

HEALTH AND STRESS

The Newsletter of The American Institute of Stress

Number8

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MORE ON VIAGRA, AND YOU READ IT HERE FIRST

KEY WORDS: FDA approval process, Internet and black market sales, electroporation, C-reactive protein, infection and heart attacks, vitamin E, beta carotene and cancer

From time to time, readers have pointed out that many of the "latest medical breakthroughs" trumpeted on TV are items they read about in these pages months or even years before. While this is occasionally true, in many instances, these do represent new research findings that expand on studies previously reported, some of which have now come to quite different conclusions. More often, they offer scientific proof that clearly confirms what was primarily speculation based on anecdotal information.

In addition, space constraints often limit a more thorough discussion of a topic, even when an entire issue is devoted to it. All of the above hold true for our last Newsletter on Viagra, as will be illustrated in the next few pages. Much of the initial enthusiasm has been replaced by concerns about safety, more rapidly effective and less costly and dangerous alternatives are on the horizon, and several unanticipated legal challenges regarding reimbursement have emerged over the past few weeks.

I thought it might be of interest to also revisit some of the other topics featured in past issues to provide similar updates in this Newsletter. To facilitate this, I reviewed all the Reuters medical headlines for the past few months dealing with stress related issues. There were several dealing with the escalating problem of job stress and its adverse health effects, stress and cardiovascular disease, cancer and gastrointestinal disorders, stress reduction strategies, stress and women, etc. However I kept getting sidetracked because of numerous articles on nutrition, subtle energies, and other subjects we have previously explored that should also be included.

It quickly became obvious that because of space limitations, many would have to be left out. Deciding which ones should be included and how they could best be presented was a problem. Items dealing with a similar subject could be combined to make an attractive package, but there were many others warranting only a few lines, which would have resulted in an unattractive page with multiple titles. It seemed best to save these to incorporate with others under broader headings, like nutrition, or Alternative Medicine at some future time. This Newsletter contains an update on the controversy over whether everyone needs to cut down on salt, the relationship between infections and heart attacks, and more triumphs for vitamin E. Subsequent issues will periodically include other segments that will also be devoted to "You Read It Here First."

ALSO INCLUDED IN THIS ISSUE

Viagra Jokes.....	2
More Viagra Warnings.....	3
Legal And Reimbursement Repercussions.....	3
Current Craziess.....	4
Future Fears And Promising Possibilities.....	6
Salt, Hypertension, And Health.....	6
Infection-Inflammation And Heart Attacks.....	7
More On "The Golden Capsule".....	7
Book Review: Honey, Mud, Maggots & Other Medical Marvels.....	8

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*The Newsletter of
The American Institute of Stress*

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Viagra Jokes

We didn't have enough space to include any of these in the last issue, and can only list a small portion of those that keep coming in every day, and limit them to two liners.

- The Viagra computer virus turns your floppy disk into a hard drive.
- If you're depressed and think you might need Viagra, see a professional. If that doesn't work, see a doctor!
- Viagra is now being compared to Disneyland - a one or two hour wait for a 2 minute ride.
- For years the medical professional has been looking after the ill, to make them better. Now, with Viagra, they're raising the dead!
- The difference between Niagra and Viagra? Niagra falls.
- It is claimed that if you take Viagra, and use Rogaine for baldness at the same time, things work great— but you look like Don King.
- A Viagra delivery truck was recently high-jacked: Company officials advised the police to be on the lookout for two "hardened criminals". They expect them to get an appropriately "stiff" penalty under the penal code.
- How many doses of Viagra does it take to change a light bulb? One little blue tablet, and it's a whole new bulb.

With Viagra such a hit, Pfizer is considering a whole line of drugs oriented towards improving the performance of men in today's society, including: DIRECTRA - a dose of this drug given to men before leaving on car trips caused 72 percent of them to stop and ask directions when they got lost, compared to a control group of 0.2 percent.

PROJECTRA - Men given this experimental new drug were far more likely to actually finish a household repair project before starting a new one.

CHILDAGRA - Men taking this drug reported a sudden, overwhelming urge to perform more child-care tasks - especially cleaning up spills and "little" accidents.

COMPLIMENTRA - In clinical trials, 82 percent of middle-aged men administered this drug noticed that their wives had a new hairstyle. Currently being tested to see if its effects extend to noticing new clothing.

BUYAGRA - Married and otherwise attached men reported a sudden urge to buy their sweeties expensive jewelry and gifts after talking this drug for only two days. Still to be seen: whether the drug can be continued for a period longer than your favorite store's return limit.

NEGA-VIAGRA - Has the exact opposite effect of Viagra. Currently undergoing clinical trials on sitting U.S. Presidents.

NEGA-SPORTAGRA - This drug had the strange effect of making men want to turn off televised football, basketball, and other sports, and actually converse with other family members.

FLYAGRA - This drug has been showing great promise in treating men with O.F.D. (Open Fly Disorder). Especially useful for men on Viagra.

FLATULAGRA - This complex drug converts men's noxious intestinal gases back into food solids. Special bonus: Dosage can be doubled for long car rides.

PRYAGRA - About to fail its clinical trial, this drug gave men in the test group an irresistible urge to dig into the personal affairs of other people. Note: Apparent overdose turned three test subjects into special prosecutors.

LIAGRA - This drug causes men to be less than truthful when being asked about their sexual affairs. Will be available in Regular, Grand Jury and Presidential Strength versions.

More Viagra Warnings

The Public Citizen consumer's advocate group is petitioning the Government to strengthen Viagra warnings, based on a review of 31 deaths and 174 reports of significant side effects. The label already warns not to prescribe Viagra to patients taking any form of medication that contains nitroglycerin, and the FDA has cautioned that the stress of sudden sexual exertion may be as hazardous for many heart patients as shoveling snow. But there are also concerns about reactions with other drugs, especially those taken for hypertension, and other risk factors, such as a history of heart attack, stroke, heart failure, unstable angina, abnormal electrocardiogram, certain arrhythmias or low blood pressure. Viagra can inhibit blood clotting so men taking blood thinners or who have ulcers or bleeding disorders should not take it. They pointed out that Pfizer excluded such patients from their clinical trials and "designed studies to minimize the chance this drug would have adverse events, and then they threw these people with high risks back in the pool when the drug was approved. . . . The FDA needs to get a significant amount of blame for allowing that" said Dr. Sidney Wolfe, who urged that regulatory authorities should immediately forbid Viagra's use in any of the above patients.

After reviewing the medications the men had been taking, he estimated that over a third of the deaths were in patients who had risk factors that would have excluded them from Viagra's clinical trials. He also listed more than 60 drugs, including the antidepressants Prozac and Zoloft, that can cause erectile dysfunction, citing the need to educate both doctors and patients about establishing the diagnosis, before jumping to a treatment that could prove harmful. Emergency Room personnel now routinely ask whether a patient with a cardiovascular problem has taken Viagra, but many brought in by ambulance may be unconscious or unable to speak. The non profit organization Medi-Alert is urging physicians to recommend that Viagra patients wear one of their engraved bracelets or necklaces indicating this. It provides a 24 hour hotline number to obtain critical information about medical history, treating physician, next of kin, and also warns against giving nitroglycerin for angina, since Viagra can remain in the body for 12 hours or more.

Legal and Reimbursement Repercussions

The Health Care Financing Administration recently notified the National Governor's Association that all Medicaid programs "must cover Viagra when medical necessity dictates", although the top official admitted they are "greatly concerned about the potential for clinical or financial abuse." California, New York and other states had been refusing to pay pending a final federal ruling, arguing that coverage should be an option based on budgetary priorities, not a mandate. New York and Wisconsin stated that they would defy the order, and the Association estimated that the price tag would be more than \$100 million a year for its members.

As noted previously, Kaiser Permanente claimed it would cost them the same amount, and along with Aetna US Healthcare, have refused to cover Viagra. Both of these large HMO's are now being investigated by a California state agency because of possible violation of existing regulations. Prudential HealthCare and Humana also recently decided to deny reimbursement, claiming "safety concerns", but most analysts agree that this is a cover up to avoid consumer backlash. Outpatient prescription drugs are generally not covered for those in the Federal Medicare program, as opposed to HMO alternatives. However, if this policy changes, premiums would certainly escalate, since this is the age group that would most likely benefit from Viagra.

Internet sales have sharply increased, and this poses another problem, since there is no way to prove medical necessity or guard against dangerous reactions with nitroglycerin or other medications. A San Francisco reporter received ten tablets from www.performancedrugs.com, an on-line Denver pharmacy, along with and ten doses of "Stimula," which was advertised as a "female erectile cream". No prescription was needed, and he was charged \$99.50 for the drugs and \$50 for a first-time "physician review charge". This consisted of filling out a brief medical history form, which did not ask his age, sex, or even whether he was suffering from impotence, the only approved indication. No doctor or pharmacist ever contacted him. California and Nevada state health officials are investigating, but since the physician/owner can write prescriptions, this may not be illegal. (Continued on Page 4)

Since our last report, sales of Viagra have continued to skyrocket, largely because of refills that attest to its success. As of June 26, 2.7 million prescriptions had been written by over 160,000 physicians, Pfizer reported that second quarter net earnings were up 38 percent, and total annual sales are expected to exceed \$1 billion. Approval in Europe is expected in a few months, and the company plans to introduce it into 50 countries by the end of the year.

The black market and smuggling has continued to grow, causing many governments to tighten border controls and limit or ban the drug. In South Korea, after many passengers were found hiding the drug disguised as vitamins or dietary supplements, customs officials limited the import to one bottle a person and imposed a tax of \$109 a bottle, which is a bargain next to the \$80 a pill the drug commands on the black market there, Saudi Arabia and Dubai. Venezuelan police cracked down on street peddlers selling aspirin tablets that had been dyed blue to resemble Viagra, and touted as the ideal present for dad on Father's Day. Egyptians can buy a mixture of herbs, ginseng and royal jelly from beehives called "Viagra for the poor", there is powdered crocodile penis in Indonesia, lizard oil in India, and a Spanish-fly aphrodisiac for women in Mexico. A temporary restraining order was obtained against one U.S. Clinic for selling an herbal supplement for impotency called Vaegra, and numerous others, like Prosexual Plus, containing all sorts of alleged aphrodisiacs are widely available.

In India, where approval is not expected for a year, pharmacies can't keep up with the demand. Customers are told they must wait a few days until the next smuggled shipment arrives, and have to deposit up to \$250 to get on line to purchase a limited amount at \$13.00 a tablet. India does not recognize pharmaceutical patents, and for decades, companies there have made high quality copies of numerous drugs for its population of 950 million, that sell for less than 5% of the retail price here. At least three are now making their version of Viagra, one is already exporting it, and expects to sell it locally for \$1 a tablet under the brand name *Tarzia* or *Activ* when approval is granted. Considering the fact that the annual per capita income averages \$350, that's still a small fortune for many.

Current Craziiness

Weird stories about Viagra have been popping up all over the globe, from a 36 hour erection in Spain and 40 minutes of frozen jaw hardening in Brazil, to the mysterious disappearance of some tablets in the Israeli parliament. A 50 year-old Dutch tourist checked himself into a Spanish hospital after he said Viagra caused a 36 hour erection. Doctors said the man wasn't impotent but took the drug simply to improve his performance in bed, and he was released after a night in the hospital cured the problem. A 43 year old Brazilian man who had taken a 50 milligram tablet for the first time prior to having intercourse with his girlfriend reported that his jaw hardened up forcing his mouth to stay open for 40 minutes. However, he didn't have any pain or headache, was pleased with the overall experience, and is considering trying it again. After a debate on Viagra in the Israeli parliament, a doctor who brought in eight tablets to show interested officials and the media, discovered that four of the pills were missing, and could not be found, despite a thorough search.

A 35 year-old Lebanese woman told police her 59 year-old husband became a "sexual savage" after popping three Viagra pills. Government officials banned the drug in Egypt, saying "Egyptian men are not like American men". While the drug is selling briskly on the black market for about \$40 a pill, the government says further tests are needed.

In Manhattan, men walk around with large signs stating "Will Work For Food Or Viagra". Alan C. Greenberg, the 70 year old Chairman of Bear Stearns, donated \$1 million to a local hospital to pay for the drug for older men who can't afford it. He was prompted to do so after reading that coverage was being denied by insurance companies and Medicaid, explaining that "I think it's something that will give a lot of pleasure to a lot of people". He refused to answer whether he used it himself, but said "If you ask me how long I've been interested in the subject, I guess you can say since I was 13 or 14." A Brazilian mayor is also paying for the pill out of his own pocket for men in his municipality, hoping that it will increase the local population and therefore the revenues the city would receive from federal funds that are based on this.

(Continued on Page 5)

As noted previously, Viagra has been a big bonanza for the brothel business in Nevada, and it is even more remunerative for Oriental establishments, especially in those countries where it is not yet available. Prostitutes in Naples, Italy are also giving both their business and clients a boost by providing elderly men with the pill for 1 million lire (\$570) as part of a total package for their services.

Scam artists in Hong Kong, where Viagra is not yet approved, are tricking people into making expensive phone calls to a toll number by promising that they will be enrolled in a research study to demonstrate the drug's safety and efficacy. Pfizer has denied any connection with the phony trials, indicating that they currently have no such studies planned in the former British Colony. The hucksters claim that men enrolled in American trials were continued to be supplied with the pill after the study was over because of humanitarian concerns, and that it took more than a year before it became available here. One example cited was an enthusiastic endorsement from none other than former U.S. Senator Bob Dole, who told CNN's Larry King that he took part in one the first trials of the pill and whose wife, Red Cross president Elizabeth Dole, echoed his glowing words about the experience, stating "It's a great drug."

Many other women agree, and not just because it improves their partner's performance in bed. Internet sales to females have sharply increased, with a strong suspicion that this is for their own personal use. This may be due to reports that Viagra can remarkably increase their desire, enjoyment, and ability to reach more magnificent as well as multiple orgasms. More and more physicians are being besieged for prescriptions for women and are writing them, since once a drug is approved, there is nothing to prohibit them for prescribing it for an off label use. This does create a problem for many pharmacists, some of whom refuse to fill them for fear of future litigation in the event of some complication. This conflict may soon be resolved, since it is clear that efforts are underway to obtain approval for the drug in women. Support comes from clinical trials in four cities in Europe which appear to show efficacy and safety, and Pfizer researchers in the U.K. are working on developing a variant of Viagra specifically for females.

Clinical trials may also start here, based on research studies in Boston showing promising results, especially in postmenopausal females who are smokers or diabetics. This makes sense, since the same risk factors that contribute to poor blood flow to the penis, would decrease circulation to the clitoris and female genitalia. Similarly, there is every reason to believe that they could also be corrected with Viagra.

However, the problem of objectively demonstrating efficacy is much more difficult, since there is no equivalent of penile tumescent monitoring, or accepted measurement to confirm glowing clinical testimonials. To satisfy such FDA requirements, attempts are being made to measure blood flow to the clitoris with ultrasound studies, and other approaches are being utilized to evaluate vaginal secretions, pH and motility in an attempt to provide further support. If approval in women is obtained, this could create serious problems for fiscal intermediaries who currently provide coverage for men, since it would be difficult to deny women the same benefits. Many Medicaid programs would particularly be imperiled, since on average, only ten percent of current recipients are male.

One of the side effects of Viagra is a visual hallucination that gives everything a bluish tinge. The Nevada-based manufacturer of BluBlocker sunglasses believes that they have eliminated this problem, based on tests with their product on Viagra patients with this complaint. The company plans to release an improved model later this year called "BluBlocker Viagra." The new glasses will undoubtedly have the name or some distinctive logo prominently displayed, so that those wearing them can advertise their improved sexual prowess to susceptible females.

To follow these and myriad other developments Mealey Publications is publishing a monthly newsletter called *Mealey's Viagra Watch* at a cost of \$295 annually. It will cover controversies claims and legal issues involving this and competitive treatments for impotency. Mealey's is recognized as the leader in litigation reporting, and has focused on law suits surrounding asbestos, breast implants, diet pills, smoking, lead poisoning, and other controversial medical topics in prior publications, and this new venture expands their usual scope.

Future Fears And Promising Possibilities

Although Viagra is indicated only for the treatment of impotency, it is popping up in discos and nightclubs, and is increasingly popular as a party favor. When one unmarried 54 year old attended his friend's birthday celebration, he decided to swallow the pill on the spot, explaining to other guests, "I don't think I need it, but you always want more." He credits it with attracting considerable interest and an unusually exciting evening afterwards, because "It was like an extra helping." Physicians are concerned about the potential for abuse in men not suffering from erectile dysfunction. As the British researcher who was instrumental in its development commented, "This is not a 'superstud' drug. It is a serious medication for a serious disease. It is not intended for healthy functioning men. Sensational news coverage has given the false impression that Viagra is for 'regular guys' who want a little extra'. That is what you get in your motor car after it has been properly serviced."

A leading U.S. authority agrees that it is probably not useful in men with normal erectile function, stating "You can't really get a better erection than a normal erection. However, there is a caveat here. Some people claim to have normal sexual activity, and are having it, but with say a 50 percent erection, which really only allows two or three minutes." He points out that some patients may brag about having intercourse two or three times a week, but their wives will tell you that it's really not that great compared to what it once was. "In those men who are sexually active but have less than perfect erections, Viagra is very successful."

Whether Viagra will continue to dominate the market remains to be seen. As previously indicated, competitive products that are safer and work more quickly are undergoing clinical trials and some are already available in Mexico and other countries. A very promising approach uses battery powered electrodes to instill high concentrations of vasodilating drugs without the need for an injection. Full erections were rapidly achieved in animals as well as human volunteers, who reported no pain or side effects, and only a "tingling" sensation at levels well above the therapeutic range. Stay tuned for further information on the mechanism of action of this technique, which is called electroporation.

Salt, Hypertension, And Health

As indicated in prior Newsletters, many authorities believe that instructing all hypertensive patients to sharply restrict salt and sodium intake may be poor advice. Most derive little benefit, and it could prove harmful to those whose blood pressures is lowered by calcium supplementation, since most dietary calcium comes from dairy products which would be prohibited. Although several studies have shown a link between salt restriction and reduced blood pressure, none have demonstrated that it improves overall health or longevity. One recent study of 12,000 individuals followed for twenty years, found that the lower their salt intake, the higher their death rate, even after all other risk factors were taken into consideration.

Salt restriction can cause irregular heart rhythms because of effects on sympathetic nervous system activities. There is also good evidence that it could contribute to heart attacks by elevating blood levels of renin, a kidney hormone that helps regulate sodium excretion and blood pressure, and angiotensin II, a related compound that causes constriction of the coronary arteries. Patients with fluid retention due to congestive heart failure, kidney, or liver disease, do benefit from restricting salt. However, the blanket decree from Federal officials that everyone should also follow a low salt diet does not appear to be justified, and could boomerang. Lowering blood pressure with medication clearly helps to prevent disability and deaths because it reduces the incidence of strokes. These drugs can have side effects, including impotence, but we know about these, and there are over 70 to choose from as alternatives. While rigorously restricting salt can also lower blood pressure in a minority of normal and hypertensive individuals, little is known about the long term consequences, which include interference with insulin metabolism, in addition to contributing to heart attacks, arrhythmias, and premature deaths from these and possibly other causes.

Salt is essential to help the body maintain the proper volume of blood and other fluids, and the real issue is how much each of us should consume. The bottom line is that there is simply no need for the average person to worry about salt intake, and the NIH is being urged to issue new guidelines.

The Lancet, March 14, 1998

Infection-Inflammation And Heart Attacks

In previous Newsletters, we also presented mounting evidence that cholesterol was not the major cause of heart attacks, and that in many cases, homocysteine, infections, and iron could be the culprit. More support for the role of homocysteine has accumulated since then, which we will report on in a subsequent issue. Chlamydial and cytomegalovirus infections also seem to be important, and a recent Italian study provides additional information on helicobacter. There is little doubt that *H. pylori* is a major cause of peptic ulcer disease, but it is equally apparent that it can be recovered from most older individuals, the overwhelming majority of whom have no gastrointestinal or other symptoms that could be attributed to its presence. The reason for this is not clear, although one possibility is that some strains carrying a cell destroying gene may be more virulent and cause greater damage than others.

Investigators in Rome compared the prevalence of *H. pylori* in 88 coronary heart disease patients with an equal number of age and sex matched controls from similar social backgrounds. The cardiac patients were 2.8 times more likely than controls to be infected with the cytotoxic gene strain, while the incidence of other strains was equal in both groups. The researchers concluded that it is the inflammation resulting from increased cell destruction that promotes the development of atherosclerotic plaque.

It had previously been shown that elevated C-reactive protein (CRP), an index of inflammation, was associated with increased risk of heart attack in men. Additional support comes from a recent evaluation of women over the age of 65 who were enrolled in a long term osteoporosis study. Of the 10,000 participants, 150 had died since 1988, and 52 of these deaths were attributed to heart attacks or other coronary related events. CRP measurements were obtained from frozen serum specimens of all those who had died, as well as 342 who were living. The results confirmed that those in the highest quartile were five times more likely to have died from coronary heart disease, compared to those in the lowest.

Definitive proof of the infection-inflammation hypothesis can only come from intervention trials showing the efficacy of antibiotics, and these are already underway.

Circulation 1998;97:1671-1673,1675-1679

More On "The Golden Capsule"

As previously noted, Vitamin E has been called "The Golden Capsule" because of its impressive and wide range of health rewards. Protection from coronary heart disease is one of the most impressive, with one study showing a 77 percent reduction in heart attacks, and benefits have also been reported in malignancies, Alzheimer's disease, gallstones, cataracts, osteoporosis, infertility, asthma, and diabetes. Vitamin E blocks free radical damage that contributes to atherosclerotic plaque, inhibits the formation of clots that can trigger heart attacks and strokes, and has also been shown to boost immune system function in older individuals.

Further support for "The Golden Capsule" designation comes from a recent French study showing that vitamin E can prevent fatal ventricular fibrillation in experimental animals. Unlike atrial fibrillation, which is quite common but much less dangerous, ventricular fibrillation is lethal if it persists for more than a few minutes. It is the major cause of sudden death, which is the leading cause of death in the world. Not infrequently, it is triggered by the release of stress related hormones like adrenaline which increase the irritability of the heart and various rhythm disturbances. Researchers suggest that ventricular fibrillation can also result from oxidative free radical injury which vitamin E can block, but other mechanisms may be involved.

Previous reports have shown a protective influence for vitamin E on colorectal and lung cancer, and possibly cancer of the breast. In a Finnish study, 30,000 male smokers between the ages of 50 and 69 taking various vitamin supplements or placebos were followed for 5 to 8 years. Over this period of time, 246 new cases of prostate cancer were diagnosed and 62 men died of the disease. The incidence of prostate cancer was 32% lower, and death rates were 41% lower in men taking vitamin E alone, or in combination with beta carotene. In contrast, the beta carotene only group actually had more deaths from prostate cancer. A recent survey showed that Vitamin E has overtaken calcium to become the second most popular single supplement after Vitamin C. *Journal of the National Cancer Institute* 3/18/98

8 Book Review

Honey, Mud, Maggots, And Other Medical Marvels: The Science Behind Folk Remedies And Old Wive's Tales. Robert and Michèle Root-Bernstein, Houghton Mifflin, Boston, 1998, 279 pages, \$24.00

Many of our most effective and widely used drugs, like aspirin, quinine and digitalis, originated from natural folk remedies. On the other hand, purging, blood letting, and many previously popular practices and therapies have fallen into disrepute because of the lack of any logical rationale to explain how they work, or the availability of more powerful treatments. Still others like acupuncture, magnets, and leeches, are being revived, because of scientific proof showing that they are safer and more cost effective. It is likely that more will be added to this list, since anything that has persisted for centuries, no matter how seemingly outlandish, will probably provide benefits for many individuals.

Some of the examples cited in this fascinating book are honey, which has been shown to be effective in healing wounds and infected bedsores, even in diabetics. Although admittedly disgusting, maggots are also useful in debriding gangrene and burns, since they only eat dead tissue. Drinking or bathing in urine is not much more appealing, but was common in ancient China because it was believed to promote fertility. Some of the drugs we currently prescribe for infertility are derived from urine, which is now also used for stubborn oral infections and skin wound in AIDS patients. Saliva's healing powers have been known since dogs licked their masters' wounds in the Crusades, and probably result from powerful enzymes that prevent infection. Leeches are regularly utilized in reconstructive microsurgery to reestablish blood flow, because their saliva contains an anticoagulant. Blood letting is the treatment of choice in hemochromatosis, and has also been used in congestive failure. Eating dirt or clay has long been a popular remedy for morning sickness, indigestion, malnutrition, and anemia, and is still used to treat diarrhea in the form of Kaopectate.

As I read some of the other examples cited, I could not help but think of the use of copper bracelets and jewelry in arthritis, which some patients swear by, while others have little or no relief. I was reminded of my experience at Harvard, and later Walter Reed, where we had one of the earliest artificial kidneys. It consisted of a tremendous tank containing a solution of saline and other ions and glucose in the same concentrations normally found in blood. In the center was a rotating drum around which tubing made of a semipermeable membrane was wrapped. As the uremic patient's blood passed through this, excess waste products dialysed out into the bathwater but essential elements were retained, since their concentration was the same. A few patients reported relief of arthritis after the procedure, which made no sense, until I read a report decades later about increased serum sulfate in some cases of rheumatoid arthritis, and realized that we had also lowered this substance, since it was not included in the bathwater. Copper bracelets could therefore help some patients, since one can frequently see a bluish deposit of copper sulfate on the skin. The copper comes from the bracelet, and the sulfate is similarly leached out of the body by a process known as iontophoresis.

Hundreds of years ago, Scottish women treated dropsy with a tea made from the purple foxglove plant that grew wild in the Highlands. It worked like a miracle in some patients, but was also worthless or of little value in others. It was not until 1785 that Sir William Withering explained why. He discovered that the brew contained a chemical that was always effective in fluid retention due to congestive heart failure, sometimes in kidney disease, but rarely if the cause were cancer or mechanical obstruction. He called it digitalis, after *Digitalis purpurea*, the Latin name for foxglove, since it resembled a purple finger. Patients who claim that magnets, copper bracelets, or some other nostrum are miraculous, so-so, or a lot of baloney are probably all correct. But we will never be able to prove this, until we learn how each one of these affects biological activities.

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February 20 to March 5, 1999

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Reduction Effects Of Music And Other
Subtle Energies, Workplace Violence, Job
Stress Around The World, Road Rage,
Post Traumatic Stress Disorder, Stress In
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