can act to substantiate the application of replacement/supplementation protocols, in accordance with accepted standards of care. Clear documentation in this regard helps support the physician's approach in treating the patient.

### ***Safety & Efficacy***

To-date, no adverse effects of hormone replacement therapies administered to adults with diagnosed deficiency(ies) have been reported to the US FDA's Adverse Event Reporting System (FAERS), the national database providing post-marketing safety surveillance for drug and therapeutic biologic products. Likewise, as of this writing, the US CDC's Medication Safety Program contains no reports of adverse effects relating to HRT.

HGH therapy has been in use for over 40 years on adults and children<sup>82</sup>, with one of the best safety records in modern pharmacology and whose dose in adults is typically only 1/5 to 1/7 of the pediatric dose and under the strict supervision of an endocrinologist or anti-aging specialist. As of this writing, the US National Library of Medicine's PubMed database lists over 100,000 peer-reviewed citations on HGH therapy; not a single death or permanent life threatening morbidity has been reported in its use of AGHD in otherwise healthy but AGHD patients.

The side effects of GH replacement therapy, if any, are usually minor and are reversible by decreasing the dose or in a few cases discontinuing the treatment. Significant side effects are rarely seen in clinical practice. Also, when the same total dose is divided daily over a week-long period (instead of administering 3 days a week) side effects are diminished or absent. If side effects do occur, it has been clinically demonstrated that they disappear with cessation of treatment.

### ***The Clinical Anti-Aging Setting***

Most traditional endocrinologists have had no intense training in treatment of testosterone and growth hormone deficiencies. They generally have excellent training in the treatment of diabetes, but lack of interest and expertise in how to treat testosterone and adult growth hormone deficiencies and some other hormone deficiencies that may accelerate aging. Because of this lack of knowledge, many of them have rejected these treatments and confused them with the improper use at excessive doses by sports athletes searching to improve their performance. The A4M, its numerous worldwide affiliated scientific and medical societies, and befriended organizations, do not approve the improper use of these substance in sports, but do point to the right of every patient who is suffering from one of these deficiencies to get relief from their complaints by the adequate hormone treatment.

Critics of the anti-aging medical science do acknowledge that HGH prescribing is perfectly legal in connection with (1) "treatment of a disease" or (2) an "other recognized medical condition" that has been authorized by FDA. At no time has Congress evinced any intent to restrict ethical physicians from prescribing HGH to mature or elderly adults for medical reasons within their sound judgment. Nothing in the statute dictates to physicians how to diagnose the indications for diseases which may be treated by HGH. Any inference that the statute was intended to prohibit physicians from prescribing HGH for hormone replacement purposes in GH-deficient adults is, in A4M's view, misplaced.

The therapeutic value of HGH was validated by a study<sup>83</sup> conducted in Stockholm, Sweden. Data concerning visits to the doctor, number of days in hospital, and amount of sick leave were obtained from patients included in KIMS (Pharmacia International Metabolic Database), a large pharmacoepidemiological survey of hypopituitary adults with GHD, for 6 months before GH treatment and for 6-12 months after the start of treatment. Assistance required with normal daily activities was recorded at baseline and after 12 months of GH therapy. Quality of life (QoL) (assessed using a disease-specific questionnaire, QoL-Assessment of GHD in Adults) and satisfaction with physical activity during leisure time were also assessed. For the total group (n = 304), visits to the doctor, number of days in hospital, and amount of sick leave decreased significantly ( $P < 0.05$ ) after 12 months of GH therapy. Patients also needed less assistance with daily activities, although this was significant ( $P < 0.01$ ) only for the men. QoL improved after 12 months of GH treatment ( $P < 0.001$ ), and both the amount of physical activity and the patients' satisfaction with their level of physical activity improved after 12 months ( $P < 0.001$ ). In conclusion, GH replacement therapy, in previously untreated adults with GHD, produces significant decreases in the use of healthcare resources, which are correlated with improvements in QoL.

### **CONCLUDING REMARKS**

Repeatedly since the genesis of the anti-aging medical movement in 1991, the media has sought to demonize the use of hormone replacement therapies in healthy but deficient adults. Relying on partisan – and often misinformed – critics, the media fuel and encourage hysteria among the public, which thereby results in a climate of misguided federal and state actions that seek to restrict these safe, proven, life-enhancing therapies.

Attempts to criminalize the practice of medicine where variations to State Board-favored traditional care threaten the continued advancement of innovative medicine. In these situations, there are no injured patients and no victims yet criminal proceedings are waged against progressive health professionals. State officials abuse their authority in recasting minor administrative issues as criminal acts; this is unjust and may be considered as criminal abuse of their publicly elected positions. Sensationalization by media confuses the public,

with false allegations suggesting that HRT in clinically documented cases of adult deficiency syndromes equates to the abuse of performance-enhancing anabolic steroids.

The American Academy of Anti-Aging Medicine (A4M) is resolute in defending the rights of the patient working in conjunction with their physician in choosing any and all justifiable therapies, drugs and interventions which can be shown to improve either the quality or duration of the human lifespan or the form and function of the individual's physiology in order to achieve greater vitality and health at every age. It is in fact the physician's duty to act as an advocate for the patient's right to obtain the full lawful measure of scientific medical therapeutics necessary for optimum health and personal freedom of choice in healthcare.

The observation by George Orwell (1903-1950), English novelist, in the prognostic classic novel *1984*, that: "War is peace. Freedom is slavery. Ignorance is strength" predicts that in a world where lies are supported by the establishment, to stand firm for truth is a dangerous and revolutionary action. Physicians of conscience and good will must unite to take back the future – or all freedoms, including freedom of choice in healthcare – will be lost forever.

## **APPENDIX A. LITERATURE REVIEW**

This section presents a selection of published peer-reviewed studies that document the life-enhancing and/or life extending benefits of HRT in aging adults. For further references, see the A4M's White Paper "Guidance for Physicians on Hormone Replacement Therapy"; A4M, May 2007; available at: <http://www.worldhealth.net/white-papers-official-statements/>

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## **ENDORISING ORGANIZATIONS**

American Academy of Anti-Aging Medicine (A4M)  
Academy of Anti-Aging Medicine - China  
Asia-Oceania Federation of Anti-Aging Medicine (AOFAAM)  
AustralAsian Academy of Anti-Aging Medicine (A5M)  
European Society of Anti-Aging Medicine (ESAAM)  
German Society of Anti-Aging Medicine (GSAAM)  
German Society of Hemotoxicology  
Hellenic Academy of Antiaging Medicine  
Indonesian Society of Anti-Aging Medicine  
International Academy of Anti-Aging Medicine  
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Korea Anti-Aging Academy of Medicine (KA3M)  
LatinoAmerican Federation of Anti-aging Societies  
Romanian Association of Anti Aging Medicine  
Sociedad de Medicina Antiejeñimiento y Longevidad de Gran Canaria  
Society for Anti-Aging & Aesthetic Medicine Malaysia (SAAAMM)  
South African Academy of Anti-Aging & Aesthetic Medicine (SA5M)  
Spanish Society of Anti-Aging  
Thai Academy of Anti-Aging Medicine  
Anti Aging Research and Education Society, Turkey  
Center for Study of Anti-Aging Medicine - UDAYANA University, Indonesia  
Ukrainian Association of Preventive & Anti-Aging Medicine  
World Anti-Aging Academy of Medicine (WAAAM)

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