


The American Institute of Stress

# HEALTH AND STRESS

Your source for science-based stress management information

Volume 27 Issue 1

January 2015



**CAN WE**  
**SLOW**  
**OR** **Reverse**  
**Biological Aging?**

by Paul J. Rosch, MD, FACP  
Editor-in-Chief



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**AIS provides a diverse and inclusive environment that fosters intellectual discovery, creates and transmits innovative knowledge, improves human health, and provides leadership to the world on stress related topics.**

# HEALTH AND STRESS

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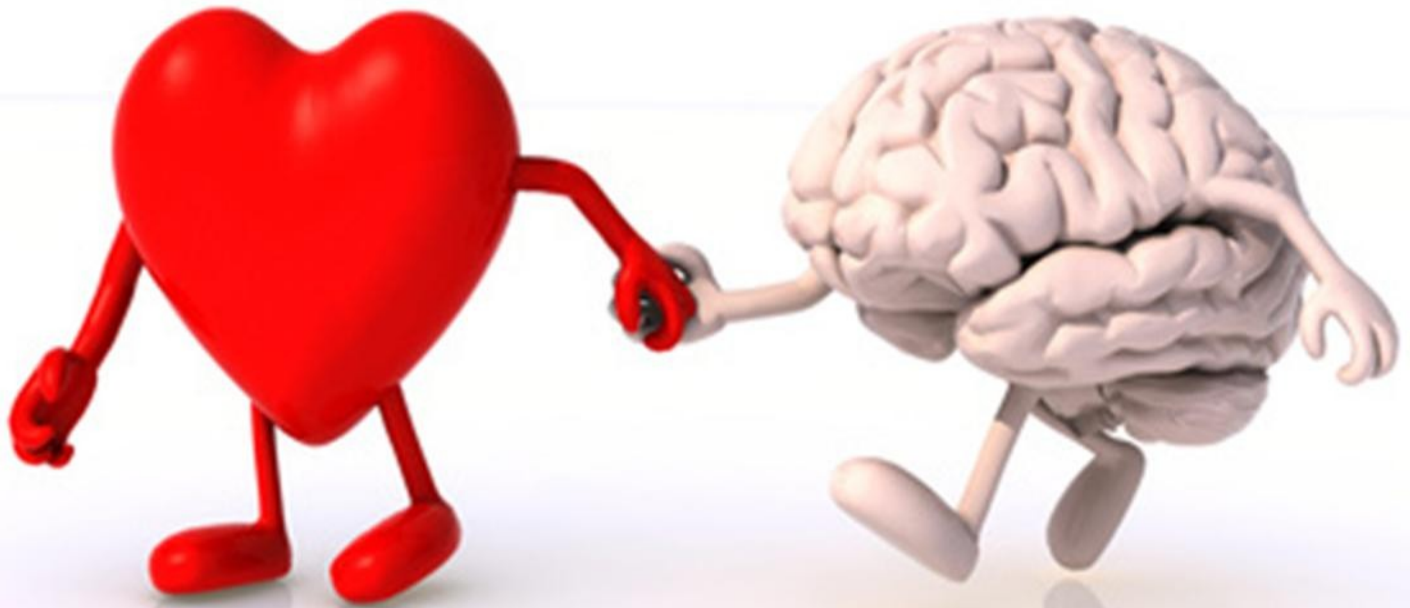
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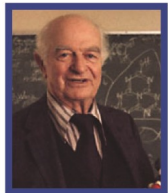


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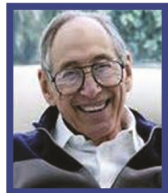
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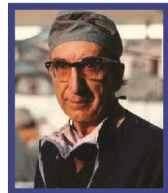
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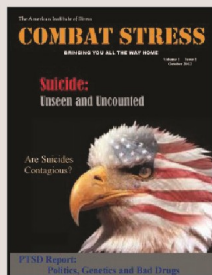
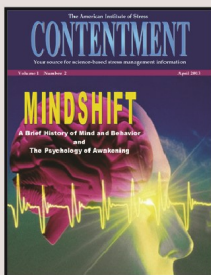
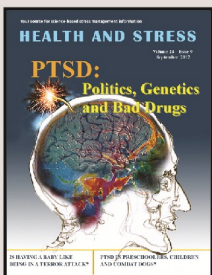
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A close-up photograph of a human hand holding a key. The key's shaft is replaced by a colorful DNA double helix structure, with the two strands twisted around each other. The hand is positioned palm-up, and the key is held between the thumb and index finger. The background is dark, making the hand and the colorful DNA structure stand out.

# Live Long without Growing Old?

As an old adage notes, "Everyone wants to live long, but nobody wants to grow old." History is replete with the search for an "elixir of life" that restored youth and health. The ancient Chinese believed that ingesting jade, cinnabar and other long-lasting substances would confer some of their longevity. Gold was thought to be particularly potent, since unlike silver, it didn't tarnish or lose its luster with age. Drinkable gold was apparently popular in the third century B.C. according to the *Danjing Yaojue* (Essential Formulas of Alchemical Classics), which described in detail how to prepare this and other potions to prolong life. Unfortunately, some of these concoctions contained mercury, arsenic and other toxins, and several Ming Dynasty emperors likely died from poisoning in their quest for rejuvenation.

The Vedas, sacred Hindu scriptures dating back to 1500 B.C., refer to *Amrita*, the "Nectar of Immortality", which also contained gold, as did the "white drops" (liquid gold) mentioned in early Egyptian papyri. *Aab-i-Hayat* is

Persian and means "water of life". The word elixir did not appear until the 7th century and was derived from *al iksir*, the Arabic name for miracle substances. There are numerous other examples as alchemists in various cultures pursued their search for this and the philosopher's stone, which was believed to transform base metals like lead into gold and thought to confer youth and even immortality. Scotch and whiskey manufacturers sometimes refer to their premium products as "liquid gold" by pointing out that *uisce beatha* (water of life) is Gaelic for whiskey.

### **Alexander The Great's Search For The Fountain of Youth**

A Fountain of Youth from a spring that restored youth to anyone who drank or bathed in it was reported in the 5th century B.C. by the Greek historian Herodotus. It was said to be located in the land of the Macrobian, a legendary kingdom at the southernmost portion of the known world, whose inhabitants had exceptional longevity that he described as follows.

*"The Ichthyophagi then in their turn questioned the king concerning the term of life, and diet of his people, and were told that most of them lived to be a hundred and twenty years old, while some even went beyond that age - they ate boiled flesh, and had for their drink nothing but milk. When the Ichthyophagi showed wonder at the number of the years, he led them to a fountain, wherein when they had washed, they found their flesh all glossy and sleek, as if they had bathed in oil - and a scent came from the spring like that of violets. The water was so weak, they said, that nothing would float in it, neither wood, nor any lighter substance, but all went to the bottom. If the account of this fountain be true, it would be their constant use of the water from it, which makes them so long-lived."*

Ichthyophagi (fish eaters) was the name used by ancient geographers to coast-dwelling peoples who subsisted primarily on fish. Herodotus was referring to Babylonian tribes that were solely fish-eaters, which suggested this Kingdom and its magical fountain of youth or river was in what would later correspond to Ethiopia or Somalia. Subsequent historians later placed it in India, since this is where Alexander the Great was allegedly searching for these treasures before he died in 323 B.C.

By then, he had conquered most of the known world, and interest in this exploded with the popularity of the *Alexander Romances*, a collection of legends concerning his mythical exploits that appeared in various versions and languages all over the world between the 4th and 16th centuries. He appears in the Koran as a prophet called *Dhul-Qarnayn* and early Islamic civilizations created their own legends about Alexander, particularly in Persia. The story of the "Water of Life" appears in Eastern

versions of the *Alexander Romances*, which describes Alexander the Great and his servant crossing the Land of Darkness to find the restorative spring. The servant in this story is derived from Middle Eastern legends of *Al-Khidr*, a sage who also appears in the Koran. Later versions focused on the ability of this magical water to recreate life as well as restore youth, as illustrated below:



Persian miniature depicting Alexander and his servant watching the Water of Life revive a salted fish.



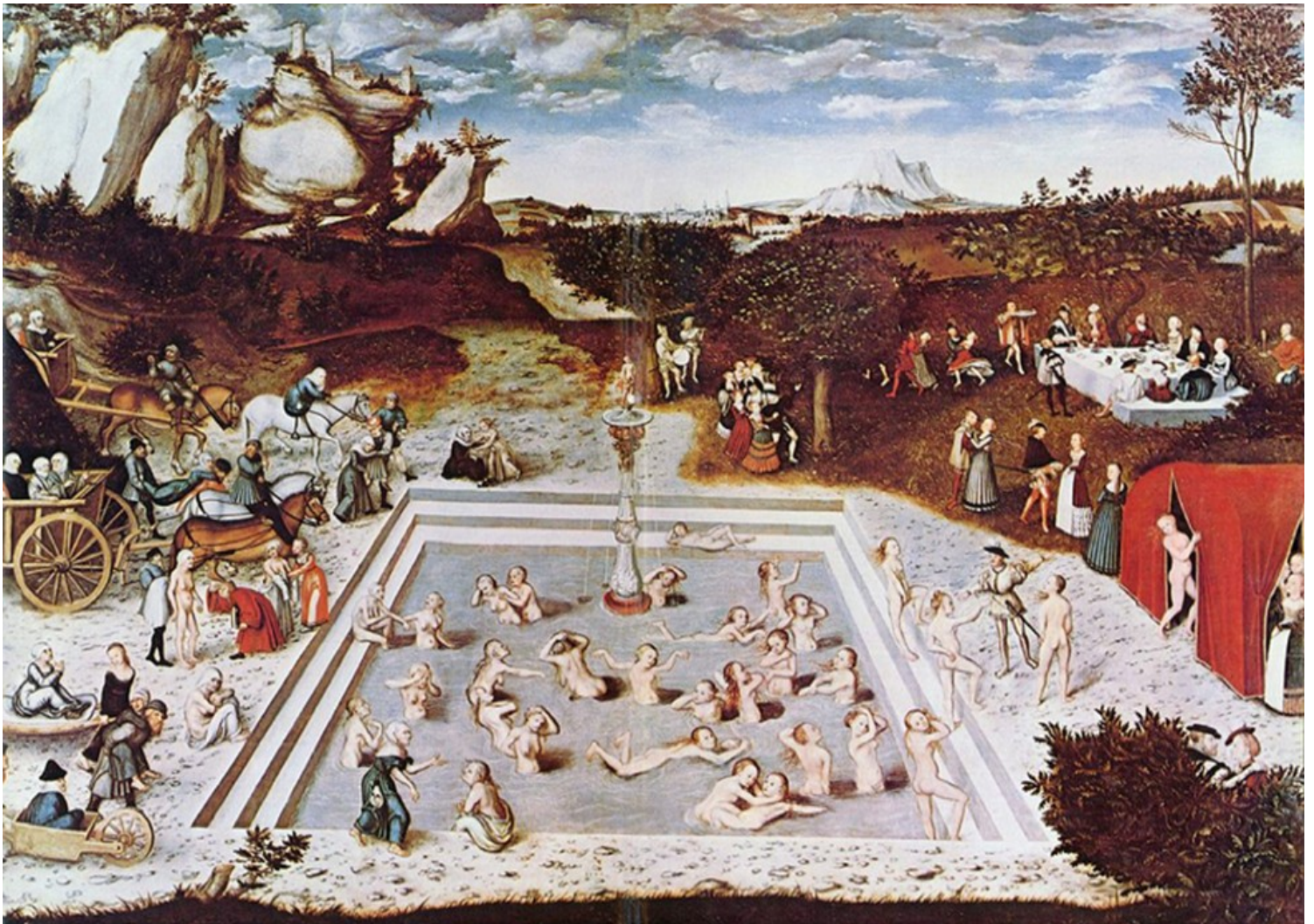
14th century ivory mirror case showing elderly women entering a Fountain of Youth and exiting as young beauties.



Arabic versions of the *Alexander Romance* were very popular in Iberia during and after the period of Moorish rule, and would have been known to Spanish and Portuguese explorers who travelled to America. These accounts inspired the medieval fantasy *The Travels of Sir John Mandeville*, a story about the journeys of this alleged mythical character

that appeared between 1357 and 1371, and was particularly popular in England and France. It described the Fountain of Youth as being located at the foot of a mountain in India near the Arabian Sea. Stories about Prester John, another legendary figure, were even more popular in Europe from the 12th through the 16th centuries. Allegedly a descen-

dant one of the Three Magi, he was the benevolent ruler of a Christian nation surrounded by Muslim countries that was also initially thought to be in India. However, this was later changed to Ethiopia, which had been Christian since the 4th century. Interest also grew as artists increasingly devoted their talents to depicting this magic Fountain.



*Fons Juventutis* (The Fountain of Youth) 1546 painting by Lucas Cranach the Elder.

As in the ivory mirror-case from 200 years earlier, the Cranach rendition above shows people at the left, some of whom need to be carried, who strip, and then enter a large pool that is fed by a Fountain of Youth. Those in the pool become progressively younger as they bathe and cavort. After they exit to the right, they are then shown fashionably dressed and enjoying a courtly party and even a meal. This painting is larger than 4X6 feet so it is difficult to fully appreciate this small reproduction that is little more than 4X6 inches. The following link shows it in much more detail, and is highly recommended. <https://www.youtube.com/watch?v=j79PC70bPPA>

The Fountain of Youth fable reached its peak in the 16th century because of the Spanish explorer Juan Ponce de León. The early Spanish settlers had heard natives of Hispaniola, Cuba, and Puerto Rico talk of a Caribbean island of great wealth called *Beimini* where no one grew old because of its Fountain of Youth. It was estimated to be located in the region of the Bahamas (Bimini), and Ponce de León was charged with discovering and claiming it for Spain. On April 2, 1513 he sighted what he believed was an island that he named *La Florida* because of its lush landscape and it

was the Easter season, which the Spaniards called *Pascua Florida* (Festival of Flowers). The location of his landing was near what would later be the 1565 settlement of St. Augustine, thus making it the oldest continuously inhabited European community in North America. Excavations subsequently revealed that it had been built over an old Indian burial ground. To commemorate this, the city of St. Augustine now features a Fountain of Youth Archaeological Park that exhibits these artifacts and contains a freshwater spring claimed to be the one discovered by Ponce de León.



Fountain of Youth Spring in St. Augustine



Ponce de León achieves his goal

## Organ Extracts, Auto-plastic Rejuvenation And Monkey Gland Transplants

Although the search for a Fountain of Youth was abandoned, the belief that the body contained rejuvenating substances began in the early 19th century when Arnold Berthold, a German physician and Professor of Physiology demonstrated that castrating roosters led to atrophy of the comb and a disappearance of interest in mating. However, these changes could be reversed by transplanting their male organs to sites in the abdominal cavity where they had access to blood vessels. This stimulated interest in the possibility of internal secretions that not only enhanced sexual function, but might also slow or reverse the decline in mental and physical function associated with old age. The French physiologist and neurologist, Charles Edouard Brown-Sequard, conducted numerous experiments with endocrine organs but is best known for his research on the testes. Because of concerns about the deterioration of his mental faculties and physical strength when he was 70, he began a series

of subcutaneous injections of an extract made from the crushed testicles of young dogs and guinea pigs. Two years later, at an 1889 medical conference in Paris, he reported improved intellectual capacity and sexual potency as well as a stronger urinary stream and control of defecation, and told reporters "*the injections have taken 30 years off my life.*" His results were promptly published in *Lancet* (1889; 2:105 Brown-Sequard CE: "The effects produced on man by subcutaneous injections of liquid obtained from the testicles of animals.") This brought him international fame and stimulated scientific interest in hormonal therapies

such as George Murray's 1891 discovery of sheep thyroid extract for myxedema.

We now know that testosterone is secreted into the bloodstream shortly after it is produced and that little remains in the testis. Therefore, it is likely that what Brown-Sequard observed was a powerful placebo effect, which emphasizes the importance of having a control group in any drug study. Following Brown-Sequard's death in 1894, numerous quack remedies allegedly based on his research were promoted to cure almost everything, such as the 1912 advertisement below for Sequarine.


# SEQUARINE

**THE MEDICINE OF THE FUTURE.**

**T**HE one great remedy of the future will undoubtedly be the Serum. The mere fact that Scientists are now able to transfer energy from one animal body to another is sufficient to arouse enthusiasm among Doctors.

The perfection of the Sequarine Serum (which embodies the very essence of animal energy) in a form for everyday use, places animal therapy far in advance of other branches of medical science. This Serum is being used with astonishing success in treating:—

<p><b>Nervousness, Nourasthenia, Anæmia, Rheumatism, Cout, Sciatica,</b></p>	<p><b>Kidney Disease, Diabetes, Dropsy, Dyspepsia, Liver Complaints, Indigestion,</b></p>	<p><b>Paralysis, Locomotor Ataxy, General Weakness, Influenza, Pulmonary Troubles.</b></p>
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**BROWN-SEQUARD,**  
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*who discovered the vital principle which is the basis of natural immunity from disease*

**A Remarkable Book.**

Sequarine is prepared under the supervision of L. H. Goize, M.D., the collaborator of Prof. Brown-Sequard. A remarkable book has been prepared, giving the details of its discovery, nature, and action, and copies are being presented free to the public. No sufferer, Physician, Medical Student, or Nurse should be without the Sequarine Book. To obtain it simply send name and address to C. RITCHER & CO., 59, New Oxford Street, London, W.C.

FIG. 8.3. Advertisement published in *The Strand Magazine* in 1912, indicating the extravagant

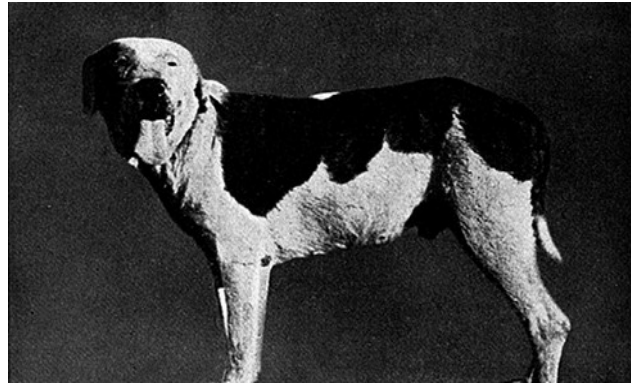
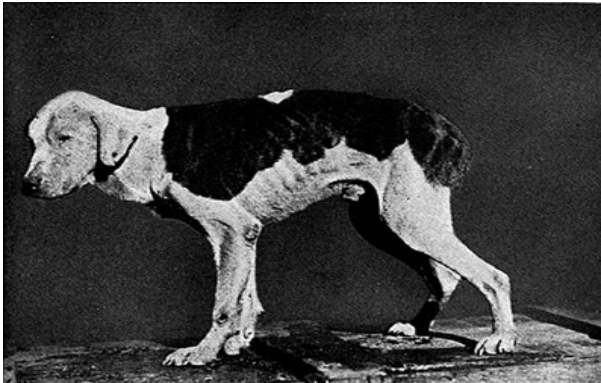
In addition, Brown-Sequard's original injections had to be repeated every three or four weeks, so the emphasis was on finding a more sustained rejuvenation therapy.

Towards the latter part of the 19th century, Eugen Steinach, a Viennese physiologist, performed several experiments to differentiate the reproductive function of the testis from its hormonal activities. He theorized that ligating the seminal ducts to stop reproductive activities might stimulate an increase in hormone secreting cells that could have rejuvenating effects. He then demonstrated this phenomenon in elderly rats and dogs, as illustrated below.

storing youth and vitality, it quickly became popular and remained so for over two decades. For example, the February 9, 1922 *New York Times* headline was, "Dr. Steinach coming to make old young." During this period, he had numerous celebrity clients, including Sigmund Freud, who had the operation in 1923, aged 67, in the hope that it would prevent the recurrence of his cancer of the jaw and might improve his "sexuality, general condition and capacity for work." The Nobel Prize winning poet William Butler Yeats, who underwent the procedure in 1934 when he 69, described his experience as "a strange second puberty that revived my creative power"

Irish press nicknamed him the "gland old man." Some literary critics also agree that it revived Yeats' creative power and was responsible for several late poems recognized to be among his best work.

Although Steinach never traveled to America, Harry Benjamin, a New York physician who had visited him in 1920 and corresponded with him for over 20 years, was an early and staunch proponent of the procedure, which Steinach called "Autoplastic Rejuvenation" but came to be known as "The Steinach Operation". Dr. Benjamin reported that his patients experienced an increase in strength, improvement in hearing, new growth of pigmented



Eighteen year-old dog before vasoligation

Same eighteen year-old dog after vasoligation

In 1918 Steinach, assisted by an urologist, performed the first human vasoligation procedure and due to its alleged success in re-

and boasted "it revived also sexual desire that in all likelihood will last me until I die." He spoke so often about this that the

hair, a reappearance of mental acuity, return of ambition, desire for work, improvement of memory and concentration, general overall feeling of well-being, restoration of sexual potency, increased libido, and stronger erections. Steinach subsequently

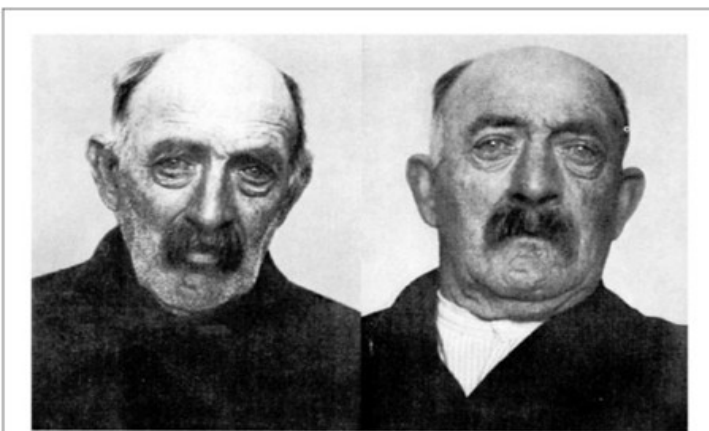
provided a detailed account of his research and his theory of Autoplastic Regeneration in his 1940 book *Sex and Life: Forty Years of Biological and Medical Experiments*, which included numerous before and after photographs similar to the one above.

During this same time period, there was also increasing interest in sex gland transplants. One of the pioneers in this area was Serge Voronoff, who left Russia in 1884 to study medicine in Paris. One of his teachers was the French surgeon and biologist, Alexis Carrel, from whom he learned the intricate surgical techniques of transplantation. Carrel later was awarded the 1912 Nobel Prize Nobel Prize in Physiology or Medicine "in recognition of his work on

*vascular suture and the transplantation of blood vessels and organs*". In 1895 at the age of 29, Voronoff became a naturalized French citizen, and for the next four years, he conducted research in Egypt to study the adverse effects of castration on eunuchs. He was particularly interested in evidence of premature aging, which led to his experiments of testicular gland transplantation in primates. He had previously injected himself and others with extracts of dog and guinea pig testis that failed to show any hormonal or anti-aging effects. He believed that glandular transplants would last much longer than injections and began transplanting chimpanzee thyroid glands to patients with underactive thyroids, and later moved on to

transplanting testicles in animals.

Between 1917 and 1926, he performed over 500 such procedures in goats, sheep, as well as a bull, that showed transplanting the testicles of a young animal to an elderly one restored their lost vigor and had other rejuvenating rewards. He performed his first successful transplant from a monkey gland to a human in 1920. This was not an organ transplant but rather extremely thin slices of testicular tissue from chimpanzees and baboons that were implanted in the scrotum using silk sutures. The thinness of the foreign implants allowed them to fuse with the normal tissue and to begin secreting hormones. He had great success with this, as seen below.



George Behr, aged 73 in 1924. Left- prior to graft. Right- in 1925, after monkey gland graft.



Voronoff's older brother. Left- aged 65 prior to graft. Right - 4 years after monkey gland graft.

In 1923, 700 surgeons at the International Congress of Surgery applauded his success in the "rejuvenation" of old men. Voronoff's first book, *Life: A Study of the Means of Restoring* (1920) had been so successful that he published 13 more over the next two decades. In *Rejuvenation by Grafting* (1925), he listed some of the benefits of his procedure, such as improved sex drive, better memory, the ability to work longer, no longer needing glasses and prolonging life. He also suspected it might be helpful for people with *dementia praecox*, (schizophrenia) and in preventing senility. He was the toast of Paris, celebrities and wealthy individuals came from throughout the world to be treated, and he became so wealthy that he occupied the entire first floor of one of the most expensive hotels, where he was surrounded by an entourage of chauffeurs, valets, bodyguards, personal secretaries and two mistresses. Since he transplanted the testicles from young executed criminals into his richest clients, the poet E.E. Cummings described him as "the famous doctor who inserts monkey glands in

millionaires".

By the early 1930's, over 500 men had received his rejuvenation therapy in France and thousands more in other countries, including the United States, Italy, Chile, India, Brazil, and Russia. The demand for ape testes was so much greater than the available supply, that the French government was forced to ban monkey hunting in the French colonies. Voronoff, who had become alarmed about this shortage, proposed the construction of monkey houses in French Guinea to provide a continual supply of testicular tissue, and when this failed, he set up his own monkey farm on the Italian Riviera and hired a former circus-animal keeper to manage it. He also established a special clinic or small hospital in Algiers staffed by doctors and personnel trained to perform the procedure and provide proper patient care.

Testicular transplantation using specimens from men who had been executed or committed suicide had been performed in the U.S. as early as 1911, by Dr. Victor Lespinasse, who successfully implanted slices of a

donor testis among the fibers of the abdominal musculature of a 38-year-old patient who had lost both testicles and complained of loss of interest in sex and erectile dysfunction. After several weeks, his libido returned, along with a full erection, and a follow-up two years later revealed he was still experiencing a normal sex life. Dr. Frank Lydston, another highly regarded urologist, transplanted human testicles to treat various disorders rather than restoring or improving sexual function. In a 1916 issue of the *Journal of the American Medical Association*, he reported the beneficial results obtained in dementia, hypertension, psoriasis, eczema, psychoses and cryptorchidism (undescended testicles). Lydston was so impressed with his results, that 2 years earlier, he implanted in his own scrotum a testicle from a young suicide victim that had been removed a few hours earlier and preserved in a saline solution. He described the results of the operation as providing him with a "buoyancy of spirits", along with a drop in his blood pressure, increased alertness and requiring less sleep.

He continued to do testis transplants and published his findings until his death from pneumonia in 1923, at the age of 65. One of the last patients he reported on was a very depressed 34-year-old man with scant body hair, no beard and lack of libido who had been diagnosed as suffering from hypopituitarism. He received a testis that had just been removed from an 18-year-old who died from a skull fracture. After several weeks, he began to have "frequent and violent erections," noted enlargement of his genitalia, a deepening in his voice, started shaving, and was no longer depressed. Dr. Leo L. Stanley, the staff physician at San Quentin Prison in California, performed numerous testicular tissue grafts on inmates, who were both donors and recipients. His results of 1,000 testicular substance implants published in the journal *Endocrinology* in 1922 were similar to Lydston's but since he had more than ten times the number of subjects, also included others with diabetes, tuberculosis, epilepsy and rheumatism.

As might be antici-

pated, numerous charlatans and entrepreneurs offering similar but spurious treatments were quick to cash in on this craze. One of the most colorful and successful was Dr. John Brinkley, who never graduated from medical school, but bought a diploma from the bogus Kansas City Eclectic Medical University in 1915 that allowed him to practice in eight states. With the assistance of James Crawford, a skilled con man, he established a practice in Greenville, South Carolina called "Greenville Electro Medic Doctors" that specialized in rejuvenation therapies. They advertised extensively to attract men who wanted to improve their sexual function with injections of a new "electric medicine from Germany at \$25 a shot (\$600 in current value). It was actually nothing but colored distilled water, the practice folded a few months later, and the pair skipped town leaving numerous unpaid bills. Brinkley then moved to Kansas City to take a position as doctor for Swift and Company meat packing plant, where he learned that the healthiest animal they slaughtered was the goat. In 1917, he

was drafted for service in World War I but was discharged after a few months because of nervous exhaustion. He then moved to Milford Kansas after seeing a notice that the town's 600 residents needed a doctor.

He opened a 16-bed clinic that was an instant success because it cared for the numerous patients affected by the deadly 1918 influenza pandemic, and his reputation soared because of his success in nursing them back to health, making numerous house calls, and paying good wages that bolstered the local economy. Mindful of the success of Steinach and Voronoff, he hit upon the idea of transplanting goat testicles into men when a patient came to him to ask if he could fix someone who was "sexually weak". Brinkley responded by joking that the patient would have no problem if he had "a pair of those buck [goat] glands in you". The patient then begged Brinkley to try the operation, which he did, for \$150 (\$1,720 in current value). At his clinic, Brinkley began to perform more operations to restore male virility and fertility by implanting goat

testicles in male patients at a cost of \$750 per operation (\$8,800 in current value). His income skyrocketed after news that the wife of his first transplant patient had given birth to a baby boy and he received lavish testimonials from prominent individuals like Chandler, owner of the *Los Angeles Times*. This attracted Hollywood film stars and other celebrities from here and abroad, and Brinkley began promoting goat glands as a cure for 27 ailments, ranging from dementia and emphysema to flatulence. He started a direct mail blitz and hired an advertising agent, who described his treatments as turning hapless men into "the ram that am with every lamb".

He was impressed with the power of radio as an advertising medium, and by 1923, had enough capital to build KFKB ("Kansas First, Kansas Best" or sometimes "Kansas Folks Know Best"). He spoke for hours on end each day promoting his goat gland treatments and in between had different forms of entertainments, including military bands, old-time string bands, gospel, early coun-

try music, interspersed with French lessons, astrological forecasts and story telling. He also started a new radio segment called "Medical Question Box", where he would read listeners' medical complaints over the air and suggest proprietary treatments. These treatments were only available at a network of pharmacies that were members of the "Brinkley Pharmaceutical Association". These affiliated pharmacies sold Brinkley's over the counter medicines at highly inflated prices, sent a portion of their profit back to Brinkley and retained the rest. It is estimated that this generated \$14,000 in profit weekly, or well over \$10 million/year in current value. Brinkley ploughed much of this back into Milford by putting in a new sewage system and sidewalks, installing electricity, building a bandstand, apartments for his patients and employees, as well as a new post office to handle all of his mail and sponsored a hometown baseball team called the "Brinkley Goats." As a result, he was often referred to as "The Milford Messiah".

Nevertheless, medical and Federal authorities caught up with him. His license to practice in Kansas was revoked because of immorality and unprofessional conduct, and he had "performed an organized charlatanism ... quite beyond the invention of the humble mountebank". Brinkley had signed death certificates for 42 people, most of whom were healthy when they went to his clinic and many more of his patients probably died elsewhere. The Federal Radio Commission also closed his KFKB radio station for promoting fraud. Brinkley retaliated by purchasing radio station XERA across the border in Mexico and began beaming his message into the United States with the power of one hundred thousand watts that was 1,000 times more powerful. He decided the only way to retrieve his medical license was to become governor, and in 1930, organized a massive write-in campaign, and almost won.

It is estimated that Brinkley performed over 16,000 goat transplant operations, and for \$5,000 (\$3.5 million today) would even implant genuine hu-



man glands that he obtained from prisoners on death row. He had several mansions, a fleet of Cadillacs, airplanes, and yachts, but he died penniless because of numerous wrongful death and other lawsuits as well as government fines. In 1938, Brinkley sued Morris Fishbein, editor of the Journal of the American Medical Association for libel and \$250,000 in damages (\$4,190,000 in current value). The jury found for Fishbein, stating that Brinkley "should be considered a charlatan and a quack in the ordinary, well-understood meaning of those words". This verdict precipitated a barrage of lawsuits against Brinkley estimated to be well over \$3 million in total value. The Internal Revenue Service began investigating him for tax fraud and he declared bankruptcy in 1941, the same year the U.S. and Mexico reached an agreement on shutting down his XERA radio station and the United States Post Office Department started investigating him for mail fraud. He developed a blood clot that necessitated amputating a leg and died the following year from heart failure.

## Cellular Rejuvenation, Fetal Cells, Gerovital H3, And Placental Therapy

changed dramatically on April 1, 1931, when he received an emergency call to see a woman with severe convulsions following



Don't Use Monkey Glands

### VITAL FORCE RESTORED

Glandoids is the name given to a new and perfectly harmless remedy, which stimulates and gives new life to the wonderful ductless glands which all mankind possess. It is safer and cheaper to restore the functions and activity to man or woman's own glands than to run the terrible risk of grafting glands from inferior animals at great expense.

"Glandoids" are prepared in tablet form, and we offer every man and woman in Australia the opportunity of trying a double strength treatment for 10/6, on the understanding that

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**THE GLANDOIDS CO.,**

24 Bond Street, Sydney, or All leading Chemists in N.S.W.

There were numerous other charlatans eager to cash in on gland transplants as indicated by the above 1928 advertisement exploiting the monkey gland craze in Australia. However, interest in this waned with the advent of other therapies that were also effective and much safer.

One of the most popular was fetal cell therapy, a rejuvenation technique pioneered by the Swiss physician Dr. Paul Niehans. He had performed gland transplants in various animals with favorable results, but these rarely lasted longer than a few months. His life

a thyroid operation in which her parathyroid glands had inadvertently been removed. The only solution was an immediate parathyroid transplant, which is why he had been contacted. On his way to the hospital, Niehans stopped at the abattoir where the animals he used in his revitalization experiments were slaughtered, and obtained fresh parathyroid glands from a bovine fetus. However, when he saw the patient, she had deteriorated to such an extent, it was obvious she would not survive the operation. He quickly sliced extremely thin slivers of the gland into smaller and smaller pieces

with a scalpel, taking care not to mash the cells, and put them in a saline solution that he very slowly injected into her breast using a large intramuscular hypodermic needle. To everyone's surprise, her convulsions promptly lessened and then stopped. She continued to improve and not only made a complete recovery, but lived another 30 years until she died, well into her 90s. Many years later, Niehans wrote, "*I thought the effect would be short-lived, just like the effect of an injection of hormones, and that I should have to repeat the injection. But to my great surprise, the injection of fresh cells not only failed to provoke a reaction but the effect lasted, and longer than any synthetic hormone, any implant or any surgical graft.*"

This led him to postulate that injecting embryonic animal cells could regenerate human cells, tissues and even organs. His rejuvenation technique involved injecting different types of cells from lamb embryos that then migrated to sites in the body where they were needed. As he explained in his book, *Introduction to Cel-*

*lular Therapy*, fetal heart cells could strengthen heart muscle, fetal brain cells boosted memory and cognitive functions, fetal kidney cells improved renal function, etc. A grandson of German Emperor Frederick III, Niehans was well connected, and news of his success with fetal cell therapy quickly spread in medical as well as high society circles. Thousands of patients came to the *La Prairie* clinic he founded in Montreux in 1931 for fetal cell therapy, including celebrities like Winston Churchill, Charles de Gaulle, Dwight and Mamie Eisenhower, the Duke and Duchess of Windsor, Joseph Kennedy, Pablo Picasso, the British Royal Family, Emperor Hirohito, the Queen of Spain, Hirohito, Emperor of Japan, Emperor Haile Selassie of Ethiopia, King Ibn Saud of Saudi Arabia, and Hollywood stars Charles Chaplin, Robert Cummings, Charles Boyer, Joan Crawford, Sophia Loren and others. Perhaps his most famous patient was Pope Pius XII, whose unexplained chronic poor health made it difficult for him to fulfill his duties, and he was considering resignation. He visited Niehans in the summer of

1953 for the first of three series of fetal cell injections, and in gratitude invited him to join the Pontifical Academy, the Vatican's select group of scientists. Not surprisingly, numerous other fetal cell clinics began to offer similar services in Switzerland and around the world, but not in the U.S., and more about this later.

In 1905, Alfred Einhorn, an Austrian biochemist, successfully synthesized and combined in an aqueous solution para-aminobenzoic acid, a member of the B vitamin complex family and diethylaminoethanol, which is also found in the body and is thought to be a precursor of acetylcholine, an important neurotransmitter. This combination product, which he labeled procaine, was a very effective local anesthetic. In the U.S. it was called novocaine, and was used extensively by dentists because it had no side effects and was non-addictive. It did not appear to have any other uses until the late 1940s when Dr. Ana Aslan, a Romanian geriatrician, injected it to relieve pain in the arthritic joints of elderly patients. She found

that it relieved pain and increased mobility, but so many patients reported improvements in both physical strength and mental well being that went beyond any local effects, she decided to investigate this. One of the

problems she encountered was that the anesthetic effects of procaine wore off in an hour or so and she thought that prolonging this might improve her results. With the aid of some colleagues, she added potas-

sium metabisulphite and disodium phosphate to the procaine, which allowed it have therapeutic blood levels for 6-9 hours, and Gerovital H3 (GH3) was born. The results were astounding as illustrated below:



One of Professor Aslan's first patients who had severe alopecia. Left- before treatment. Right – same patient three years later. Note abundant hair growth as well as a more youthful appearance. The latter seemed to be a consistent finding in patients treated for other problems.



Left -This forty-two year old patient suffered from premature aging and psoriasis. Right – after one year of treatment. Note increase in hair, and more youthful appearance. Psoriasis also improved not only on hands but elsewhere.



A case of premature aging where improvements in the condition of the hair in particular is striking after one year's treatment.

In 1956, Ana Aslan presented her research findings at a Gerontology Conference in Germany, but the audience was skeptical. It seemed unlikely that one product could provide so many benefits, especially a drug like novocaine that dentists had used for decades. She then embarked on a huge study in which 15,000 Romanian workers age 38 to 62, who received either GH3 or a placebo, were followed by 400 doctors in 154 clinics. All were healthy, but those who took GH3 were 40% less likely to be sick, as assessed by days unable to work. Doctors reported that blood pressures normalized (either up or down), respiratory functions and arthritic problems improved, muscular vigor and sex drive increased, and ulcer symptoms lessened or disappeared. An influenza epidemic swept across Europe during the study but the death rate for the GH3 group was only 2.7% compared to 15% for the placebo cohort who received the same medical treatment. It should be emphasized that this was a double-blind study in which neither the physician nor the patient knew

what was being administered. Gerovital 3 is available in 70 countries but is banned in the U.S. despite attempts to have it approved by Dr. Alfred Sapse, and more about this to follow.

The placenta has been used for thousands of years in traditional Chinese medicine to treat menopause, infertility and impotence, as well as improvement in liver and kidney function. Most mammals eat the placenta or afterbirth because it is rich in numerous nutrients and the ancient Egyptians believed it was imbued with magical powers that promoted regeneration. Modern placenta therapy began in the 1930's when Dr. Vladimir Petrovich Filatov, a Russian ophthalmologist, noticed that pregnant women seemed to be very healthy during the final trimester of pregnancy and for several months after delivery. He attributed this to the placenta, and began researching and experimenting with placental extracts and grafts of placental tissue to treat various diseases, and found that frozen placental tissue significantly accelerated wound healing. He

thought he could improve his results by using fresh placental grafts and was puzzled to find they had little effect on tissue healing. Similarly, when he transplanted frozen corneas from deceased donors into patients, existing opacities often disappeared and the prognosis was also much better than with unfrozen tissue.

He theorized that when tissues were subjected to environmental conditions like freezing that inhibited their vital functions they underwent biochemical readjustments to restore them via substances he called "biogenic stimulators". After conducting additional experiments, he became convinced that any tissue or organ could be used to generate this response, which had a generalized curative effect that he explained as follows, *"If the tissues of plants and animals are refrigerated, the stimulus of the cold environment activates the tissue, inducing cell activation factors and bio-stimulation with regenerative abilities. . . . The placenta not only activates the functions of the whole body, it is also excellent at promoting recovery of dis-*

*eased areas."*

We now know that in addition to oxytocin, prostaglandins, gonadal and anterior pituitary hormones, the placenta contains DNA, RNA and other nucleic acids, active peptides, over a dozen essential minerals and vitamins, close to 100 enzymes, as well as important fats, carbohydrates and proteins that are building blocks. Thus, it is a rich source of potential "biogenic stimulators" that could have panacea-like effects throughout the body.

Cosmetic companies quickly took advantage of the placenta's ability to improve skin elasticity and texture, and to lighten facial pigmentation. Other claims subsequently included improving menopausal and andropausal symptoms, mental function, stamina, energy, sexual performance and satisfaction, immune system function and joint and disc flexibility, as well as relieving the symptoms of chronic disease. However, like the other longevity and rejuvenation therapies described, there was little scientific support for placental treatments and virtually all of them have also disappeared.

### **Biotonus, International Montreux Stress Congress & The Monte Carlo Fiasco**

My personal experience with rejuvenation therapies began in 1983, when I was invited to be a consultant to the recently established Biotonus Clinic in Montreux, Switzerland by Dr. Claude Rossel, its Director. An M.D. with a Ph.D. in physics, he was an authority on the biochemistry of small brain peptides like the endorphins that play a vital role in affecting mood, behavior, resistance to pain and responses to stress. He had previously been Director of Research at a Swiss pharmaceutical company, but had received significant funding to establish a health care facility that would provide the latest scientific advances as well as promising alternative medicine approaches. He had studied and worked with Paul Niehans, visited Anna Islan, and was familiar with French physicians using Filatov's placental therapy. Claude believed that stress was a major factor in most illnesses, and sought my assistance in evaluating the use of the Symtonic Low Energy Emission Therapy (LEET) device developed by Swiss scientists for the

treatment of insomnia and anxiety, and I happily accepted

Biotonus was physically connected to and owned the majestic five star Grand Hotel Excelsior situated on Lake Geneva, with a commanding view of the Swiss and French Alps and Evian across the lake. I visited Claude several times thereafter, and in 1985, he invited me to Chair a three day "Conference on Stress and Aging" being sponsored by Biotonus. He had attracted two Nobel Laureates and several other distinguished scientists as well as an array of obscure researchers working in disparate areas that seemed to have little relevance. However, as the conference unfolded, it became obvious it was to provide a platform and forum for unorthodox studies that could be critically evaluated to determine whether any, like the Symtonic device, should be explored for potential use at the Biotonus Clinic. These included hyperbaric oxygenation, with which I was familiar, but others like placental therapy about which I knew little, save for its rich content of hormones and growth factors. Claude had already begun studies on the use of placental extracts

in rheumatoid arthritis in conjunction with the University of Geneva, where laboratory studies confirmed that they produced a significant increase in immune system responses as measured by rises in interleukin-2 and T-cell mitogenic activity.

The conference was a huge success. Everyone learned something new that was of interest and Claude was so impressed, he asked me to organize a similar event dealing with "Stress". Our First International Montreux Congress On Stress in 1988 was a three-day event also held at the Grand Hotel Excelsior. I had been given complete control and followed the same format of an eclectic mix of distinguished scientists reporting on conventional stress research and others whose presentations dealt with unorthodox topics and therapies. In regard to the latter, Björn Nordenström chaired a session that featured his concept of an "electrical circulatory system" and its successful use in the treatment of metastatic lung malignancies, Boris Pasche re-

ported on the use of Low Emission Energy Therapy for the treatment of insomnia and anxiety with the SymtonicDevice and Norman Shealy and Saul Liss presented their research on Cranioelectrical stimulation effects on brain neurotransmitters and how this modality could alleviate depression more rapidly than drugs and without any of their adverse side effects.

The Excelsior was renowned for its cuisine and white glove service, and faculty and registrants dined together and met in the main salon after dinner to renew old friendships and make new ones. This elegant but informal ambience fostered the development of close personal as well as professional relationships and the response was so enthusiastic that I was requested to continue the Congress on an annual basis. The International Montreux Congress On Stress quickly grew to a weeklong event and the "electromedicine" and "subtle energy medicine" segments also expanded.

One of the unique features of these events was the ability to include

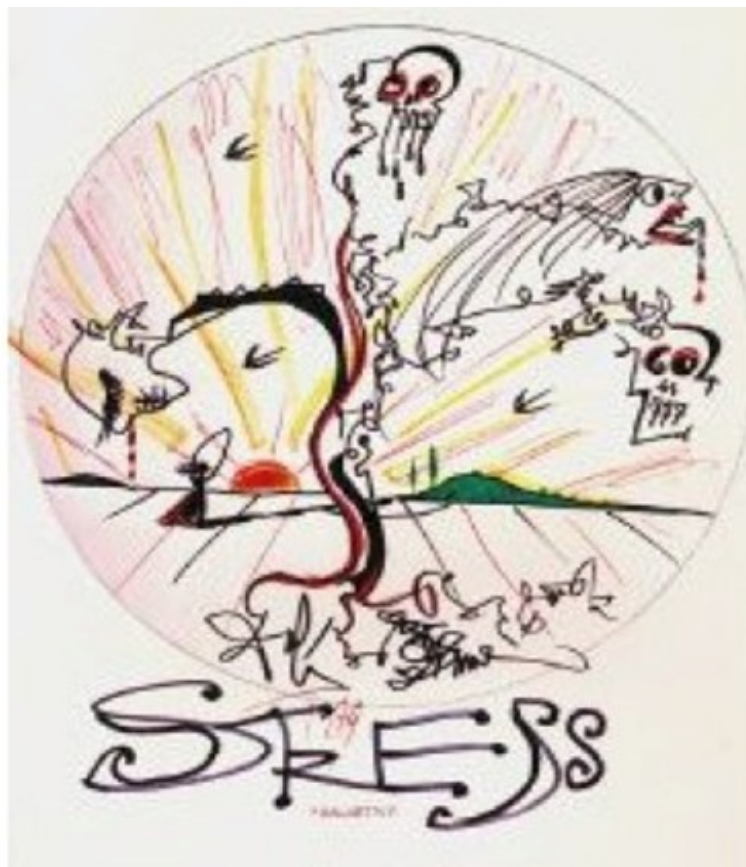
presentations from scientists in Eastern Europe, Russia and elsewhere who could not participate because of financial constraints. In some instances, airfare alone would have consumed three months' salary. Claude Rossel subsidized all expenses and provided funds for those I wanted to include but who could not afford to come and I will always be grateful for his courtesy and generosity. I am also indebted to Claude for giving me carte blanche with respect to the selection of speakers and subjects that were unrelated to his interests or those of the Biotonus Clinic, such as a series of presentations on the irrelevance of cholesterol and a high fat diet as causes of heart disease. In that regard, while Biotonus was listed in the program as one of the sponsors of the Congress, there were never any advertisements or promotional activities since he was insistent that these events should remain purely educational. However, almost everyone did take a tour of the clinic.

Biotonus became very successful and at-

tracted royalty, celebrities and top executives from all over the world. Many of the rich and famous came for the anti-aging programs that were offered and while I was skeptical about some of these, such as cell rejuvenation therapy, I tried to keep an open mind. Claude had improved this by abandoning fresh fetal cells and using lyophilized freeze dried cells using a new technique developed by friends at Nestlé in nearby Vevey. I had an opportunity to chat with some of the patients who were generally enthusiastic about their results, but this was mostly anecdotal. I also had a chance to visit *La Prairie*, which was just a few miles away, but it was now primarily devoted to worldwide merchandising of its line of expensive cosmetics.

My next encounter was when Dr. Alfred Sapse, a Romanian ophthalmologist who had worked with Dr. Aslan, was attempting to obtain FDA approval of Gerovital. In

that regard, his Las Vegas company was sponsoring Hans Selye's 1979 International Symposium on Stress in Monaco. Selye had attracted a star-studded array of Nobel Laureates: Linus Pauling, Christian de Duve, Hans Krebs and Roger Guillemin as well as notables like Jonas Salk. Salvador Dali had created the special medal below for the event.



Special Salvador Dali Medal

It was being conducted at a hotel in Monte Carlo frequented by the Royal Family. As President of

The American Institute of Stress, I was also invited to present a paper in return for a liberal honorarium and deluxe accommodations and First Class airfare for my wife and myself. When I saw the tentative program and investigated it more thoroughly, I was appalled. The majority of speakers were involved in marketing spurious stress reduction services and

products, including the stress reducing and rejuvenating effects of Gerovital. Selye was listed as the medical consultant for the company, for which he received a significant stipend and a large number of stock options.

It was obvious that the main purpose of the symposium was to have these con artists photographed with various dignitaries to imply their

endorsement. I refused to participate unless the scientific presentations were separated from the

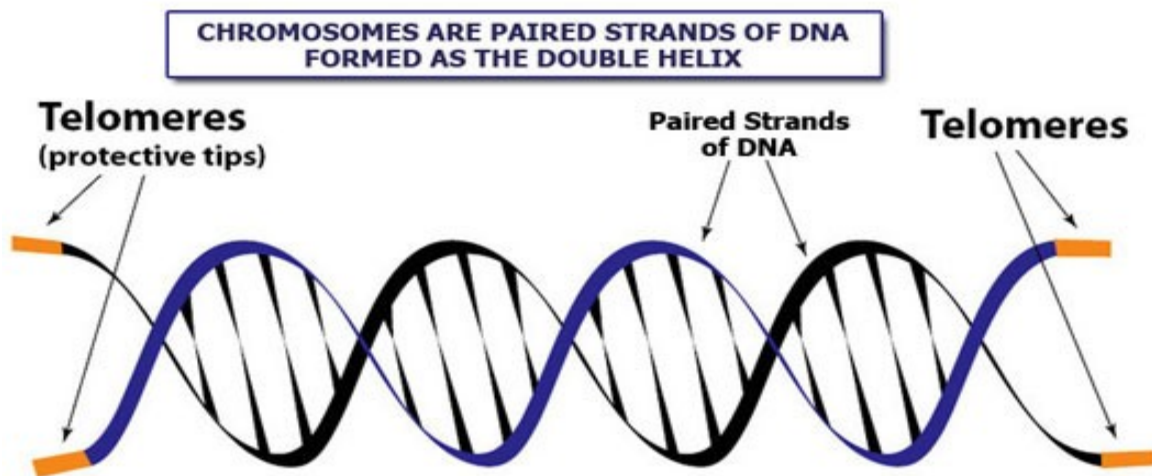
commercial ones. Since this was not an option, Norman Cousins, Alvin Toffler, John Laragh, Herbert Benson and other members of our Board of Trustees also declined. Selye was furious and had Roger Guillemin and Jonas Salk contact me. While they agreed that this event would sully his reputation and damage his legacy, Selye would survive. In addition, I was doing more harm than good to him because of his failing mental and physical health. The conference was a disaster and Selye subsequently denied any affiliation with the company that sponsored it, but never forgave me for not participating. Sapse, an unlicensed physician, was later convicted for perpetrating another scam and sentenced to 17 years in Federal prison. In reviewing his record, which included some suspicious deaths, the judge described him as "a modern-day Frankenstein" and ordered him to pay \$1.1

million in restitution for defrauding patients.

### **Telomeres And The Constant Quest For Youthful Longevity**

Is there anything that will increase longevity or restore youth? As explained in prior Newsletters, telomeres are protective shields at the end of chromosomes that prevent them from fraying during cell division, much like plastic tips safeguard the ends of

after repeated divisions, progressive telomere erosion causes cellular dysfunction and death. Telomere length is a good predictor of biological aging. Stress accelerates the rate at which telomeres shorten, which is why it speeds up biological aging. Shortened telomeres are associated with coronary disease, Alzheimer's and other neurodegenerative and age related disorders. Regular exercise helps to preserve telomere length,



shoelaces. Every time a cell divides, its chromosomes cannot be copied to their exact full length, much like a tape recorder is unable to play the very first and last part of a cassette tape. As a result, the copy of the chromosome is incomplete and

which may explain why it is associated with preventing coronary disease and promoting longevity. It has been suggested that moderate consumption of red wine provides similar benefits because it contains resveratrol, a potent antioxidant.



There has been an explosion of interest in this as evidenced by several articles in the past few weeks. One in last month's *British Journal of Medicine* found that middle-aged women in the ongoing Nurses' Health Study who followed a Mediterranean diet that included a high intake of vegetables, fruits, nuts, legumes (peas, beans and lentils), olive oil, unrefined grains and a moderate amount of wine had longer telomeres. In the December 18 issue of *PLoS Genetics*, researchers reported that regular

doses of ibuprofen (Advil, Motrin) extended the lifespan of yeast, worms, and fruit flies 15% and that they all appeared much healthier than controls. Conversely, a study in the *American Journal of Epidemiology* showed that cadmium from food, water or cigarette smoke shortened telomeres. As the lead author noted, "People with the highest cadmium exposure had cells that looked an average 11 years older than their chronological age." Sugar sweetened sodas shortened telomeres in contrast to fruit juice. The

only proven approach that has been verified in animals and humans is severe caloric restriction. In that regard, most elderly people would prefer to add life to years, rather than years to life. That goal is now being vigorously pursued -so stay tuned!

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Editor-in-Chief



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