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TITLE:

HAIR REGROWTH

100-HAR HAIR REGROWTH --- Here are dozens of recent developments that stimulate hair growth: Minoxidil..Magnetized Vitamins..Methionine & Serine..Thioglycolic Acid..Biotin...Cinnamic Alcohol...Hinkitiol...Retinoic Acid..."Scalp-Shrinking"...Pituitary Extracts..Cow Saliva..20 Articles..20 US Patent Abstracts..

Thyroid deficiency

Don't Despair If You're Losing Your Hair

Going bald? Take heart — it may not be permanent, say experts.

Baldness can be caused by several things besides genetic factors, and if you're losing your hair because of one of them, you can often take steps to get your hair growing again.

By NEIL BLINCOW

"If your father is bald and your grandfather is bald, then you can probably assume that you have genetic baldness. There's absolutely nothing that can be done to promote hair growth," said Dr. Neil Solomon.

But most other causes of baldness aren't permanent at all, he said. They include such things as drugs, chemothera-

py, vitamin and mineral deficiency and crash dieting.

Often a trip to your doctor can determine if you're going bald for good.

"Your doctor can test your blood and find out if you have a vitamin or mineral deficiency. If you do he can treat you to help prevent additional baldness," said Dr. Solomon,

former assistant professor at the Johns Hopkins University School of Medicine. And, he added, some lost hair may grow back.

"Thyroid deficiency can also lead to baldness," he said. "This can be checked from your blood and corrected with proper medication."

A variety of drugs and poisons produce hair loss, added Dr. Norman Orentreich, clinical associate professor of dermatology at New York University School of Medicine. "Even such relatively safe medications as vi-

creases the blood flow to your scalp. If you quit smoking, the nicotine leaves your system. Fever and toxic products in your blood as a result of a major infection can cause baldness too, he said. And crash dieting can bring on baldness by causing vitamin and mineral deficiencies. "Generally, once the situation has been taken care of, these are all temporary conditions."

tainin A, in high doses, have caused thinning of the scalp hair." If your baldness has been caused by drugs or high doses of vitamin A, "then by giving these things up you will stop the hair loss and often start hair regrowth," said Dr. Solomon. "Smoking also increases your hair falling out. Nicotine poisons your system and de-

BALD MEN BECOME BELIEVERS

From Page 1

that can stimulate hair growth, the state Health Department disagrees.

"Good grief," said Jack Ogun, director of the department's Division of Drug Devices and Cosmetics.

"Natural baldness is just something that doesn't come back. We have no evidence that anyone has produced a formula to grow hair," he said. "For every one that says

he's grown hair, I can guarantee you there's a dozen that have no results."

Ogun said his department inspected Ferens' operation three years ago and plans another visit.

But the customers are satisfied.

"It's true. You wouldn't believe it," said car dealer Richard Lipecky. "I look in the mirror and see it happen every day. My head was bald from the front to the back and now I've got hair all over."

Since her work was reported in a local newspaper, Ferens has quit a teaching job to take care of an estimated 2000 persons waiting for the \$20 treatment.

One ecstatic patient recently rushed into the newsroom of the nearby Greensburg Tribune-Review to show off what he said was newborn growth.

"This guy sure was excited," said editor Frank Myers. "He had little sprouts coming out of his head. They were light-colored and no more than a quarter of an inch long."

Ferens, 59, said she has been working on the treatment for about 40 years, ever since her balding physician uncle tried to restore his hair with homemade potions.

She would not disclose her success rate but said she can grow hair on almost anyone.

The first step of the treatment is to run a rake-shaped glass instrument filled with purple gas across the head to sterilize the scalp. Then the subject holds a wire hooked to an electrolysis machine. The operator massages the balding area with the secret formula while holding a second wire to complete a low current.

"We sterilize the scalp and then force the formula in by electrolysis," said Ferens, who said she holds a doctorate in chemistry.

One subject, a Roman Catholic priest who asked not to be identified, said he had tried expensive transplants but only Ferens' treatment worked.

"Obviously, I'm a believer. I'm seeing something happen up there," he said.

Associated Press

Potion Makes Bald Men Believers

Darragh, Pa.

Marcella Ferens' secluded farmhouse has become a mecca for bald men who hope her concoction of herbs, vitamins and minerals will bring back the locks of their youth.

More than 20 shiny-pated men daily follow the bumpy roads that wind through cow pastures to her laboratory in this southwestern Pennsylvania community.

Although Ferens claims to have formulated a secret potion

S F Chron. 1-22-79

The follicle follies

As medical problems go, baldness is low priority—more threatening to ego than to health. But for balding males, 90 percent of whom are losing their hair simply because they are genetically programmed to do so, it is a vexing condition. And it does not yield to drugs, hormones, massages, or any of the millions of dollars worth of nostrums purchased by gullible victims each year.

But the legions whose crowning glories are thinning have a new champion in the Diagnostic Hair Loss Center at Baltimore City Hospitals, which is trying to assemble a biological profile of the balding process. Admittedly, no one can actually reverse or even arrest genetic balding. "We have no miracle cures, and we're not a hair transplant mill," cautions Stanford I. Lamberg, the hospital's chief of dermatology. "But with blood tests, hair plug analy-

sis, good diagnostic histories, and biopsies, we can tell the majority of those who come to us why they are balding. At least we can keep them out of the hands of charlatans."

Charlatans, in fact, are all too popular because ignorance is so widespread. A common misconception, for example, ties baldness to a lack of virility. But Yale University anatomist James B. Hamilton demonstrated 40 years ago that the opposite may be true, that an inherited sensitivity to androgens, or male hormones, can cause hair loss. He studied 104 men who had been castrated and thus had no natural source of androgens. Nearly all had a full head of hair. When he injected them with the missing male hormones, however, those genetically programmed to be bald rapidly fulfilled their destiny.

A few researchers have taken advantage of the hormone link and tried to induce growth with doses of estrogens, female hormones that would counteract androgens. But giving estrogens to males has been linked to cancer, and hair growth is unpredictable.

Other remedies are equally risky. Recent reports suggest that the drug Minoxidil, usually used to treat severe high blood pressure, would grow hair on bald patients. But dermatologists at the Baltimore hair center say the benefits are spotty, with side effects that include strokes and heart attacks.

When myths and false hopes are cleared away, some hard biological facts remain. Hairs forming in the 100,000 follicles in the average scalp grow for two to six years, then enter a

three-month resting phase before they are pushed out by new hair. At any given time, better than 90 percent of scalp hairs are growing, and 10 percent are resting. When the genetic clock runs down, follicles shrink, producing thinner and more fragile hairs. Fewer hairs reemerge from the resting phases, and baldness results. The precision of this growth clock was vividly demonstrated during World War II. When a wounded soldier received an experimental full thickness skin graft to his thumb from scalp skin, hair grew on the thumb. Furthermore, his thumb went bald at the same time as the area where the skin graft originated.

Men, however, are not the only ones with balding problems. As female sex hormones diminish with age, thinning of scalp hair is common. Temporary hormone changes can cause hair loss after pregnancy or following withdrawal from oral contraceptives. Up to a third of the hair may be lost by these women, but it usually grows back.

Malnourishment, anemia, and certain bacterial and fungal infections may thin the hair by causing follicles to begin their resting phase prematurely. Twisting or pulling hair may damage the follicle; heat drying, bleaching, tight braiding, and permanents may damage the protein "backbone."

Lamberg and his coworkers think the key to balding lies in hormones and their impact on genes. They are still looking for answers, but in the meantime they hope at least to help put the snake oil peddlers out of business.

—Joan, Edison Rodgers

I recall reading in a Sunday magazine supplement a few months ago that West German doctors had found a drug that cured baldness in three out of four patients. Now I find that my hairline is receding and would like to investigate the matter further. Any news?—E. L., Dallas, Texas.

The drug is DNCB (2,4-dinitrochlorobenzene), a chemical that has been used for the treatment of some forms of cancer. In the November 12, 1977, issue of the journal *The Lancet*, Drs. Rudolph Happle and Karin Echtenmact of the Department of Dermatology of the University of Munster, West Germany, reported on the induction of hair growth

Playboy, July '79

in cases of alopecia areata treated with DNCB. Alopecia areata is not the common form of baldness but, rather, a disease characterized by rapid and complete loss of hair in patches, usually on the scalp, the bearded area, the eyebrows, the eyelashes, and rarely on other hairy areas of the body. Drs. Happle and Echtenmact treated 43 alopecia areata patients with weekly applications of DNCB on one side of the head, the other side serving as a control region. The drug produced a significant difference of hair growth between the treated and the untreated sides in 33 patients. Twenty-one of those showed regrowth of hair exclusively on the treated side, and in 12 patients, regrowth was considerably faster and more dense on the treated side. So the drug seems to cure a specific form of short-term hair loss. However, DNCB has not been used in the treatment of common (so-called male pattern) baldness. At the present time, there is no medicine available that will induce growth of hair. One out of three men suffers male-pattern baldness. What does that mean? Well, if you are standing between two guys, the guy on your right has more hair than you have. The guy on your left has more hair than you have. But that's all right. God gave you two middle fingers to wave.

176108c Promotion of hair growth by applying sulfur amino acids and other compounds to the skin. Murai, Yoshio; Norikazu; Hasegawa, Takao; Suzuki, Takao (Dep. Agr. Chem., Tokyo Univ. Agric., Tokyo, Japan). *Nippon Nogei Kagaku Kaishi* 1974, 48(5), 279-84 (Japan). Solns. (0.2%) of L-methionine [63-68-3] and L-serine [56-45-1], acetyl-L-methionine [65-82-7] and L-serine, glutathione [70-18-8], L-cysteine [52-90-4], and L-methionine, L-serine, and inosine [58-63-9] were applied to rabbit skin. Results showed that the methionine-serine soln. was very effective in stimulating hair growth. The acetylmethionine-serine, cysteine and methionine-serine-inosine solns. were also effective, but the glutathione soln. inhibited both the growth of hair and hair roots. H. Shinozaki

Chem. Abstracts

96-168531e

96:168531e Hair growth-promoting agents. Murai, Yoshio; Murai, Yukie. *Jpn. Kokai Tokkyo Koho JP 82 16,810* (Cl. A61K7/00), 28 Jan 1982, Appl. 80/90,307, 02 Jul 1980; 4 pp. A combination of S-contg. reducing agents and oxidized forms of these reducing agents is effective in promoting hair growth. For example, a hair-growth promoting compn. consists of thioglycolic acid [68-11-1], dithioglycolic acid [505-73-7], 1, pyridoxine dicaprylate 0.5, pantothenate 0.5, benzoyl nicotinate 0.1, Promois 0.3, resorcinol 0.1, salicylic acid 0.1, menthol 0.1, ethylate 10, edetate Na 0.05, an activator of osmosis 0.5, perfume (trace), and water to 100% by wt. Application of this soln. to the head 3 times a day for 1-2 mo (about 150 mL/mo) showed increased growth of hair.

Ch. Abs.

96-40731c

aminopyrimidine as developer gave white hair a brown color. 96:40731c Preparation for the treatment of the hair and scalp. Pothoven, Louis; Dijkstra, Bennitius Jozef; Quist, Jan. *Neth. Appl. NL 80 00,921* (Cl. A61K7/06), 16 Sep 1981, Appl. 80/921, 14 Feb 1980; 5 pp. A prepn. contg. water, Me salicylate [119-36-8], a strong base (e.g. KOH), ascorbic acid [50-81-7], and MgS₂O₃ stimulates the growth of hair on the scalp. For example, a soln. contg. 70 L water and 35 L Me salicylate was mixed slowly with 23 kg KOH. Another soln. was prepd. by dissolving 12 kg MgS₂O₃ in 24 L water, added to a soln. of 12 kg ascorbic acid in 48 L warm water, and the combined solns. were added to the first solns., cooled, and dild with 650 L water.

HULKE, Malcolm (ed.)
ENCYC. of Altern. Med. & Sci.
BALDNESS

Most so-called baldness cures tend to be more profitable for their vendors than those in need of them, but two which arose in unexpected circumstances appear to have led to hope for balding men.

One concerned an almost totally bald man in Stockholm who, in addition to his lack of hair, suffered from hardening of the arteries. It was for the latter ailment that he began receiving treatment at a Swedish hospital with nicotinic acid, one of the B vitamins which doctors were testing as a treatment for arterial disease. After three years he was delighted to find he was the owner of a full head of hair.

Apparently the dilating effect the nicotinic acid had on the blood vessels had increased the blood supply in his scalp and brought about a vigorous growth of hair.

Another unintended cure was reported in the *British Medical Journal* by a doctor who had been treating patients suffering from a disease of the blood vessels with the drug betapyridylkarbinol, derivative of a vitamin substance pyridin-3-carbonic acid. As an unexpected bonus of the treatment the doctor noticed that some of his bald patients were growing new hair. One of them who had been completely bald arrived in his surgery with a beautiful and well-combed head of hair.

Following results such as these, preparations have been marketed with ingredients including nicotinic acid and other of the vitamins of the B-complex, together with iron, iodine and

other trace-elements. There have been some favourable testimonies from users.

John Newton

B-pyridylcarbinol

BY DR. PAAVO AIROLA

GRAY AND THINNING HAIR

Q *I am a 27-year-old male whose hair has been graying since I was eighteen. Now, in the past two years, my hair-line has been rapidly receding, and I fear I will be bald before I am 30. What might be some of the causes of this and what treatments are available? I would like to find a nutritionist who will do hair analysis, but I am leery unless I get a referral. No one in my family has ever had a serious hair loss, so it is not hereditary. I might add that I am high-strung and a heavy coffee drinker, eat lots of sweets, and smoke a pipe. I am looking forward to hearing anything you have to say.*

C.R., Los Angeles, CA

A The cause of hair loss in men, so-called male-pattern baldness, (which is responsible for about 99% of all male baldness) is hormonal: an overproduction of the male sex hormone, testosterone. This results in a thickening of the galea (a sheet of tissue on the top of the scalp) and consequent constriction of blood capillaries and impaired blood supply to hair roots. The only effective way to stop hair loss caused by male hormone excesses is by correcting hormonal imbalances through medication with female sex hormones. Unfortunately, one of the side effects of such a medical approach is a marked demasculinization: the beard stops growing, the body assumes a feminine appearance, the sex drive diminishes—but the hair on the head will grow profusely! Needless to say, I do not recommend such a treatment, and, in my experience, most men would rather have thin hair, or even no hair, than to lose their masculinity.

Headstands (½ to 1 minute in duration) 3 or 4 times a day, can help to increase circulation in the scalp and bring more nutritive blood to the hair roots. Lying on a slant board with head down, 15-20 minutes at a time, accomplishes similar results. Massage, either with your fingers or a massager, is also helpful.

Then there are some nutritional ways to improve the supply of nutrients to your hair



is important. These nutrients can also be taken in supplementary form for two-three months. Listed below are suggested daily doses:

- Biotin—150-300 mcg.
- Inositol—500-1000 mg.
- Niacin—100-300 mg.
- Choline—500-1000 mg.
- Pantothenic acid—50 mg.
- Folic acid—1 mg.
- PABA—50 mg.
- B₆—50 mg.
- B-complex, high potency—1 tablet
- E—400-600 I.U.
- C—1000-3000 mg.
- Lecithin—1 tsp. granules
- Kelp—1-3 tablets
- Silicon (from horsetail)—3 tablets
- Cod liver oil—1 tablespoon
- Brewer's yeast—1-2 tablespoons
- Zinc—10-20 mg.
- Selenium—100 mcg.

There are many brands of multiple vitamins for hair growth now available in health food stores which are combined in a single tablet, in case you are not inclined to take them separately as suggested above.

Now, to your second problem: the graying of the hair. While loss of hair is not primarily a nutritional problem, the graying of the hair is. Your letter indicates that you are abusing your body excessively.

Such habits as drinking and tobacco smoking

contribute to the graying of the hair by cutting off vital blood supply to the hair roots and by contributing to the deficiencies of vitamins and minerals that are needed for healthy hair. Sweets are even worse. Sugar robs your body of the B-vitamins, those mentioned in the list above, the deficiency of which will directly contribute to the graying of the hair. I suggest you go on a massive health-building program by optimizing your nutrition as recommended in this column, getting plenty of exercise, and taking all the vitamins and supplements suggested above, with a double dose of the following vitamins that have been reported by many researchers and users to be successful in preventing the graying of the hair and even restoring natural color to the gray hair: PABA, pantothenic acid, folic acid, brewer's yeast.

Blackstrap molasses, garlic (or garlic tablets), and a good multi-mineral and trace element formula are also important.

by Marie Vega

Nutritional Hair Care

Your hair is a mirror of everything you do. You are in control of those factors which contribute to its healthy state, including diet, exercise and rest. When one or more of these factors is abused, your hair will react like a barometer, showing signs of change.

In order to grasp the importance of hair care that begins from within, you should know the basics about how the hair is structured. There are two main parts: the root, or follicle, and the hair shaft. The root rests in a hair-bed buried deep within the lower layer of the skin. It is through the root that the hair draws its nutrition from the blood.

Toxic chemicals which may prove to be very harmful to your inner health, possibly affecting thyroid function, are also absorbed into the bloodstream.

Other organs influence the health of your hair and scalp. Excessive alcohol, caffeine and drugs put a heavy load on the liver. As the liver works to rid the body of these toxins it uses every channel available. Since the scalp is an extension of your skin, and some of the largest pores in your body are in the scalp, it is through this outlet that some of the impurities which build up in the body are eliminated. Obviously this takes a toll on the hair follicles and oil glands. Alcohol, caffeine and drugs also rob the body of B vitamins. It is generally accepted that greying hair may result from a lack of these vitamins.

Sugar, salt and chemicals in your diet create stress in the body, making a higher demand for essential nutrients. The needs of those parts of the body which have a lower priority will not be satisfied. These areas include the hair, nails, and skin. Too much of a good thing can be equally detrimental. Overdoing foods like milk, cheese and peanut butter can lead to very oily hair because of the high fat content. Fats are necessary, but only in limited amounts. These essential fatty acids aid the body in utilizing the B vitamin, Thiamine; they carry the fat-

soluble vitamins A, D and K; they help the body conserve protein. The amount of oil in your hair can indicate how well your body is breaking down these fats, and the amount you need.

Often the body depends upon the interaction of nutrients in order to utilize them to their full potential. For instance, vitamin B is necessary for the absorption of phosphorus and calcium. Calcium is needed for zinc to be used, and together they affect the metabolism of protein.

While you may be eating a consistently good diet, you might be leading such a stressful life that your body is unable to take advantage of needed nutrients. A healthy way to help your body eliminate stress is to exercise regularly. This will both relax your entire mind and body, and will increase your circulation. The latter causes the blood to give your hair follicles valuable nourishment, stimulating growth. The ultimate rewarding result of holistic hair care is an overall feeling of confidence and contentment. This freedom leads to a new sense of liberation. You feel good about yourself, knowing that your great new look is the real, natural you.

Listed below are the nutrients for healthy hair growth and the best food sources for them:

Marie Vega is well-known as the hairwriter to the Hollywood Stars. She is also the originator and President of Vega Products for the hair.

Nutrient	Source	Result
B vitamin	whole grains, wheat germ, yeast, egg yolk, fish, meat, milk	Hair color
Pantothenic acid	liver, yeast, wheat germ, bran, whole-grains, green vegetables	hair color
Biotin	yeast	hair color, prevents hair loss
Choline	yeast, wheat germ, egg yolk, lecithin, liver	prevents hair loss
Inositol	yeast, wheat germ, whole-wheat bread, oatmeal, corn, molasses, liver	prevents hair loss
Folic acid	green vegetables, liver, yeast, nuts	hair color
PABA	green vegetables, liver, yeast, nuts	hair color
Protein	fish, fowl, grains, eggs, dairy products, meat, soybeans, yeast, nuts, beans, and peas	resiliency, elasticity
Sulphur amino acids	egg yolk, milk, fish, cheese	prevents hair loss
Copper	dry beans, peas, whole grains	hair color
Zinc	cereals, green leafy vegetables, nuts, green leafy vegetables	prevents hair loss
Iron	molasses, green leafy vegetables, blackberries, black cherries, egg yolk, liver, asparagus, onions, rice, bran	synthesis of body protein, found in all cells
Iodine	dulse, kelp, seaweed, carrots, pears, onions, tomatoes, potato skin, garlic, watercress, leeks, nettle tea	attracts oxygen in the blood
Silicon	normalizes gland action	
	whole grains, peas, beans, cheese, sage, thyme, figs, prunes, raw egg yolk, peccans, fish liver oils, sunflower seeds, alfalfa sprouts	Shiny lustrous hair
Manganese	raw egg yolk, almonds, black walnuts, watercress, mint, parsley	tissue strength

Bald Can Be Beautiful

Family
Weekly
Jan 31 '82

3

By Susan Gordon

On a *Tonight Show* appearance last year, Burt Reynolds took plenty of people by surprise. Though self-assured and sexy as ever, there was one big difference in his looks: Reynolds had a receding hairline. He candidly admitted that he had worn a toupee for years, but a director had encouraged him to remove it for a movie they were working on.

If a man does have the gene, what can he do? First, the bad news: According to the Food and Drug Administration (F.D.A.), no product on the market that claims to reverse balding is effective. Amino acids, essential oils, protein and vitamins are all useless.

In 1979 the F.D.A. closed down all businesses that performed synthetic hair implants — the implantation of colored fibers into the scalp — after investigating many complaints from consumers. The synthetic fibers were invariably rejected as foreign objects by the scalp, which in many cases became seriously infected.

Implants, however, should not be confused with hair transplants (here's the good news), which are a safe, surgical method of permanently replacing hair. Hair



Hirsute it is: Senator William Proxmire before, during and after his 1972 hair transplant.

By taking it all off, Reynolds demonstrated three things: One, baldness can be sexy. Two, it's not unmasculine to wear a wig. Three, although medical science has accomplished many miracles, it has gone nowhere in its attempt to cure baldness.

About half the male population can expect to go bald to some extent. Male-pattern baldness (alopecia), the typical male hair loss, begins with a thinning of hair and eventually results in a "fringe of Caesar," a ring of hair above the ears and around the back of the head.

Male-pattern baldness is an inherited trait that can be passed on by either parent, but because it is sex-limited — the male hormone testosterone must be present for it to take effect — it afflicts men, not women. (Women who inherit the trait will experience an all-over thinning of hair but will not go bald.) Certain conditions such as stress or chemotherapy can cause hair loss, but this loss can be reversed. Male-pattern baldness cannot.

Balding takes place as the hair follicles miniaturize, producing hair that's much finer and shorter than before. It begins any time from the late teens until the age of 40. "If a man hasn't started to go bald by 40, he doesn't have the gene for baldness," says Dr. Vera H. Price, associate clinical professor of dermatology at the University of California, San Francisco, and a pioneer in the study of hair loss.

transplants were first performed 20 years ago by Dr. Norman Orentreich, a New York City dermatologist, and the technique is now a routine office procedure performed by dermatologists or plastic surgeons on patients under a local anesthetic. Small pieces of scalp, called punch grafts or plugs, about four millimeters in diameter, are taken from the back of the head where hair still grows and are then transplanted to the top of the head.

The procedure may involve several sittings of an hour or more. Within five to seven days the patient can shampoo. But it will take six months to a year before hair is long enough to style, cautions Dr. Carlton L. Carpenter Jr., clinical professor of dermatology at Louisiana State University School of Medicine. At about \$15 a plug transplants are expensive.

A similar procedure, a flap operation, performed by some plastic surgeons, involves transplanting wide strips of hair, but this surgery requires hospitalization. A hair piece is a satisfactory option for many men and when made of human hair, it can look very natural. Hair weaving is another temporary approach. Human hair is anchored with tiny knots to the hair that remains on the scalp. The process must be repeated every two months though, as the hair grows out.

Hair-growth research is currently being conducted in the United States and Europe, and two drugs being developed hold some hope for slowing down baldness.

Susan Gordon is a freelance writer specializing in health issues.





West German hairdresser Erich Schmitt supervises as Liesel administers her pate therapy to insurance man Wolfgang Find.

BROTHER, CAN YOU SPARE A DOME? WITH A LICK AND SOME PROMISE, LIESEL THE COW TRIES TO CURE BALDNESS

Yes, well, you see, the fact is there is this cow named Liesel on a farm near Trier, West Germany, and for about \$14 a lick, airfare not included, she runs her tongue over the naked scalps of bald men every Wednesday in order to make their hair grow. That much is clear. It is also clear that Liesel the cow got into this humane pursuit because of Erich Schmitt, the West German hairdresser who owns her. "Hairdressers must remain open to new ideas," declares Schmitt, and he obviously means what he says. Without advertising, Herr Schmitt has acquired eight customers eager to submit to Liesel's ministrations five minutes each week, such is their craving to regain the hairs of yesteryear.

It all began with John Coombs of Salisbury, England. Coombs says he discovered the merits of cow licks—"by accident, certainly not by de-

sign"—on his Wiltshire dairy farm last November. He was feeding his favorite Jersey, Primrose, when dust from the feed settled on Coombs' bald head. Observing her master bending to fill the troughs, Primrose couldn't resist lapping at his scalp, and eight weeks later—shazam!—Coombs' wife noticed his hair returning. The good farmer was skeptical, but says now, "My hair is going up like the tide coming in."

Coombs decided to tell his story after he saw a television show on which volunteers had failed to grow hair by using bay rum, bear fat and an herbal concoction made from onion leaves. "My friends said, 'Good heavens, write in and say you can cure baldness.'" Coombs recalls. "So I did. It was like lighting a heap of dynamite." Swarms of journalists descended, compared Coombs' pate with photos taken before Primrose got her tongue on it, and

verified his reforestation. Headlines promptly flashed across Europe, where hairdresser Schmitt took note and decided to try the Primrose path himself. So far the results have been sparse. Of eight test cases he assigned to Liesel back in February, only one has grown peach fuzz. Undaunted the others still show up every Wednesday for their tongue washings.

Although Coombs has applied for a patent, he concedes that being lapped by a cow can be a rough experience. The older the cow the harsher the tongue, says he, adding, "It feels like a file. My hair's as long as grass and the cow can get her tongue around it and pull it." But Coombs, an honest yeoman who still isn't sure what all the fuss is about, might not be the best spokesman for his process. "I've been paid for over a quarter of a century," he says. "I think baldness is dignified."

PEOPLE MAG.

2/83

Photograph by Wilhelm Bosl

A Big Cover-up? Baldness Cured!

A cure for baldness may have been discovered by West German doctors using an industrial chemical known as DNCB.

Used extensively to measure the strength of immune response in cancer patients, it appears that DNCB (dinitrochlorobenzene) can be dissolved in acetone and applied to the head, where it produces a mild contact dermatitis. This usually is followed within three months by a reappearance of hair growth, according to a report in the British journal *Lancet*.

The weekly dousing is maintained as long as the disposition for baldness exists. A 2 percent solution of DNCB applied to the head produces a mild inflammation, followed by the application of a 0.1 percent solution until a mild eczema appears.

About half of patients with alopecia areata who were treated had reactions so severe that DNCB had to be discontinued for a week, but only two needed treatment with a steroid cream.

The DNCB concentration is then adjusted to the patient's reactivity to maintain a mild inflammatory response. The contact dermatitis apparently causes the underdeveloped hair follicles in bald areas to enlarge.

The therapeutic effect varies with the severity and duration of the condition.

Patients who began treatment with moderate hair loss, and with a history of five years or less, experienced the most regrowth.

Regrowth occurred in all seven patients who began treatment with moderate hair loss and in 12 of 13 patients who began with extensive hair loss. Regrowth occurred in 26 of 31 patients with a history of five years or less, but in only seven of 12 who had had the condition longer than five years.

The mechanism of DNCB's therapeutic effect is unknown, the doctors say, but biopsy specimens taken from treated and untreated areas suggest that contact dermatitis may be the therapy in itself. On the treated side, the hair bulbs were surrounded by inflammatory cells which appeared to cause the follicles to develop to full and normal size. The doctors say that these results suggest accumulation of suppressor cells by the contact dermatitis, which may permit resumption of normal growth. A direct pharmacologic effect of DNCB, however, has not been ruled out.

—Clinical Trends

Of 43 patients with alopecia areata—baldness—an industrial chemical, DNCB, cured all but eight.

Nova Schedule Listed

National air dates for upcoming Nova programs (local air times may differ):

May 24, *The Insect Alternative*;
May 31, *Deserts*; June 7, *The Tsetse Fly*; June 14, *Zoos*; June 21 (tentative), *B. F. Skinner*; June 28 (tentative), *Alaska*.

What Hair Tells About You

Research engineers at the University of California's Lawrence Berkeley Laboratory are unmasking pollution's chemical culprits and tracking their spread with a high-speed, super-sensitive device that analyzes human hair.

The device, called SAXAS (scanning automated x-ray analysis spectrometer), enables one technician to do in one hour what formerly took a team of technicians an entire week.

"This will be a major boon to environmental studies," says Albert Thompson, a principal developer of the instrument. "We've already observed a serious outbreak of poisoning through hair studies."

SAXAS has detected high concentrations of mercury in hair samples from Iraq. This was attributed to seed grain, treated with a toxic fungicide, that had been used as food. Hair samples showed a marked increase in mercury levels as consumption of the poisoned grain rose, then a gradual decline after consumption ended.

Scientists have long known

that hair can tell a remarkable story. Growing at a steady rate of roughly one centimeter per month, hairs contain a layered record of elements in the body. Like geological strata, they show how substances vary in concentration over a period of time. But in the laboratory, hair demands slow and complex testing before it can yield its secrets.

"We use a technique called 'X-ray fluorescence spectroscopy,'" explains the UC engineer. "As X-rays pass through a hair sample, they excite various elements which generate X-rays with characteristic energies and intensities. We register these X-rays as we scan the hair using a recently developed high-resolution, energy-dispersive X-ray silicon detector.

"SAXAS can detect the presence of 16 different elements in quantities as minute as 20 millionths of a millionth of a gram—and from samples as small as two millimeters in length."

SAXAS' internal computer simultaneously performs several analytical functions, de-

termining the presence of chemicals, calculating the density of the hair sample and correlating the data.

"We hope to analyze a lot more than hair," Thompson says. "SAXAS should be able to look at a wide range of samples including nerve tissue and air pollution particles.

"And," he added "in hair we can look for many other things, such as dietary deficiencies. SAXAS does not alter the specimens it analyzes, so we could examine from a precious artifact like the Shroud of Turin."

Thompson's co-developers on the project are Joseph Jaklevic, John Meng and Walter French. All are from LBL's Engineering and Technical Services Division.

SAXAS was developed for the Food and Drug Administration, in conjunction with the University of Rochester.

Lawrence Berkeley Laboratory is operated by the University of California under contract with the U.S. Department of Energy.

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Herbs Help Hair Grow

Is it possible? Yes, a herbal extract discovered in Africa, to cure dandruff, actually grows new hair on the scalp.

by I. Loewe

Herbs hang a tale, in fact a "hair-growing" tale. It is steeped in the mystery of South Africa — and has a happy ending. This story could make a real difference to your hair and your life.

But first of all, meet Lou Segal, to whom this tale happened, and who made things happen. A pharmacist who now makes his home in Vancouver, Mr. Segal had made it one of his major concerns to find a solution to the annoying problem of dandruff. Many of the clients at his pharmacy, then in Cape Town, South Africa, were afflicted by dandruff. This hair condition is particularly prevalent in that part of the world due to climatic conditions.

Was it mere chance that led Lou Segal to East Africa on a vacation, or did destiny have a hand in bringing him smack

Thomas Fowler of Cape Town, from "bald as an egg" to full head of hair.

up against a milestone in his career? Whatever the case may have been, his vacation soon developed into a regular busman's holiday when he became aware of an odd phenomenon: the native peoples of that region had beautiful hair! Luxuriant, thick and shiny, it contrasted sharply with the brittle, dry growth that covered the heads of the tribe's racial counterpart in South Africa — people of the same race, yet with hair so different. His curiosity thoroughly piqued, Lou Segal set out to investigate. What he found astonished and delighted him.

"Quite simply, the people of this community were giving themselves a highly effective "beauty treatment" without being the least aware of it. In preparing for certain tribal rituals, they applied a milk-like substance to their scalp and skin. This herbal extract was probably less potent in its intended purpose of controlling occult forces than in its healing and restorative properties," Mr. Segal explained later.

Since most of us are romantics at heart, it doesn't hurt to believe in a little magic, even when a large dollop of scientific expertise goes into the making of the lotion. As a chemist, Lou Segal had access to all the latest research data; as a naturalist he was fortunate to discover a secret of the plant life of East Africa. Thus, with the full co-operation of members of the medical profession, he set about achieving a blend of science and nature. The result is Vita Herb, which is now being produced in Canada.

Grows New Hair But that is not the whole story. Mr. Segal gave the herbal remedy to his Cape Town customers to use as a dandruff lotion. He was incredulous when customers who had used Vita Herb for a period of time not only found that the dandruff had disappeared but that new hair growth had developed. Skeptical though he was, Lou Segal could not deny the irrefutable evidence before



Before (left) and after Vita Herb: Ed Borgosh of Vancouver says, "I can see new hair on my head."

his eyes. New hair was appearing on once shiny pates.

In their own words, two gentlemen, who used Vita Herb, describe how they got more than they bargained for. Ed Borgosh of Vancouver writes: "Around a year ago, after seeing an article in *alive* about the remarkable success of your hair product in South Africa, I decided to give it a try. But I was very doubtful, because of past experience with too many other products, from every possible source.

"Now I can say with all confidence that it works. I can see new hair on my head after years of suffering from constant hair loss. I wish I had known about Vita Herb years ago, before I wasted so much money on other ways, including hair transplants. So now you can tell your other customers that your product has worked not only on people in South Africa but also right here in Vancouver."

Thomas Fowler was one of the South African customers of Lou Segal who found that Vita Herb really made a difference. Mr. Fowler, who in his own words was "bald as an egg", was quoted in the Cape Town *Sunday Times* as saying: "I'm beginning to feel like one of those before and after advertisements. My wife wouldn't believe it when I told her my hair was starting to grow again. She insisted on inspecting my scalp every evening with a magnifying glass. Now she has not the slightest doubt. For one thing, she is starting to complain that women are taking more interest in me than they did a year ago. . . ."

I could go on and on with testimonials from the users of Vita Herb. Perhaps one day the company will receive a similar type of letter from you. Few can deny that a good, healthy head of hair helps a fellow feel good about himself — more vigorous, confident and younger. As I said at the start, this story could make a difference in your life. ☐



BIOTIN: The Natural Toupee!

Balding! It's a problem which many men and women suffer from and learn to accept. After all, we've all heard balding is determined by heredity and we can't do a thing about it. We're told to accept the onset of baldness as we age. "Your father is bald and your grandfather was bald — you'll be bald some day too!"

We must listen to lectures like this, but do we have to believe them? Up until now, we did. There was no widely believed and understood "cure" for baldness. Certainly we could purchase a wig or a toupee and disguise our "unbeatable" baldness. But this is no cure — it simply hides our lack of hair.

Scientists have been analyzing the problem for many years and have finally arrived at a genuine breakthrough — Biotin.

Endocrinologists have studied the life cycle of hair and concluded that the average life span is four years. At the conclusion of its life cycle, a hair will enter into a dormant or resting stage. At this point a new hair should sprout from the same root channel (or follicle), forcing the old hair out.

Therefore, in the natural regeneration process, we should lose and gain one hair from each of the thousands of root channels approximately once every four years. Of course, this loss of hair will never be apparent when observing the hair as a whole because they fall out and regenerate on a staggered time schedule.

Baldness begins when hair falls out and for one reason or another is never replaced in the root channel. At first, this failure to regenerate will not be noticeable. But as thousands and thousands of hairs are not replaced, a visible bald spot will materialize.

The endocrinologists saw that the swiftest method of "curing" baldness would be to determine why certain hairs fail to regenerate. After performing tests, they discovered one reason to be a decreased blood supply to the top of the head and another to be an excessive amount of DHT. DHT is a by-product of the male hormone testosterone. If it reaches an excessive amount it will cause a shriveling of the hair follicle and effectively block the growth of new hair.

The hair trapped within this follicle is not dead and will begin to grow if the follicle is cleared. It is comparable to a plant seed which is buried in cement. The seed will not grow because it has nowhere to go (as well as getting no natural nutrients). If that same seed were taken from the cement and placed in the earth, it would grow. Its path to life will have been cleared.

The same holds true for the hair trapped within the blocked follicle. Endocrinologists sought to find a method to clear the path to life for these hairs. They found the female hormone, estrogen, to be an effective neutralizer of DHT, but also noticed many uncomfortable side effects. Eventually they discovered Biotin (a natural B vitamin) as a feasible substitute for estrogen.

While endocrinologists do not claim biotin will produce thick, curly locks on a barren head, they do say it will neutralize the DHT and aid in the regeneration of new hair. They tested many people suffering from various stages of baldness and concluded that as many as 70% of all cases were solvable. In further testing on the "solvable" cases, they found that biotin successfully generated new hair growth in 41% of those treated.

The average person loses between 50 and 100 hairs each day. These hairs are usually regenerated during the natural hair life cycle. If excessive amounts of hair are lost daily, it is a sign that they are probably not regenerating properly. Large amounts of hair in combs and brushes and on bed sheets or clothing should be treated as a sign of the onset of baldness. Of course, these tell-tale signs don't always mean the person is on the path to total baldness, but they do mean that more hair is falling out than is being regenerated.

By applying biotin directly to the scalp (in the form of shampoo and conditioner), the DHT will be neutralized and the path to life will be reopened for the hair beneath. Biotin will not bring dead hair back to life, but it will give live hair the opportunity to complete its natural four year life cycle.

Many endocrinologists agree biotin is the closest substance we have to the long sought after "miracle hair growth tonic."

LOW-COST HERBS CAN END CURSE

YOU CAN halt — and actually reverse — the spread of baldness with inexpensive herbs used by American Indians for thousands of years.

"I practice in areas that are heavily populated with American Indians and I can truly say I've never seen one who was bald," says Dr. Jack Soltanoff, an herb expert living in West Hurley, New York.

"I asked them if they had any secret for keeping thick heads of hair — and they gave me an herbal formula their ancestors developed generations ago."

Yet Soltanoff says he remained a skeptic until some of his regular patients tried out the formula.

"One man was only 35, but he had so many bald spots that he didn't have to use a comb," Soltanoff says. "He used the formula for just three weeks. And when he came back to my office, he was sporting a thick growth of hair."

"It was absolutely amazing. Those herbs alone seemed to have cured his baldness."

And it works for women as well. Soltanoff cites the case of a middle-aged woman who was constantly losing her hair.

"Her scalp was showing and she was on the verge of a nervous breakdown," he explains. "She used the formu-

OF BALDNESS

Indians have been using them for centuries, claim experts

By CARLSON WOOD

la for five weeks and returned — not only with thickening hair, but with a smile on her face. She was convinced the herbs were curing her baldness."

Soltanoff says you can pick up the ingredients — four ounces of olive oil, one teaspoon of oil of rosemary and five drops of oil of lemon grass — at any herbal pharmacy.

"Apply a small amount to your scalp and hair," he adds. "Let it remain until the next night, then put on some more. Be sure to limit your shampooing to once a week until your baldness is diminished."

Dr. T. C. Chertan, a homeopathic physician from Old Greenwich, Conn., neccant, suggests another herbal formula to combat

baldness: Fluid extract of nettles and tincture of rosemary.

"All you have to do is rub a few drops on your scalp several times a day," he says. "As you massage them in, you're helping to reactivate sluggish glands. And when you do that, re-growth is most possible."

Chertan points out that the herbs work by strengthening the so-called "follicular structure" of hair and nourishing roots so hair can grow like nature intended it to — even on slippery bald spots.

For the same reason, Chertan says it's wise to use an herbal shampoo to stimulate your scalp and wash away impurities that can lead to skin and hair damage.

"Have your herbalist combine ½ ounce rosemary with one cup water," he

it seeps into follicles so it can stimulate hair growth."

Dr. Frank D'Amelio, a botanical specialist in Hauppauge, New York, says: "Herbal rubs act swiftly. Sometimes it only takes a few weeks for a person to ex-



perience restoration of hair." He says other herbs that stimulate hair growth include: Wild alumn bark, yellow dock root, bayberry bark, horsetail grass, lemon grass, goldenseal, thyme and yarrow herb.

Apply them singly or in combination directly to your scalp, says D'Amelio, and let them seep into the skin as long as possible before removing them.

For maximum effect with any herbal preparation, you must be good to your scalp by keeping it clean and avoiding chemical products. Says D'Amelio: "Carelessness or abuse will cancel out improvements, even if herbs are starting to make your hair grow."

Advertisement
Clear and Firm Your Hair.....

HAIR GROWTH WITH HERBS

Garlic Clove:

Grows new hair. You slice open a clove of garlic lengthwise, and rub it on the affected area, squeezing out the juice. One hour later mix a few drops of bay rum in olive oil and massage the scalp morning and night.

Garlic Mash:

Dice two cloves of garlic very fine and mash well. Mix with 90% proof alcohol and let stand for two days. Strain, then add one cup of fresh burdock, chopped roots or flower heads, and let stand for five days. Strain the juice and sponge the scalp every evening for a month. This should be sufficient to promote hair growth.

Garlic Perles:

Squeeze the oil from garlic perles, then rub the oil thoroughly into the scalp every night.

Rosemary Oil:

Mix equal parts of Rosemary oil and olive oil in a bottle. Shake it well, then massage it well into the scalp morning and night.

Coconut Oil:

Reports have been made that by massaging coconut oil into the scalp area has promoted hair growth.

Sarsaparilla:

Take the root, cut it into little pieces, then boil it and wash your hair in this water. Reports have been made that hair reached beyond the buttocks. Discoveries have been made that the plant contained a male hormone known as testosterone, which promotes hair growth.

Umeboshi Plum:

A formula from Japan used to stop balding by applying the juice of Umeboshi plum to the hair for several days.

HAIR CARE WITH HERBS

Your hair deserves the best of care, so don't subject it to harsh detergents or chemical preparations that can cause damage. Instead make your own solutions from safe gentle herbs.

Herbal Lotions for Setting Your Hair:

- (1) Gum tragacanth---3/4 oz.
 Rosewater-----1 pt.
 Sweet almond oil-1/2 tsp.

Break the tragacanth into small pieces and soak in rosewater. Allow to stand in a warm place, shaking well occasionally until the gum is softened into a gelatine-like solution. Strain through a cloth, then add the oil and mix thoroughly. The preparation is then ready to use.

- (2) Quince seeds---- 3 tsps.
 Hot water----- 1 pt.
 Oil of lavender-- 15 drops

The quince seeds must be soaked in hot water for about three hours. Then strain and mix the liquid with the essential oil and cologne water.

Herbal Hair Conditioners

(1) Beat one whole egg into half a pint of water and add a few drops of Rosemary oil. Gently massage the solution into the hair and scalp. Allow to remain for 15 minutes, then rinse thoroughly with warm water.

(2) Recipe for faded hair: mix one ounce of oil of Rosemary and one ounce of Coconut oil with three ounces of oil of sweet almonds. Rub a small amount of the oils gently into the scalp every other night.

Herbal Shampoos

(1) Place a heaping teaspoon each of nettle, rosemary, chamomile, mullein, and peach leaves in a porcelain or pyrex bowl. Pour one pint of boiling water over the herbs, cover the bowl and allow the infusion to stand for 15 to 20 minutes. Strain and add shavings of castile soap while the liquid is still warm enough to dissolve them.

(2) Soapless shampoo: one large or two small whole eggs beaten thoroughly, add two tablespoons of glycerine and six drops of almond oil. First brush your hair, then part the hair in sections approximately one half inch wide and apply the mixture with the finger tips. When the entire scalp has been covered, comb the mixture through the hair to the ends. Now massage the scalp and hair for ten minutes, then rinse thoroughly several times with warm water until the egg mixture is completely washed out. Do not use hot water as this coagulates the eggs.

Dry Shampoos

Dry shampoos are herbal powder which is dusted and massaged into the hair and scalp; from a container with a perforated top. Powder is allowed to remain on the hair all night and brushed out in the morning.

(1) Powderedorris roots --- 6 oz.
Cassia buds (coarsely ground) 3 grams
Mix together thoroughly and rub through a fine sieve. Use about once a week.

(2) Powderedorris roots ---- 1/2 oz.
Corn starch ----- 5 oz.
Oil of violets ----- 10 drops.
Mix and use in the same way as the first recipe.

Herbal Hair and Scalp Conditioners

(1) Sweet almond oil----- 3 oz.
Rosemary oil ----- 1 oz.
Lavender oil ----- 30 drops

Mix the herbal oils and rub gently into the scalp every two or three nights

(2) The scalp can be stimulated and the hair kept in good condition by the application of a little warm olive oil mixed with oil of marjoram.

(3) Orange-scented treatment for dry hair:

Oil of orange----- 20 drops
Sweet almond oil ----- 3 oz.
Rosemary oil ----- 1 oz.

If your hair is already in a natural oily condition and a fragrance is desired, you can use any essential oil, such as oil of violet or lavender, but much more sparingly and only once a week.

Recipe for getting rid of dandruff:

Keep combs and brushes clean. Brush the hair gently and thoroughly night and morning. Prepare the following lotion:

Rosemary leaves ----- 7 oz.

MORAX ----- 1 tablespoons

Steep in 1 quart of boiling water. When cold, add:

30 drops of cologne

1/2 oz. of glycerine

Massage into scalp gently once or twice a day.

To keep hair in place:

Squeeze a little lemon juice into a small bowl and apply to the hair with a piece of cotton. It takes no more than a few minutes for the application to dry. Now brush your hair and you will find that it will not only stay in place, but will have a beautiful sheen. This simple lemon treatment also helps to highlight the waves of curly hair.

Herbal rinse for very fine unmanageable hair:

(1) Place a good handful of nettle leaves in a large pyrex or porcelain bowl. Pour one quart of boiling water over the herb, cover and allow to steep until cool. Strain and pour over the head, using a second container to catch the liquid, so that the hair may be rinsed several times. If the hair is put up in curlers directly following this rinse, it will comb out into strong fluffy waves.

(2) Prepare an infusion of peach leaves or rosemary, and use in the same way as the nettle rinse.

Vinegar Rinse

A solution of vinegar and water is excellent for dissolving soap film which is sometimes difficult to rinse out of the hair. In addition to cutting the soap, it helps restore the normal acid mantle to the scalp. Normal skin is acid, while soap is alkaline. Soap shampoos cause the scalp to become temporarily alkaline, and it may take up to 24 hours before the normal acid condition returns to the scalp. A vinegar rinse neutralizes the alkaline effects of the soap and also serves as a mild antiseptic.

Use 1/2 cup of vinegar to one quart of warm water. Pour slowly over the head. The vinegar rinse is used last, after the hair has been rinsed several times with plain water.

Aromatic Vinegar Rinses

A vinegar rinse may be scented by steeping with aromatic botanicals, or by adding a few drops of fragrant herbal oils.

Suggested combinations: Equal parts of rosemary, dried lavender flowers, cut orris roots.

Herb oils: Rosemary, bergamot, lavender, violet. Just a few drops of the oil are generally sufficient for each quart of vinegar.

Hair-Raising Tale of a Dreamer Who Made Good

Bob Murphy

by Ron Tepper

"If man has found a way to get to the moon, why is it so hard to believe that he's also found a cure for baldness?" When Bob Murphy asks that question from the headquarters of his company New Generation in Sparks, Nevada, it at first sounds fake.

But the more you talk to the guy, the less he sounds like a snake-oil salesman and the more he sounds like the classic entrepreneur. The great dream for many Americans is to develop a product, manufacture it, and then make a killing with it. Strange as it may sound, Murphy is sitting on top of a company that is marketing a product that could make him a million. Not only that, it does something for its users that nobody believes can be done. It grows hair.

His story started while watching Merv Griffin one night and hearing a scientist talk about a simple new compound that would regenerate the hair on the heads of bald people. Since Murphy was bald, he was more than a little interested.

The very next day, he and a pharmacist friend went to the University of California Medical Library and after two days of research found the answer. Basically it was a cleaning solution discovered by researchers at the University of Helsinki. Bob's friend put the compound together and they both started using it. Within weeks, Bob's hair started to regrow.

"I had read in *Entrepreneur* that testing is critical in launching a new product," said Murphy, "and I wouldn't have attempted to market this compound without proper test results. Every inventor should keep that in mind. Make sure you develop and test-market your product first. If you're dealing with a controversial product like I am, then find prominent citizens to participate if possible."

For the next year, he lived on a borrowed \$85 a week as more than 100 prominent Sacramento citizens—ranging from doctors and dentists to a police captain and legislators—tried his product. After the year-long test, 75 percent of the people reported hair growth. The success of the test and the resulting newspaper publicity led to several dozen orders for his product. Within months, the California Food and Drug Administration told him he was operating illegally because he was selling a "nonapproved drug." Murphy countered that his product was not a drug. "It only contains two ingredients, Polysorbate 60, which is used in salad oil, and purified water. It is simply a cleanser. It cleans away material that inhibits hair growth. Because of its simplicity it isn't even patentable."

This argument didn't register with the FDA, which said that if Murphy had sold his product as a drink instead of a shampoo, he would have been all right. The FDA wanted him to cease and desist. However, it said if he moved out of California, he could still market the product within the state. So Murphy moved his headquarters to Sparks and thought his problem was solved.

He hadn't counted on the post office, which wanted him to stop selling through the mails, insisting the product didn't work. Murphy refused to stop selling it, and post office officials took him to court, where he produced 16 witnesses (the most the judge would allow) who verified that the product did work. The post office produced a doctor who said—without looking at the test results—that the formula would never work. But Murphy still wasn't discouraged.

He bought AEA Report 303, "How to Promote Your Business and Get Free Publicity," and decided to tell his side of the story. He did a number of TV talk shows and was interviewed in several magazines. "With that additional exposure," he claims, "the orders began to flow. Then I tried some direct mail and from there I went to television advertising." Murphy's television approach was unique. "You could never sell this—even with the money-back guarantee that we offer—from a one- or two-minute television commercial. So we put together a 28-minute interview show with a well-known moderator. We bought time for the show on stations in about 20 small towns across the country and it worked."

So far, more than 6,000 people have used New Generation, bringing in more than \$250,000 in sales. Only 7 percent of those who ordered have asked for their money back.

But Murphy still isn't satisfied. "Direct mail is a slow way to market a product like this, so a few months ago I had another idea. I read a story in *Entrepreneur* about multilevel marketing. In March we launched the product via a multilevel sales force. It makes sense.

"We already have 6,000 customers and many have asked about being distributors. In other words we have the basis for a giant company. Multilevel will enable us to distribute the product at a minimum cost to a maximum number of people."

If you get the impression that Murphy is a natural whiz at marketing, you're wrong. "Like many people, I'm still learning. Before we developed New Generation, I had spent nearly 25 years in the hotel field. I quit my hotel job and gambled. I'm glad I did. I did it because I believed in it. And anyone who has the same feeling about their product will ultimately find a way to distribute it. Just don't give up." ■

Gland Extract Makes BALD HEADS Grow Hair



Extreme left, dry and brittle hair due to inactivity of glands. Above, patient who grew hair in ten weeks



Three pictures of sixty-year old man. A when treatment began. B a few months later, C after he grew full crop of hair



A tendency to baldness, Smithsonian scientists believe, is hereditary, and this picture is of a young man losing his hair for no apparent reason, without dandruff

SCIENCE at last is giving the bald-headed man a break. A brand-new theory says that, in many instances, baldness is caused by a deficiency in the secretions of the endocrine glands. Practical tests of the glandular treatment, at the University of Illinois College of Medicine, have led to remarkable success.

One man, bald since 1914, grew hair in four weeks as the result of daily injections of pituitary gland preparation. Another, bald for eighteen years, grew a visible amount of hair in three weeks.

The expert in charge of these revolutionary experiments, Dr. B. N. Bengston, of Maywood, Ill., makes no sweeping claims for his new treatment. He reports, though, that the results on sixteen patients were "striking." "It seems that coincidence could be ruled out," he says, "by the uniform success in these sixteen patients, most of whom tried various kinds of other treatments."

Most of the sixteen patients treated during the recent Illinois tests were bald at a comparatively early age, and, according



Monkeys, like men, get bald, as this photo shows, and probably for the same reason

to Dr. Bengston, were suffering from "glandular baldness."

Hypodermic injections, in most cases once a day, were administered with uniform success, treatment in a majority of cases being suspended as full growth of hair was restored.

One of the most unusual of Dr. Bengston's patients was a man sixty years old whose hair suddenly started to fall out four years ago. Within three months he was totally bald. A study of his history showed that he had been afflicted with rheumatism for six years. He began receiving pituitary gland injections in February, 1928. In August, 1928, a slight fuzz appeared. Five weeks later his entire head was covered with down, and early in February, 1929, he started to grow a crop of true white hair. By May he had a full growth of white hair.

Another outstanding case was that of a youth, eighteen years old, whose hair began to fall out in large patches one summer, the baldness continuing to develop increasingly larger areas.

The pituitary treatment in his case began in April, 1928, and by December the entire head had a noticeable surface of down. Early the following February true white hair started to replace the down. By September 10, 1930, the eyelashes and eyebrows were regained.

'SCALP-SHRINKING' CUTS OUT BALD SPOTS

BY LIDIA WASOWICZ

SAN FRANCISCO—Wayne Croissant of Novato, Calif., recently underwent a one-hour, 20-minute surgical procedure which doctors say holds unprecedented promise for millions of balding men.

The new technique, called scalp reduction, decreases or eliminates the hairless area of the scalp.

Croissant, a 34-year-old grocery store clerk, walked into dermatologist Alan Gaynor's office joking about getting even with his father, "who makes a point of telling me how much thinner my hair is each time he sees me."

"I'm really excited. I'm going to be the first man in my family who is not bald," Croissant said, as Dr. Gaynor measured his hairless patch at 6.7 inches, drew a line in the center and injected Novocain through a pressure oil pump—a "derma-jet"—in a circle around the scalp.

While waiting for the local anesthetic to numb the area, Gaynor said that hair transplants have become the most common cosmetic surgical procedure performed on American men, 80 percent of whom will suffer "significant hair loss" by age 60.

By reducing the size of the hairless area, scalp reduction makes men eligible for transplants who previously were too bald. It also cuts the cost of transplants, since fewer "plugs" of hair follicles, at about \$25 apiece, are needed. In some cases, the new technique can entirely replace the lengthier transplant surgery.

Scalp reduction was used for the first time in Australia in 1978 and brought to America two years later.

Baldness is caused by a combination of heredity, male hormones and age.

HEAD STAY

When Croissant's scalp was numb, the doctor, who has performed 25 such operations in the past year, cut along the center, through skin, soft tissue, fat and galea (the membrane just above the periosteum, which covers the bone).

To separate the galea from the periosteum, he injected salt water, then inserted his fingers to lift and stretch the galea.

to undermine and stretch it from side to side so that it can be removed and the scalp sewn back together without altering the position of the patient's ears or eyes," he said.

The surgery, which costs \$1,200, is not for everyone, he added. "One-fourth of potential patients don't qualify; their scalp is not loose enough or thick enough to stretch properly."

The surgeon was able to stretch the scalp enough to cut away 2½ inches of baldness. Then he sutured the skin back together. "The scalp is very elastic in some individuals and it is possible to just

cut out an area, loosen the edges and pull the hairy sides closer together. This can be repeated at eight- to 12-week intervals until sometimes the entire bald area is removed," Gaynor explained.

For Croissant, he said, probably one additional operation would do the trick.

Gaynor said the patient could shampoo his hair and return to normal activity the next day, but was not to do anything strenuous that would cause increased blood pressure for 10 days.

The next day, Croissant was back on the job, "feeling no pain at all." If the bald area is too large for total

elimination, the patient can undergo a traditional hair transplant, in which cylindrical "plugs" with hair follicles are taken from the "safe area" below the ears and inserted where needed.

"The genetic key is apparently within the hair follicle so the follicles in the safe area are going to grow no matter where they are," said Gaynor, whose patients include a 16-year-old boy, a heart transplant surgeon, a lawyer, a bus driver and several women.

FEELING NO PAIN

"I didn't feel a thing," Croissant said as Gaynor sprayed his head with peroxide to prevent infection, which occurs in one percent to two percent of cases.

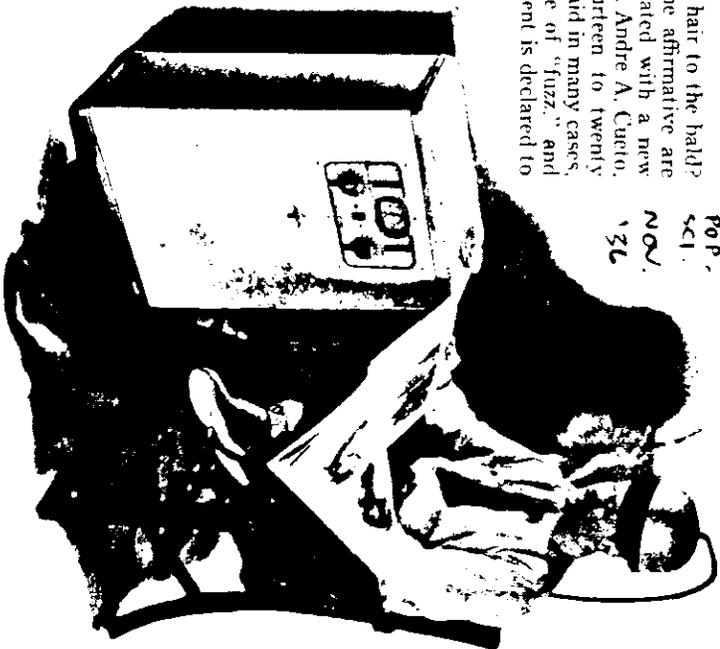
"My father spent more than \$11,000 for the toupees he's been wearing for 20 years," Croissant added. "People spend lots of money on cars. I'd rather spend something on me."

USE VACUUM TO AID HAIR GROWTH

CAN SCIENCE restore hair to the bald?

Startling results in the affirmative are reported in 500 cases treated with a new machine, developed by Dr. Andre A. Cueto, of Cincinnati, Ohio. Fourteen to twenty half-hour treatments are said in many cases, to produce the appearance of "fuzz," and from this point on the patient is declared to progress toward a normal growth of hair. Alternately applying air pressure and vacuum through a cap, the device, it is claimed, restores the functioning of the blood vessels that nourish the hair follicles. Abnormal hair growth upon the legs of hospital patients treated with a circulation-stimulating machine known as a "glass boot," operating on a similar principle, suggested the new machine, perfected for commercial use.

POP SCI NOV '84



A patient receiving the vacuum treatment for baldness while he reads and smokes in comfort

Is cholesterol the cause of baldness?

Two Finnish researchers have implicated cholesterol as one of the agents responsible for causing hereditary baldness in men. In a treatment based on applying water-fat solubilising compounds they claim a 100 per cent success rate in stimulating resting follicles back into their growth phase



Nicholas Valéry

There is no such thing as a cure for baldness. But many men going "thin on top" may be pleased to hear that there is one treatment which ought to *halt* their loss of hair. What they won't be so pleased to hear is that the treatment is castration. This week sees the launching in Britain of a somewhat less drastic measure which, claim the Finnish inventors, arrests excessive hair loss in two out of three people who persist with the treatment for six months or more. As there is likely to be considerable coverage of the announcement in the popular press, it is important that all should realise that it is *definitely not* a cure for baldness. Nothing in use therapeutically at present can make hairs grow when the follicles have withered away. There may, at some future date, be a genuine development in neogenesis of hair follicles in bald skin—but the announcement from Finland is definitely not this.

Hairs are dead keratinised cells which are cemented together as they are extruded up through the follicles. The follicles themselves are minute stocking-like inpushings of the tissue layer (superficial epithelium) beneath the scalp. Of the five million follicles covering the body of an adult male, only one million are on the head—and no more than 100,000 in the scalp. They are normally depleted with advancing age—down from an average of 615 per sq.cm at 20-30 years to 485 per sq.cm at 50-50 years. Paradoxically, male pattern baldness can also occur in women. And other forms of baldness occur in man and women often following an illness or during treatment with antimetabolic drugs or during pregnancy. In such cases, however, the loss is brief and the hair normally returns naturally within a few months.

Under normal conditions, the daily requirement of germinative tissue to carry on mitotic activity and synthesis of the complex fibrous proteins for hair production is enormous. When active, the small mass of cells in the matrix at the foot of a follicle produce 0.35 mm of hair per day. A growing follicle is said to be in anagen, a quiescent one in telogen. At any one time, around 85 per cent of the follicles are in the growing phase, which on average lasts for two to three years; the resting phase normally lasts for only three to four months. With age, however, the ratio of anagen to telogen decreases—and so if follicles could be either prevented from going into quiescence, or stimulated back into anagen, there ought to be a chance of preventing or delaying the onset of alopecia.

Male pattern alopecia occurs in some chimps, monkeys and a variety of other primates as well as in man. Among humans, it is most common in Caucasoids, less so in Negroids, and least in Mongoloids. Hats and hair-dressing style have no effect whatsoever. In the animal world at least, the display of

bare skin is a secondary sexual characteristic. Indeed, baldness can be induced by administering the male hormone, testosterone; in fact, it is the natural androgenic stimulation of hair follicles predisposed by genetic factors and ageing which initiates the onset of baldness.

The onset is characterised by a reduction in the duration of anagen, resulting in an increase in the number of telogen follicles which contain so-called "club" hairs. These are loosely held and easily shed—in some cases up to around a hundred a day being brushed out. Several cycles later the follicles become progressively reduced in size, finishing up rather like the protracted and thin follicles that produce the short, very fine, almost colourless hairs of a infant.

No chance of neogenesis

The issue of whether new follicles can be grown in an adult scalp is a very moot point indeed. The only generally accepted evidence that spontaneous neogenesis of hair does exist in nature is the velvet of deer antlers, and in the case of an Australian marsupial known as the bandicoot. But as for neogenesis in man, the sceptics are vocal and many. The authoritative dictum established in 1922 by Dr William Montagna, when at Brown University, Rhode Island, remains the one. "By retaining an air of scepticism," wrote Montagna, "we will force those who wish to prove the occurrence of this phenomenon to give more convincing proof."

So what's the chance of halting or preventing hereditary alopecia? Actually, quite good. Dr Herman Chase, a colleague of Montagna's at Brown University, says that probably anything that causes extensive epidermal hyperplasia (excessive cell multiplication in the skin) should be able to initiate a new anagen phase in telogen follicles. MBL Negrus certainly do the trick in mice and rabbits. Plucking, too, can initiate new growth from resting follicles. There is evidence also that vigorous grooming, pulling the hairs just short of dislodging or breaking them, is an effective means of inducing anagen. But cutting or shaving (with a puller) or vigorous massage has no effect at all.

The telogen-to-anagen treatment being launched in Britain this week is the result of work at the First Department of Pathology, Helsinki University. The studies originated in a cancer research programme carried out by Professor Kai Setälä with grants from the US National Institutes of Health. Early in the programme one of Setälä's colleagues, Dr Ilona Schreck-Purola, was looking for compounds which could act as methodological aids when studying the mechanism of skin tumour formation. A requirement was that they should be both lipophilic and hydrophilic (fat and water soluble) and capable of lower-



Figure 1 Effect of a powerful carcinogen (DMBA) applied daily to a mouse back. Cell structure becomes disorganised and follicles severely damaged



Figure 2 Effect of applying a non-ionic detergent daily to mouse skin treated also with DMBA. The detergent appears to have countered the effect of the carcinogen and preserved the follicles

ing the interfacial tension. Their role was thus much the same as a non-ionic synthetic detergent's.

In one series of experiments, Schreck-Purola painted the shaved skins of some 40 000 mice with a powerful carcinogen called DMBA (9, 10-dimethyl-1, 2-benzanthracene). The mice were treated every morning at 9 am for 16 days. One group, however, was also treated with a standard non-ionic detergent at 3 pm each afternoon. The result was that, though they had received the same powerful dose of carcinogen which caused massive disorganisation of the cellular arrangement and follicular structure in other mice (see Figure 1), the skins of the detergent-treated mice were quite normal (see Figure 2). The detergent had induced the effect of the DMBA, having either preserved or restored the follicular apparatus and its associated sebaceous (oil) glands.

This prompted Setälä and Schreck-Purola to mount a year long series of tests with mice exposed up to twice a day to a variety of detergent solutions. Subsequent electron microscope studies revealed that excessive cell multiplication had occurred within the walls of the follicles, with the highest mitotic activity being located around the follicle mouth. There seemed also to be some evidence that the detergent had induced a shift in the hair cycle from the telogen resting phase into the anagen growth phase. For the maximum effect, the Finnish researchers say that the detergent needs to belong to a group of polyol fatty acid esters having a molecule containing a sugar alcohol or glycerol. They claim that the ratio between the water and lipid solubility is also critical.

In the second part of their study, the Finnish researchers divided 520 adult volunteers (including 47 women) into two groups—one for skin irritation studies, the other to see if there was a genuine anagen-stimulating effect. All told, the volunteers underwent some 1505 treatment-months. As none of the subjects was given a placebo, there were no controls in the scientific sense—and hence the results, until repeated in other laboratories, must be considered with caution. The photographic evidence of subjects before and after treatment is also far from convincing. Nevertheless, the researchers claim: "In the course of an average test period of nine months per person, a re-growth of hair occurred in 110 out of 173 probands. . . . New growth of hair occurred in about 60 per cent of cases with a period of continuous treatment of 6-12 months' duration."

Is cholesterol the culprit?

But what is the treatment—and if it has any effect at all, what is its mode of action? The main ingredients of Setälä and Schreck-Purola's preparation include a synthetic detergent and well-known irritant called Tween 60 containing the fatty acid esters; nicotinic acid "to increase the blood circulation," say the researchers; alcohol for appearance; urea to increase the water content of the subcutaneous tissue; yeast extract "to supply the essential amino acids"; glucose or

fructose "as a source of energy"; and lactic acid to adjust the pH to the skin value of 5.6-5. One wonders what possible effect the addition of sugars and essential amino acids can have, when the blood circulation will supply all that is necessary anyway. At least one hair preparation based on essential amino acids has been tried before and found to be ineffective.

"Kind of mess"

Setälä argues that the skin, with all its appendages, is an important organ for the formation and storage of cholesterol—the precursor from which all steroid hormones are biosynthesised. Consequently, he says, not all the androgens in the skin are accumulated as a result of systemic androgen therapy. "In short," he says, "there thus exists a 'kind of mess' of various steroids and their metabolites in the cutaneous elements." "Why should we therefore blame only the androgens for causing excessive hair loss?" he asks.

The cholesterol needed for structural metabolic purposes is secreted by the sebaceous glands attached to the side of the follicles. "It is plausible that even the precursor substance, cholesterol, particularly when present in an imbalance ratio, may be one of the provocative agents," says Setälä. The molecular architecture of the Tween 60 compound appears to allow the fatty acid of the molecule to lock on to and dissolve the cholesterol in the membrane of the lining the follicle wall. Apparently this is a process which triggers the cell multiplication which leads to hyperplasia and subsequent stimulation of the follicle into the anagen phase. Whether Setälä's results can be repeated under rigorous conditions in dermatology departments, Setälä and Schreck-Purola are pathologically remiss to say.

Whatever one personally believes, one thing is certain: nature cannot be hurried. Any form of treatment, assuming it to be effective, is going to take at least three or six months to have any noticeable effect. So much of the scepticism surrounding Setälä's ideas clearly stems from the lack of overwhelming evidence in his favour. From his own data it is obvious that many of his subjects lost interest part way through the treatment, and thus finished up as failure statistics.

Perhaps, in the final analysis, the words of William Montagna are the most fitting epitaph for all who would research the nature of hair growth. "It is unfortunate that many of those who are interested in hair growth have looked covetously at baldness with an eye toward 'growing' or 'restoring' hair, and have been guided by emotion or by commercialism," he wrote in his classic textbook, *The Structure and Function of Skin* (Academic Press, 1962; now revised and republished). "Locked within the hair follicles in the bald or balding scalp are the secrets of growth and differentiation," he continued. "To understand the phenomena that guide growth and differentiation of hair is to understand growth, which is the basis of all biological phenomena."

Finally, a remedy for baldness: wear a hat

By JOHN K. KEMOS

Forget about hair transplants. Forget about miracle tonics and lotions. Forget about all the things Lucy did to Ricky when he thought he was going bald. There is a new theory on how to prevent baldness that completely rejects all previous beliefs about hair loss.

Theo Kemos will describe his Kryos theory Tuesday night from 7 p.m. to 9:30 p.m. in the Tan Oak room of the Student Union. This talk is sponsored by SUPERRB and admission is free.

Kemos does not claim to be able to restimulate hair growth once hair has been lost but he does claim to know the true cause of hair loss as well as how to prevent it. The Kryos theory states that balding is due solely to loss of blood circulation in the scalp. This loss of circulation causes atrophy of the hair follicles and subsequent hair loss.

There are many causes of loss of circulation in the scalp. "Mental stress is a big factor," said Kemos. "Under periods of stress

the muscles tense up and take a lot of blood.

"Apparently, the body uses the scalp to store blood for times of crisis, and blood will often flow from the scalp to other parts of the body where it is needed."

Another major cause, according to Kemos, is "body over-protection." In today's society it is common to dress the body warmly and yet not do anything to protect the head, so the scalp loses heat and undergoes a slowing of the metabolic rate.

Kemos noted that only the scalp loses hair because facial muscles maintain circulation. In short, keep your hat on and you'll keep your hair.

Kemos wears a hat himself, at all times.

The medical profession generally attributes hair loss to heredity, the action of male hormones and aging. Kemos, who has lost a few strands from his own forehead, said these theories are totally wrong, and points to the medical profession's inability as yet to come up

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Hair loss

FROM FRONT PAGE

with a cure. However, he bases his theory on existing medical evidence.

In support of his theory, Kemos points to a study done in 1974 in Japan. In that experiment, the scalp nerves of several men were treated so that blood circulation was kept at a maximum at all times.

Those who had been losing hair for less than a year had a high success rate in saving hair while those who had been balding for a longer time were not helped.

"Once the atrophy process has started," explained Kemos, "it is difficult to stop. The key is to prevent balding before it starts."

Kemos said he has had a hard time convincing people that his theory works. "I've lost quite a few hairs trying to get the medical profession to look at my report. I've shown my thesis to medical people at Stanford, UC San Francisco and to the physiology department over at I.S.B. (the Life Sciences Building). They tell me they find the theory interesting, but they can't come up with funds for further research."

An obvious question is why only men, and not women, go bald if hair loss is not due to heredity or hormonal actions.

"Women do lose their hair," said Kemos, "and they are doing so at a higher rate than in previous years.

"Women, however, take better care of themselves than men," he said. For instance, many change hair styles often, so that no part of

the head is exposed for too long.

Men generally do not change hair styles very often. "A popular college style is to part the hair at the center. A lot of balding starts here because the scalp is exposed along the hairline," said Kemos. Asians, said Kemos, tend to start balding at the back of the head, while among blacks hair loss starts at the forehead.

Kemos, who was born in Greece, formulated the Kryos theory 15 years ago as a visitor to Austria.

"There were quite a few Greeks there. Because of the change in climates, many lost their hair to the cold. There was a joke that you could tell how long a Greek had been in Austria by the amount of hair he had lost."

Hairstyles, hats, massages prevent heads from balding

"There is no reason why anyone cannot keep healthy hair until death," says Theo Kemos, the man behind the Kryos Theory. But what's a man to do?

- Here's what Kemos suggests. It won't put hair on a cueball but it may help reduce hair loss in a thinning mane.
 - Change hairstyles periodically. Exposed hair at parts and hair edges are less protected from cooling and more susceptible to damage than hair within a hair mass.
 - Wear a hat. Hats insulate the head and prevent heat loss. A warm scalp has better circulation than a cold one.
 - Don't be afraid to massage the scalp. Hair is firmly anchored and won't fall out under mild massaging. This will increase circulation in the scalp.
 - Don't wear too much clothing in cool weather, especially if the head is left exposed. Cold temperatures trigger the body to decrease circulation in exposed skin to protect from heat loss. In addition, when the body is overcooled, it sweats and increases circulation locally to aid in lowering body temperature. The increased circulation draws blood away from less critical areas such as the scalp and the extremities, Kemos said.
 - Protect your hair at night. Kemos said, "Especially if you lower your thermostat at night. Eight hours of cold temperature is very bad for the scalp. As silly as it sounds, wear a cap at night."
- No amount of nucleic acid or protein present in an expensive shampoo will make hair stronger or less prone to fall out. "I use the cheapest shampoo I can find," Kemos said.
- Some theories hold that it is better for the scalp to be exposed to the elements to grow hair. Batory, Kemos said. "Just look at your armpits. Do they get fresh air and sunshine? No. But you don't see anyone with bald armpits, do you?"

— Amy Avi

Hair

THEORY OF THE WEEK

could be blamed only for the color of our hair, the shape and strength of hair, but not for any influence on ordinary male pattern baldness."

The said that although male hormones can increase hair growth, they do not affect hair loss. "There is too much evidence to show that heredity is not the only cause of hair loss."

Different factors act to reduce circulation in different ways. The most damaging to hair growth is cold, mental stress and body overclothing, he said. Factors such as fever, tight hats, tanning, short hair, washing and hairstyles are less important in producing baldness.

According to the Kryos Theory, the rate of hair fallout depends on the degree of circulation reduction and its duration. This means that while hair loss can be arrested and reversed in its early stages, advanced baldness cannot be counteracted.

"When the scalp becomes very shiny, there's not much you can do," Kemos said. "Shiny skin is like leather." Kemos said he pointed out that in such skin, the blood circulation is greatly reduced and the hair-producing follicles are inactive.

Dermatologists argue that the reason women are less likely to lose their hair is because they have lower amounts of the male hormone and have higher levels of the hair growth-stimulating hormone estrogen.

Clinical studies have shown that when men are given estrogen pills, their hair growth resumes. Estrogen has not become a standard treatment for baldness because the side effects of the hormone, breast development and a raspy voice pitch, are unacceptable to most men.

Kemos does not dispute these findings but he believes that cultural factors are more important in preserving women's tresses. "Women cover their heads when it's cold. Women protect their hair with hats and spend more time combing and massaging their hair than men," he said, adding that women tend to have longer hair, which helps insulate the scalp.

Kemos' main argument against

Engineer's theory may help cure baldness

By Amy Avi
Staff Writer

"Part of my job here is to convince you that there is something behind hair loss other than heredity," said the Greek-born, middle-aged man as he pointed to a hand-drawn chart of scalp skin.

"But this subject is so connected with quackery and gimmicks that no one wants to listen," he said. His audience — white, black and Asian men representing varying degrees of balding — sat entranced.

Theo Kemos has spent several years trying to get people to listen. Doctors and scientists won't listen to him because Kemos, who has been researching hair loss since his late teens, is a San Francisco mechanical engineer and has no formal medical training.

Kemos promotes his ideas via public seminars. Even at his talk last week — a seminar sponsored by the ASUC and SU PERB — he spoke to only about a dozen students. But those who did attend were so excited by Kemos' theory that they kept him 30 minutes past the scheduled end of his two-and-a-half hour talk.

The key to hair loss, according to Kemos, is in the quality of blood circulation in the scalp. When the blood

supply in an area of the scalp is reduced, there is a lowered amount of nutrients available for hair production. "Hair is a solid protein and the papillae have to process a lot of blood to grow hair," Kemos said.

Kemos' hypothesis, called the Kryos Theory, gets its name from the Greek word for cold. One important aspect of the theory holds that when the blood supply to the scalp is reduced, the temperature drops. When this happens, the metabolism of the hair-producing cells drops.

"A reduced metabolic rate is creating an increased amount of impurities and atrophy (tissue disintegration)," Kemos said.

Conventional medical theories purport that the genes of some men make their hair-producing follicles especially sensitive to the male hormone testosterone. Such hair follicles react to normal amounts of the hormone and stop producing hair strands.

Although the exact inheritance pattern has not yet been established, the prognosis is grim: If a man inherits the tendency to go bald, there is nothing he can do to escape his fate.

Kemos does not buy that notion. "Our ancestors

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for \$6 at Cody's bookstore.

So for the present, Kemos has no not interested in researching his ideas. Berkeley and just keep talking. His next seminar will be in the Student Union in March. His book, "The Kryos Theory of Hair Loss," is available for \$6 at Cody's bookstore.

It's a frustrating situation for Kemos. Because he has no product to sell, pharmaceutical companies are not interested in researching his ideas. So for the present, Kemos has no not interested in researching his ideas. Berkeley and just keep talking. His next seminar will be in the Student Union in March. His book, "The Kryos Theory of Hair Loss," is available for \$6 at Cody's bookstore.

Both Kemos and the Stanford dermatologist agree that the Kryos Theory should undergo rigorous clinical testing. "Unfortunately (medicine) is not Mr. Kemos' field and he is not able to obtain the cooperation of a pharmaceutical company or a university," the dermatologist said.

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THE KRYOS THEORY

Human Hair and Hair Loss

by Theo Kemos, M. S.

The Kryos Theory (kryos: meaning cold and pronounced as in cryogenics) is a new theory on human body and scalp hair. Sociological developments, complex stressful life styles, dressing and sleeping habits are producing longer and coarser hair on the body and face, but, at the same time such conditions together with styling of the hair are diminishing the amount of hair on the crown of the head. The main assertions of the Kryos Theory are:

- A. Body hair is longer and coarser today than in earlier times,
- B. Hair grayness indicates a deficiency in the body's systems,
- C. Scalp hair is a useful part of our body, and
- D. Common baldness is caused by reduced circulation.

Research to support A., B. and C. above is incomplete. The conclusions of the research on D., common baldness, are summarized below.

A number of factors quite different in nature cause reduced blood circulation. The reduced circulation lowers the temperature, and consequently the metabolic rate in certain areas of the scalp slows down. Reduced metabolism creates an atrophic condition, increases the amount of injuries, and hair loss occurs.

Not all the factors which could be involved in the circulation reduction process act simultaneously. The number of the factors involved during a particular period of time and their intensity changes with time. Such changes dictate the duration, the particular location on the scalp and the amount of hair loss.

Physiology explains how the involved factors cause the reduced circulation and its consequences. The fact that baldness occurs only on the top of the head is explained by the anatomical structure of that area.

The above claims are supported by a number of clinical experiments which were performed by different researchers who used different methods, including the ongoing experiments in U.S.A. with Minoxidil. The most significant experimental support is provided by the success of hair transplants and the "blockage-therapy" which was performed in Japan.

Additionally, because of its long history and the number of people affected, the baldness problem offers some undisputable empirical evidence in support of the circulation theory. An example of such support is provided by the fact that among men the "brainworkers" are affected in much greater numbers than the blue collar workers. (One of the latest studies published in 1977

shows that 71% of college professors were balding compared with 53% of the total male population.) Other support is provided by the increased number of balding men and women with industrialization, the phenomenon of hair oiliness and the use of head coverings by certain populations.

Perhaps, the most significant empirical evidence in support of the circulation theory is provided by the latest observed relations of hair styles and the appearance of the first balding areas (the different starting patterns of hair loss). Such observations on Black Americans, Asians and Caucasians show a clear relation between the first balding areas and the hair styles or kinds (straight, kinky, etc.) of hair.

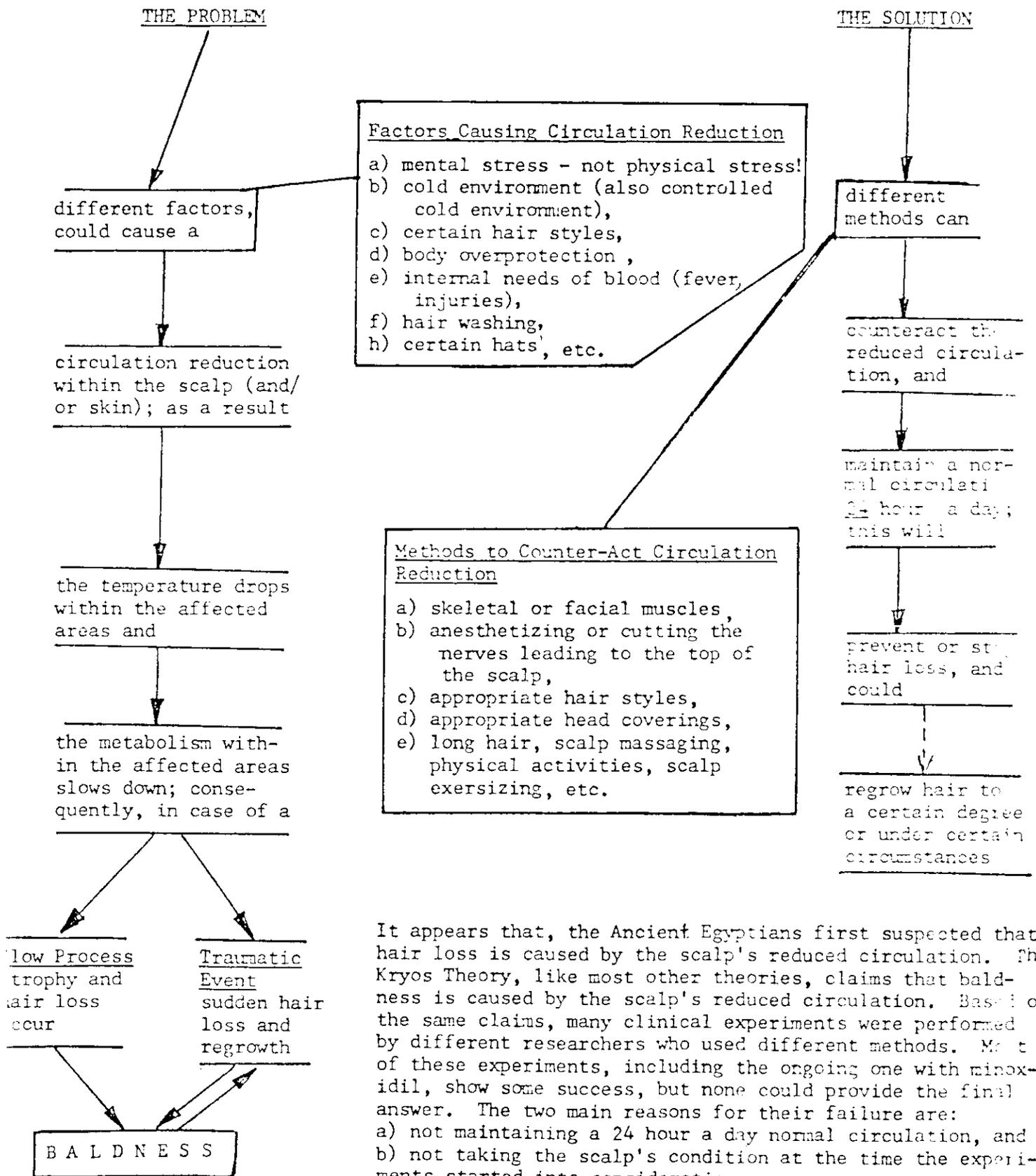
A report of over 100 pages regarding the research on hair loss has been recently completed. Copies of this report are available to those interested in hair research or in writing about this subject. The main points of this report could be summarized as follows:

- a. Explains the axiomatic acceptance with the beginning of the second half of this century of the male-hormone and heredity theories and the reasons for their rejection,
- b. Identifies the reasons for the failure of previous theories and experiments which were based on reduced circulation in the scalp,
- c. Identifies a number of factors which cause the reduced circulation within certain areas of the scalp and the consequences of such reduction,
- d. Explains the reasons why baldness occurs only on the top of the head (the final or Hippocratic pattern),
- e. Explains that hair loss is easy to prevent or stop at an early stage and the difficulties of stopping it after several years of ongoing hair loss,
- f. Provides an explanation of the association of hair loss and hair oiliness which was considered during the first half of this century as the main cause of baldness,
- g. Provides physiological justification and experimental and empirical evidence to support these claims, and
- h. Suggests some simple, inexpensive and harmless clinical experiments which could provide clear results within three to four months. One important feature of such experiments is that they could control the scalp's circulation independently from the factors which cause the reduction in the circulation.

The Kryos Theory

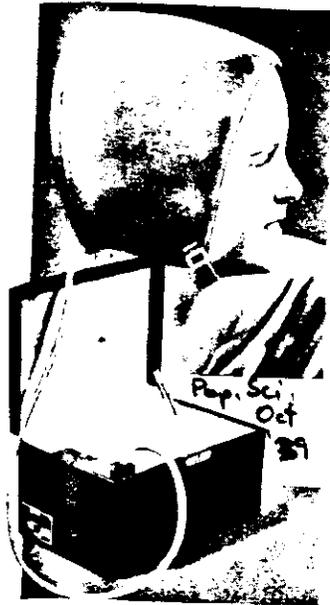
BALDNESS - ITS CAUSE, PREVENTION AND CURE

by Theo Kemos, M.S.



It appears that, the Ancient Egyptians first suspected that hair loss is caused by the scalp's reduced circulation. The Kryos Theory, like most other theories, claims that baldness is caused by the scalp's reduced circulation. Based on the same claims, many clinical experiments were performed by different researchers who used different methods. Most of these experiments, including the ongoing one with minoxidil, show some success, but none could provide the final answer. The two main reasons for their failure are:

- a) not maintaining a 24 hour a day normal circulation, and
- b) not taking the scalp's condition at the time the experiments started into consideration.



Electric Cap Treats Hair and Scalp

TO STIMULATE scalp circulation and beautify the hair, an electrically heated cap is now available. A cream embodying ingredients said to be similar to those present in normal skin is applied to the scalp and then "baked in" by the cap's heating element at slightly higher than body temperature.

Hair Today

An enterprising Virginian has designed a helmet to promote hair growth on bald heads. The "vacuum helmet" consists of a dome-shaped head covering attached to the intake valve of an air compressor. The vacuum created inside the helmet lifts the skin off the scalp, releasing restricted blood circulation to the hair follicles. The vacuum helmet, its inventor says, could promote growth in areas where hair growth has been inhibited due to the constriction of circulation. Good news for Joe Garagiola.

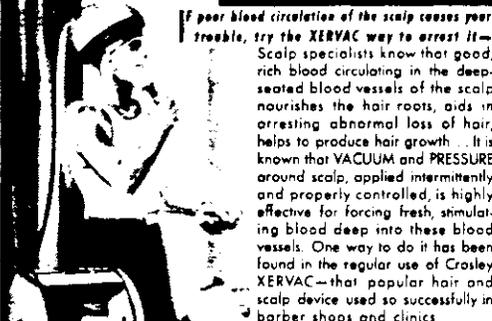
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YOUR HAIR

**- IS IT GETTING THIN?
- IS IT FALLING OUT?**

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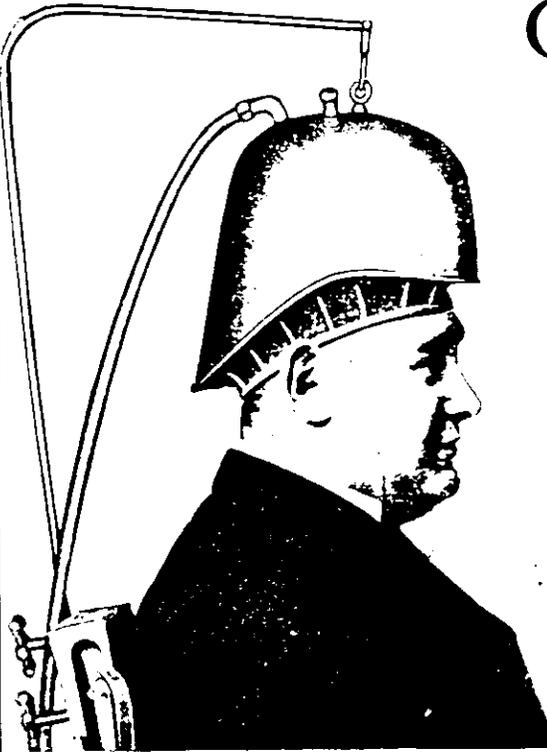
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of exercise makes it stagnant. The Evans Vacuum method provides the exercise which makes the blood circulate *in the scalp*. It gently draws the rich blood to the scalp and feeds the shrunken hair roots. This causes the hair to grow.

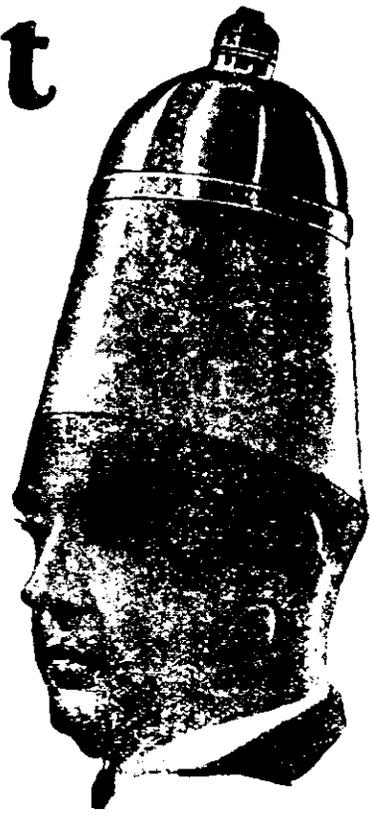
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You can tell whether it is possible to cultivate a growth of hair on your head by ten minutes' use of the Evans Vacuum Cap. We will send you the Cap with which to make the experiment *without any expense to you*. If the Evans Vacuum Cap gives the scalp a healthy glow, the normal condition of the scalp can be restored. A three or four minutes' use of the Cap each morning and evening thereafter will produce a natural growth of hair. If, however, the scalp remains white and lifeless after applying the vacuum, there is no use in trying further—the hair will not grow.

The Bank Guarantee

We will send you, by prepaid express, an Evans Vacuum Cap, and will allow you ample time to prove its virtue. All we ask of you is to deposit the price of the Cap in the Jefferson Bank of St. Louis, where it will remain during the trial period, *subject to your own order*. If you do not cultivate a sufficient growth of hair to convince you that the method is effective, simply notify the bank and they will return your deposit *in full*. We have no agents, and no one is authorized to sell, offer for sale or receive money for deposit *in full*. All Caps are sold under the bank's guarantee, and all money is sent direct to

New Kind of Hat Worn 10 Minutes a Day Grows Hair in 30 Days —or No Cost



No matter how thin your hair may be this remarkable new scientific invention is absolutely guaranteed to give you a brand new growth of hair in 30 days—or it costs you nothing. Don't send a cent. Just mail coupon below.

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Founder of Famous Merke Institute, Fifth Ave., N. Y.

I HAVE perfected a new invention that I absolutely guarantee will give you a new head of hair in only 30 days—or the trial costs you nothing.

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Sounds impossible, doesn't it? All right. Then let me emphasize this fact. I don't care how thin your hair is. I don't care how many treatments you have taken without results. Unless my discovery actually produces a new growth of hair on your head in 30 days, then all you need do is tell me so. And without asking one question, I will instantly—

and gladly—mail you a check refunding you every penny you have paid me.

How It Works

My invention is entirely different from anything known or used before. It proves that in a big percentage of hair troubles the hair roots are NOT dead, but merely dormant!

The reason ordinary measures failed to restore hair is because they merely treated the surface skin. My new invention goes further. It gets right to the cause of most hair troubles—the starving dormant roots.

Your hair grows just as a tree grows—from the roots. To make a tree grow you wouldn't rub "growing fluid" on the bark. Instead you would nourish the roots. And my invention provides, at last,

not only an efficient way of stimulating these dormant roots, but of giving them the nourishment they need to grow hair again.

No Risk of Any Kind

At the Merke Institute, Fifth Avenue, N. Y., which I founded, stage and social celebrities have paid as high as \$500 for the results secured

through personal treatments. Yet now, through my new invention, these results may be secured in any home without the use of electricity—for just a few cents a day!

Remember, I don't ask you to risk a cent. I realize that my treatment will not grow hair for EVERYBODY. There are some extreme cases of baldness that nothing in the world can help. But my new invention has already grown new hair for so many hundreds of others who had long ago given up hope that I am willing to let you try it entirely at my risk, and if it fails then I lose—not you.

Free Booklet Explains Invention

If you will merely fill in and mail the coupon below I will gladly send you—without cost or obligation—an interesting 32-page booklet, "The New Way to Make Hair Grow," describing my new invention in detail.

The booklet contains much helpful information on the care of hair—and in addition shows what my treatment is doing for thousands of others.

No matter how nearly bald you are—no matter how many treatments you have tried without results—this booklet will prove of deepest interest to you. So mail the coupon now—and it will be sent you by return mail. ALLIED MERKE INSTITUTES, Inc., 512 Fifth Avenue, Dept. 174, New York City.

What Users Say

"I have been bothered with dandruff for twenty years and had lost nearly all of my hair. I have used your treatment 30 days now and have a good growth of hair coming in. I cannot say too much in praise of the Merke Treatment."
C. H. B.

"Treatment positively shows quick results. After five weeks' treatment a new growth of hair has shown on each side of the temple where I have been bald for years."
E. B.

"Am glad to say I can see such great change in my hair. It is growing longer and my head is full of young hair that has made its way through since I have been using Merke Treatment. I can't say enough for it. It will do everything you claim it to do."
Mrs. G. G.

"After using the Merke Treatment as per your instructions, my scalp is now showing improvement daily, and I think in time I will have more hair than I had two years ago. I was practically bare on the top, but now it is gradually filling in from the back."
J. S. W.

Allied Merke Institutes, Inc.
Dept. 174, 512 Fifth Ave., New York City.
Please send me, without cost or obligation, on my part, a copy of the new booklet, "The New Way to Make Hair Grow," describing in full detail the Merke Institute Hair Treatment.
Name _____ (State whether Mr., Mrs. or Miss)
Address _____
City _____ State _____

Control Of Excessive Hair Loss Through Topical Enzyme Therapy

BY EDWARD SETTEL, M.D., F.A.A.F.P.
250 WEST 57th STREET, NEW YORK, NY. 10019

Control of chronic hair loss in the face of grossly excessive fall-out, plus a poor hereditary factor, is at last coming within the purview of therapeutic control. Through use of modern biochemical and cosmetic techniques, hormonal and endocrine imbalances that underlie premature hair loss often may be reversed, or at least controlled.

No longer is male-pattern baldness untreatable in its early stages. When shampoo washings are heavy with effluvium, and the comb, brush and pillow similarly loaded with hair, the patient can take positive steps to avoid despair. With vigorous and early treatment, there is a possibility that he can bring the hair loss under control, and diminish or at least delay the onset of baldness. Similarly, the female faced with a parallel problem can look for some relief—if vigorous therapy is initiated early.

Endocrinologists generally agree that male pattern baldness is genetic in origin and is characterized by an excess of androgenic factor in the glandular milieu. Density of scalp hair is largely attributable to the influence of female (estrogenic) hormone. Facial and corporeal hair on the other hand is a function of the androgenic complex, a relative excess usually manifesting itself in a heavy beard as well as a thick coat of hair over the chest, extremities and abdomen. Such usually is the case in male pattern alopecia, even where the scalp may be totally devoid of visible hair.

The opposite holds for females during child-bearing periods, when scalp hair is rich and luxuriant (the "crowning glory" of womanhood) and there is few (if any) terminal hair on chest, abdomen or extremities. In proper endocrine balance, the pubic escutcheon definitively is characteristic of each sex.

It would appear logical, therefore, that proper application of an anti-androgen factors exclusively to the scalp might be of measurable influence in

correcting local hormone imbalance predicated to exist in male pattern baldness. The delivery system would have to be of a level of sophistication that would localize the treatment to the scalp alone and minimize leakage of the topically applied compounds into the general circulation. Such a selective modality should have little or no side effects on other organ systems.

The therapeutic system we have developed utilizes such a selective topical cream **Plus** a fortified shampoo to accomplish these objectives:

- (1) To reduce hair loss to the normal effluvium of less than 50 hairs daily.
- (2) To stimulate dormant (telogen) hair follicles to return to an active growth cycle (anagen phase).
- (3) To fortify and stimulate the viability of borderline hair roots to delay or prevent easy epilation.
- (4) To improve and protect the existing hair shafts from trauma, breakage, splitting and other deleterious mechanical effects.

If these objectives are achieved before final atrophy of the hair follicle, it is logical to anticipate either delay or cessation of the balding process. Although the full mechanism of hair growth is not fully understood, it nevertheless is reasonable to expect that anti-androgen compounds might reverse or delay male-pattern baldness; since the hair follicle is programmed genetically to follow a characteristic life cycle, and hormones play the primary role as agents for inherited traits of the scalp. Following observations by Hamilton¹ and Orentreich² that estrogen prolongs the anagen phase of scalp hair growth, the regimen employed early in this study provided this hormone to the hair roots.

¹ Presented at the Scientific Assembly of the American Academy of Family Physicians in Boston in October 1976.

Simplest and most readily available anti-androgen is estrogen and its analogs. Enzymatic factors recently have been implicated, and our recent studies have been leaning heavily in this direction.

Utilizing a sophisticated "mini-emulsion" designed to penetrate scalp epidermis and dermis, leaving its product load within these skin tissues on a cellular level, this investigator designed a treatment regimen which since 1974 has met with measurable success.

Prior to 1975, percutaneous topical applications applied daily through a cream and thrice weekly with a shampoo contained estradiol (0.25 per cent in the former and .05 per cent estrone in the latter). Nicotinic acid was incorporated into the cream for vasodilatation and enhanced absorption. This penetrating cream was gently massaged into the alopecic areas of the scalp once daily at bedtime. Areas rich in dormant rootlets (live follicles or lanugo) were designated for the subjects under treatment. Size of the dispersed particles in the mini-emulsion appeared to restrict action of the ingredients to the skin and its appendages. Such selective penetration was achieved by control of particle size of the lipid phase to 500-1000 millimicrons.

Further supportive measures involved use of a specially designed shampoo three times weekly (usually on arising). This shampoo was tailored to reduce breakage of hairs, and to further enhance the smoothing effect of normalization of the anagen-telegen ratio of scalp hairs. It further provided amino acids and/or polypeptides both as conditioners as well as raw material for protein synthesis. Cystine, cysteine and methionine were selected for the shampoo mix.

In our quest for active agents with fewer side effects than estrogen when used long-term, we abandoned the female hormone and replaced it with a sophisticated co-enzyme of the di-carboxylase series, Biotin. This compound, in the vitamin B-Complex family, is also known as Vitamin H.

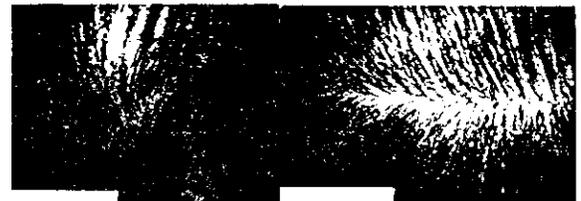
Biotin appears to serve as a co-enzyme in fixing of the CO_2 radical in the splitting of amino acids, and to contribute significantly to nucleic acid protein synthesis. It is important in carboxylation reactions.^{3,13} On a more theoretical level, it is thought to accelerate metabolic breakdown of dihydro-testosterone. Substituting Biotin for Estradiol and Estrone, but using the same skin-penetrating cream and shampoo as excipients, comparable



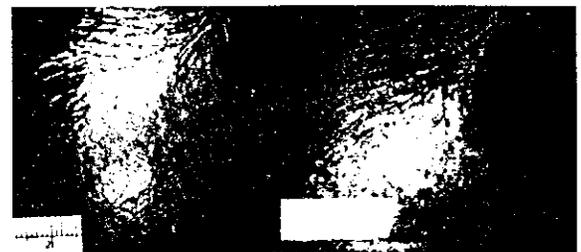
80% restitution of occipital area hair in 33-year-old male came after 13 months of steady application of creams.



50% restoration after seven months of continuous application of cream in 53-year-old black male with typical occipital baldness.



After seven full months of treatment, 37-year-old male with eight-year history of fallout shows almost complete coverage.



Improvement of anterior hair line after 10 months of treatment in a 35-year-old male with history of five-year excessive hair loss.

clinical effects in controlling excessive hair fall-out, were observed in 1,187 subjects in the past 18 months (dosage 0.25 to 1.0 per cent). There were **no** side effects.

Excessive hair loss can occur in either sex.

TABLE I
REDUCTION OF EXCESSIVE
DAILY FALLOUT OF HAIR

	ESTRADIOL STUDY	BIOTIN STUDY
NUMBER OF PATIENTS IN STUDY	748	1,197
NUMBER OF PATIENTS WITH EXCESSIVE DAILY FALLOUT OF HAIR	694	1,187
PATIENTS RESPONDING WITH MARKEDLY LESS FALLOUT*	631 (90%)	1,058 (89%)

* DETERMINED BY SERIAL 24 HOUR
TOTAL HAIR FALLOUT COUNTS.

TABLE II
INCIDENCE OF HAIR GROWTH
BY AGE GROUP (DECADES)

AGE LEVEL	NO PATIENTS	ESTRADIOL STUDY ONLY*		
		VISIBLE HAIR GROWTH	FAILURES	PERCENTAGE SUCCESSFUL
17-30 years	238	176	62	74%
31-40 years	360	250	110	69%
41-50 years	112	66	46	59%
51-70 years	38	18	20	47%
TOTALS	748	510	238	68%

Conclusion: The younger the patient
the more pronounced
the rate of successful
hair growth.

* BIOTIN STUDY IN PROGRESS.

When acute in nature and unrelated to familial factors, it is readily corrected by focussing attention on the primary etiology such as febrile states, post-partum endocrine imbalance, chronic illnesses, protein deprivation (concentration camp diets) etc. The hair readily re-grows on correction of the underlying pathology. However, when history and examination reveal the likelihood of genetic or "pattern" baldness, vigorous steps can help to stem the oncoming alopecia.

Of course, volume of daily hair fall-out can be grossly distorted by the presence of broken hairs. When added to the excessive telogen effluvium, these can present an even more dismal picture to the unhappy patient. It thus becomes vital to examine total 24-hour hair loss repeatedly to determine what portion consists of **broken** hairs. Since these are of less serious moment and more readily corrected, such data are significant in prognosis.

The causes of broken hairs are myriad. Foremost are local infections of the scalp, vitamin or protein deficiency states; physical trauma to hair by the patient himself (or herself) more often by too vigorous massage, combing, brushing, use of too much heat (by way of driers, hot combs, too much sun), excessive use of dyes, sprays, hair straighteners, detergents, permanents. Such factors are readily eliminated by proper management. Especially important is the use of a shampoo designed to restore elasticity, luster and manageability to the terminal hairs. Proper use of selected "protein conditioners" can be especially valuable.

The shampoo originally used in this study was a buffered mini-emulsion of sodium estrone sulphate containing amino acids and/or polypeptides

*Skin penetration studies in mice (using tagged radioactive material and the Hirsch emulsion) done by Arthur D. Little & Co., Cambridge, Mass. (1965)

farmer claims... *baldness*

HE MAY HAVE bats in his belfry, but an enterprising farmer swears he's found the long-sought cure for baldness — bat's milk!

by **BENNETT BENET**

And now batman Gerhardt Flit has created the world's first bat dairy to share his amazing cure.

"The next morning I woke up with hairs sprouting out of my head and the palm of my hand."

Excited, Gerhardt began experimenting.

He caught a mother bat in a net and squeezed several drops of milk out of her tiny udder. He applied the liquid to his head.

"It was spring," he recalls. "I was alone in the barn and several bats were hanging in the rafters above me, suckling their young."

"I felt a drop of something hit my head and I wiped it off. I thought it was a bat dropping but I looked in my hand and saw it was white."

Astounded

"The next morning I woke up with hairs sprouting out of my head and the palm of my hand."

Excited, Gerhardt began experimenting.

He caught a mother bat in a net and squeezed several drops of milk out of her tiny udder. He applied the liquid to his head.

"The results were astounding," he points out. "The hairs began sprouting like wild weeds."

Eventually, Gerhardt found it was easier to rub the whole female bat across his scalp.

In less than six weeks, his head was covered with a thick mane of hair.

Realizing he'd discovered a miracle drug, the batty farmer began building nesting areas in his barn to attract more of the flying creatures.

Tiny herd

In no time he had a colony of several hundred, from which he separated about 60 nursing females.

The tiny herd is fed the finest moths and milked once a day in a miniature milking machine similar to that used for cows.

The precious liquid is then bottled and sells for \$3,500 an ounce.

It's a lot of money," concedes Gerhardt, of Bern, Switzerland. "But it's easier than rubbing a screeching bat across your head."

Scientists have yet to test the bat milk for possible side effects.



"I said, how in heaven's name did you happen to swallow your hearing aid?"

**Attention, skinheads: Batty
Bat milk cures**

Advertisement

Advertisement

Advertisement



Going to the Root of Hair Loss

Hair loss is usually caused by a diminishing supply of blood to the scalp, depriving hair follicles of the necessary nutrients and water to produce hair. Hormones, genetics and toxins from smoking and pollutants can influence the process. Male pattern baldness occurs when the enzyme 5-alpha reductase accumulates, turning testosterone into dihydrotestosterone. This latter substance reduces blood flow to follicles, retarding or stopping hair growth.

Minoxidil, the medical drug sold for hair loss, may not be the best choice to treat baldness. It comes with possible side effects, and may be hazardous for long-term use. When the drug is discontinued, any new hair that has grown falls out. Minoxidil also is usually ineffective for women.

A more natural way to encourage hair growth is a treatment called activated oxygenated serum (AOS). This is a combination of several ingredients including organic silica and activated oxygen that has been shown to increase blood flow in the scalp and support the structure of blood vessels feeding the follicles. A six-month study of 72 bald men conducted at the Hospital Saint Louis, in Paris, compared AOS with minoxidil. AOS was found to be just as effective as minoxidil in promoting new hair growth, thickening hair, and stopping hair loss, but without the side effects of the drug. AOS also did not cause seborrhea or dandruff, as do many topical applications. The benefits of AOS took effect within three months of use.

There are several dietary supplements believed to support hair growth and scalp health. These include: MSM and sulfur-rich amino acids that aid in building hair protein and maintaining

healthy scalp capillaries; B vitamins, especially niacin, thiamin and biotin, that promote circulation; and flavonoids, antioxidants that may possibly promote hair growth. Natural topical treatments include algae oils that deactivate dihydrotestosterone; grape seed oil, an antimicrobial to encourage healing; and sunflower and safflower oils that supply fatty acids. Beneficial herbs include saw palmetto, which is thought to prevent conversion of testosterone into dihydrotestosterone; ginkgo biloba, to increase circulation; and horsetail, which contains organic silica.

Used with information in: Energy Times, Jul-Aug 1998



The Healing Solution

Homeopathy and I_E Crystals

According to its critics, evidence supporting homeopathy is very scanty at best. But what disturbs them most is the lack of a credible theory to explain how this popular healing technique might work. Homeopathy employs some remedies that are so diluted, not even one molecule of the "active" ingredient remains. Proponents of homeopathy claim that in the process of dilution the "essence" of the substance somehow remains, and the remedies become even more powerful the more they are diluted.

A recent finding by chemist Shui-Yin Lo, a former visiting associate at the California Institute of Technology, suggests a possible scientific explanation

of how homeopathy might work. Lo created extremely dilute solutions using dilution strengths similar to those used in over-the-counter homeopathic remedies. Examination of these dilutions with an electron microscope showed that in some cases the water contained strange ice crystals that formed at room temperature and under normal pressure. The crystals proved stable, even at high temperatures. Because the crystals were produced with the action of ions, Lo called them I_E crystals—ice formed under an electric charge.

An immunology professor at the University of California, Los Angeles, subsequently found that I_E crystals were able to stimulate several components of the immune system, and produce up to 100 times more biological activity than plain water. This has led some homeopaths to propose that homeopathic medicines work because they contain I_E crystals, but this theory has not yet been proved.

Meanwhile, studies continue to appear supporting homeopathy's effectiveness, although the number is small, and the results not especially dramatic. However, a truly impressive study recently appeared in the medical journal *Archives of Otolaryngology—Head and Neck Surgery* that compared a homeopathic remedy for vertigo with a conventional medical drug. The randomized, double-blind, controlled study involving 100 patients found that the homeopathic treatment was as effective as the medical drug, and both remedies reduced the frequency, duration and intensity of vertigo attacks.

Based on information in: Natural Pharmacy, Aug 1998; Archives of Otolaryngology—Head and Neck Surgery, Aug 1998

Zapping Malaria

Although not a problem in the U.S., malaria kills more than one million

101 HAIR REGROWTH LINAMENTS

includes

Ginseng
Angelica
Milk Vetch

Peak kernels
Red-Red Salvia

Hair elixir goes to Chinese heads

Houston, TX Chronicle WE July 13, 1988 Sarah/Court

BY JANE MACARTNEY
United Press International

BEIJING — The baling pedestrian strolling down a Beijing street made an easy target. Two young men in dark glasses and light jeans sidled up to him and hissed: "You want some 101? We can give you a good price — and guarantee supplies."

The startled old man had run into China's latest fad — 101 Hair Regrowth Liniment — a malodorous potion publicized nationwide as a miracle cure for baldness and now one of the most sought-after commodities on the country's flourishing black market.

His invention has brought fame, a fortune and plenty of headaches to Zhao Zhang-guang, 45, a former barefoot doctor and the son of a farming family from southern Zhejiang province.

"I think my 101 Hair Regrowth Liniment is the most effective treatment for baldness so far invented," boasted Zhao, lounging in an easy chair in his downtown Beijing office, puffing an expensive American cigarette.

His potion has not undergone testing by health authorities in China or abroad and is sold domestically as a cosmetic, thus bypassing local requirements for medical verification.

Zhao's luxuriant mop of coal black hair is his own advertisement for the elixir.

"How could anyone take me seriously if I didn't have a full head of hair?" laughed Zhao. He anoints his thatch with the hair growth tonic at least once a week just to be sure.

But his air of nonchalant self-confidence

masks his growing anxiety over a troubling development in the wonder drug industry.

Zhao's native peasant caution — he used to dismiss suggestions that he patent the remedy — has come up against the rampantness of life in the big city, where counterfeit products and soaring black market demand are damaging the reputation of 101.

A bottle of Chinese 101, whether fake or real, fetches more than 10 times the regular price, or 75 yuan (\$20) on the black market. Bottles for export have been marked up from \$20 to \$100.

"My joy has turned to grief," said Zhao in warning against the flood of fake tonics in the Communist Party newspaper People's Daily.

Reversing his assertion that "no one can copy 101 because I am the only person who knows how to make it," Zhao belatedly has submitted a patent application.

Combining such herbs and extracts as ginseng, angelica, milk vetch, peach kernels and red-root salvia, Zhao's evil-smelling concoction took years to develop.

He first took an interest in traditional cures as a hobby 20 years ago. Skin diseases became his specialty, and he won a local reputation as a skilled barefoot doctor. From there, "it was natural to worry about another disfiguring affliction — baldness."

"I saw many young men who couldn't find brides because they didn't have any hair, and even some women," he said. "I felt very sorry for them."

Zhao said he tried 100 different combinations over three years. He said he had almost given up hope when a neighbor acting as a guinea pig for his 101st preparation came running in pointing to spikes of hair

sprouting on her smooth pate.

The success of 101 is now legendary in China. Zhao, a model party member, is a wealthy man, with five private cars, a driver and an eight-room apartment in Beijing. He coyly deflects questions on his income, but admits he earns more than Communist Party chief Zhao Ziyang and "less than (U.S. President) Reagan."

Zhao said he has treated 200,000 patients and claims a success rate of nearly 90 percent. He displays an impressive collection of before-and-after photographs to back up his assertion — mostly of young people who lost their hair through illness.

"These are the easiest people to cure," said Zhao. He acknowledged that for some people, even his tonic cannot help.

Once prepared in a bubbling cauldron in Zhao's kitchen, the liniment is now produced at the rate of 10,000 bottles a year. But manufacture remains limited as Zhao keeps the formula a secret known only to his wife and brother-in-law.

So great is demand for the ointment that a car is said to be dispatched almost daily from Zhongnanhai, home of China's aged senior leaders, to collect supplies from the factory door.

Zhao also has developed a higher-priced lotion for non-Chinese. Hairless Japanese and South Korean executives have been turning up in droves.

"I had to produce a better quality treatment for foreigners," explained Zhao. "The one for Chinese patients is lower quality and has a few side effects, such as itching, but then Chinese have lower standards."

pieces are very liable to be broken. Various methods have been tried, but a view to removing this defect and causing the hardness of gypsum. Of the methods, that of Wachsmuth, for leveling articles made of gypsum and leveling them weather-proof, deserves special notice. All methods of hardening articles made of gypsum have this in common: the gypsum is first deprived of moisture, and then immersed in a solution of certain salts, such as alum, or vitriol, etc. Articles treated by these methods hitherto in vogue certainly are more capable of resistance to the action of water than crude gypsum. Object of Wachsmuth's process is merely to harden the gypsum, but to reform it on the surface into insoluble strata. The process is as follows: The article is first put into the red shape by mechanical means, and is then deprived of its moisture by heating at 212° to 302° F. It is then plunged in a heated solution of barium hydrate, which it is allowed to remain for a few or shorter time, according to its length. When this part of the process is complete, the article is smoothed by rubbing, etc., and then placed in a solution of about 10 per cent of oxalic acid water. In a few hours it is taken out, and polished. It then possesses hardness surpassing that of marble. It is impervious to the action of water, or does the polish sustain any injury in contact with water, whereas gypsum articles hardened by the usual methods of their polish after a few minutes' immersion in water. Articles treated by the method described have the natural color of gypsum, but it is possible to give a color to the gypsum during the leveling process. This is done by mixing the gypsum, after it has been deprived of its moisture, and before the treatment with the barium solution, with a solution of a colored metallic phosphate, such as iron, copper, or chrome plate, or into a solution of some coloring matter. Pigments soluble in barium or oxalic-acid solutions may be added to the latter.

absorbed. The articles withstand the weather as well as though they were of stone.

GYPSUM FLOWERS:
See Flowers.

GYPSUM, PAINT FOR:
See Paint.

HAIR FOR MOUNTING.

The microscopist or amateur, who shaves himself, need never resort to the trouble of embedding and cutting hairs in the microtome in order to secure very thin sections of the hair of the face. If he will first shave himself closely "with the hair," as the barbers say (i. e., in the direction of the natural growth of the hair), and afterwards lightly "against the hair" (in the opposite direction to above), he will find in the "scrapings" a multitude of exceedingly thin sections. The technique is very simple. The latter and "scrapings" are put into a saucer or large watch-glass and carefully washed with clean water. This breaks down and dissolves the latter, leaving the hair sections lying on the bottom of the glass. The after-treatment is that usually employed in mounting similar objects.

Hair Preparations

DANDRUFF CURES.

The treatment of that condition of the scalp which is productive of dandruff properly falls to the physician, but unfortunately the subject has not been much studied. One cure is said to be a sulphur lotion made by placing a little sublimed sulphur in water, shaking well, then allowing to settle, and washing the head every morning with the clear liquid.

Sulphur is said to be insoluble in water; yet a sulphur water made as above indicated has long been in use as a hair wash. A little glycérine improves the preparation, preventing the hair from becoming harsh by repeated washings. The exfoliated particles of skin or "scales" should be removed only when entirely detached from the cuticle. They result from an irritation which is increased by forcible removal, and hence endeavors to clean the hair from them by combing or brushing it in such a way as to scrape the scalp are liable to be

I.—Chloral hydrate. 2 ounces
Resorcin. 1 ounce
Tannin 1 ounce
Alcohol 8 ounces
Glycerine 4 ounces
Rose water to make 4 pints

II.—White wax. 34 drachms
Liquid petrolatum 2 1/2 ounces
Rose water. 1 ounce
Borax. 15 grains
Precipitated sulphur. 3 1/2 drachms

Pine-Tar Dandruff Shampoo.—
Pine tar. 4 parts
Lime-seed oil. 40 parts
Heat these to 140° F.; make solution of potassa, U. S. P., 10 parts, and water, 45 parts; add alcohol, 5 parts, and gradually add to the heated oils, stirring constantly. Continue the heat until saponified thoroughly; and make up with water to 128 parts. When almost cool, add ol. lavender, ol. orange, and ol. bergamot, of each 2 parts.

HAIR-CURLING LIQUIDS.

It is impossible to render straight hair curly without the aid of the iron or paper and other curlers. But it is possible, on the other hand, to make artificial curls more durable and proof against outside influences, such as especially dampness of the air. Below are trustworthy recipes:

	I	II
Water.	70	80
Spirit of wine.	30	20
Borax.	2	—
Tincture of benzoin.	—	3
Perfume.	ad. lib.	ad. lib.

HAIR DRESSINGS AND WASHES:

Dressings for the Hair.—

I.—Oil of wintergreen.	20 drops
Oil of almond, essential.	35 drops
Oil of rose, ethereal.	1 drop
Oil of violets.	30 drops
Tincture of cantharides.	50 drops
Almond oil.	2,000 drops

II.—Almond oil, sweet. 280 parts
Spirit of salt anhydrous. 280 parts
Spirits of rosemary. 840 parts
Essence of orange. 840 parts

III.—Tincture of cantharides. 7 parts
Gall tincture. 7 parts
Musk essence. 1 part
Carbuncle. 0.5 part

Rectified spirit of wine. 28 parts
Rose water. 140 parts

To be used at night.

Rosemary Water.—

IV.—Rosemary oil. 1 1/2 parts
Rectified spirit of wine. 7 parts
Magnesia. 7 parts
Distilled water. 1,000 parts

Mix the oil with the spirit of wine and rub up with the magnesia in a mortar; gradually add the water and finally filter.

Foamy Scalp Wash.—Mix 2 parts of soap spirit, 1 part of borax-pyrocyanine (1+2), 6 parts of barium, and 7 parts of orange-flower water.

Lanolin Hair Wash.—Extract 4 parts quillata bark with 36 parts water for several days, mix the percolate with 4 parts alcohol, and filter after having settled. Agitate 40 parts of the filtrate at a temperature at which wool grease becomes liquid, with 12 parts anhydrous lanolin, and fill up with water to which 15 per cent spirit of wine has been added, to 300 parts. Add mixture, such as china extract, Peru balsam, quinine, tincture of cantharides, bay-oil, ammonium carbonate, menthol, etc., may be made. The result is a yellowish-white, milky liquid, with a cream-like fat layer floating on the top, which is finely distributed by agitating.

Birch Water.—Birch water, which has many cosmetic applications, especially as a hair wash or an ingredient in hair washes, may be prepared as follows:

Alcohol, 96 per cent.	3,500 parts
Water.	700 parts
Potash soap.	200 parts
Glycerine.	150 parts
Oil of birch-bark.	50 parts
Essence of spring flowers.	100 parts
(Chlorophyll, q. s. to color.	

Mix the water with 700 parts of the alcohol, and in the mixture dissolve the soap. Add the essence of spring flowers and birch oil to the remainder of the alcohol, mix well, and to the mixture

A hair-raising puzzle

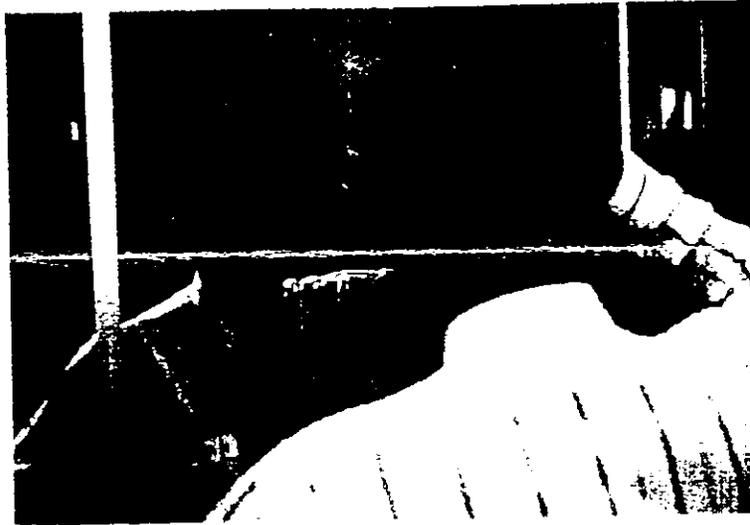
Electrical treatment may help reverse balding

Floyd Wandler's father was completely bald at 27, and his own hair started falling out when he was 25. Because baldness is a hereditary trait, Wandler, now a 40-year-old Vancouver businessman, says that he realized he would likely lose all his hair. But, two years ago, a friend told him about a new process undergoing tests in his home city. Wandler says that he was skeptical because he had spent years trying a variety of treatments. Still, he contacted Current Technology Corp. and volunteered to participate in the company's program. After six weekly sessions, Wandler claims that his hair loss slowed. After 12 weeks, his hair stopped falling out. Now, two years into the program, his hair has filled in on the sides of his head, and he no longer has bald spots at the back. Said Wandler: "I'm really excited about it. It's great. It's remarkable."

The apparent results of Current Technology's treatment are as remarkable as they are mysterious. Wandler and 55 other male volunteers who took part in a double-blind clinical trial at the University of British Columbia, completed last year, sat under a device resembling a salon hair drier. For 12 minutes, once a week, 30 of the men received measured amounts of electrical impulses, 100,000 times below dangerous levels, according to the company. The remaining 26 men received a placebo. After 36 weekly treatments, which are completely painless, the men involved in the UBC trial had an average 66-per-cent increase in the number of hairs on their heads, and all but one of the 30 receiving the treatment stopped losing hair or showed regrowth.

But the reasons for the success have eluded researchers. Wrote Dr. Stuart Maddin, clinical professor of dermatology at UBC, who conducted the trial: "The rationale of this phenomenon is unclear." Like many observers, Dr. William Danby, secretary-treasurer of the Kingston, Ont.-based Canadian Dermatology Association, has adopted a wait-and-see approach. Said Danby: "As with any scientific work, it's customary to await independent confirmation of the results."

Since the mid-1970s, doctors and therapists



Wandler: after 36 weeks of electrical impulses, phenomenal results

have used low-level electrical stimulation to speed the healing of bone fractures and such soft-tissue damage as ulcers. According to Current Technology's president and chief executive officer, Anne Kramer, its hair-raising effect was discovered by an American acupuncturist in the mid-1980s while treating patients with electrode stimulation. At the time, Kramer and her husband, Robert, Current Tech-

Kramer: surviving economic downs



nology's chief financial officer, were raising venture capital for mining companies. But, said Anne Kramer, "we were looking for a product and an industry to work in that we felt would survive the downs in the economy as well as respond to the ups."

The Kramers met with an acupuncturist, whom she declines to identify, saying only that "he has not been involved with the company for a long, long time." The couple formed Current Technology in 1987, listed it on the Vancouver Stock Exchange and, for an amount the Kramers will not divulge, bought the rights to the acupuncturist's process. From a low this year of 94 cents in January, the stock traded as high as \$7½ this summer, but it swooned last week in the heat of the crisis in the Middle East and closed on Friday at \$4.90. Still the potential market for the treatment, if it fulfils its initial promise, seems solid. Balding, a largely male trait, affects between 20 and 25 per cent of all men by age 40—approximately 22 million North Americans.

Although experts say that they do not know why pulsed electrical stimulation would promote hair growth, Maddin posited his theory in his report of the UBC study published this summer in Philadelphia's *International Journal of Dermatology*. According to Maddin, who is on Current Technology's medical advisory board and who bought 2,000 shares in the firm, the electrical pulses may cause increased division of dormant hair follicles and of skin cells on the scalp.

Having met the safety and efficacy criteria of the medical devices regulations of the federal Food and Drug Act, Current Technology is now working towards satisfying the U.S. Food and Drug Administration's criteria and initiating its marketing strategy. According to Anne Kramer, the first chair-and-head device should be ready by December. The firm plans to enter into joint-venture agreements with dermatologists in Canada and the United States who would lease the devices and administer the treatments in their clinics at \$50 per session, or \$2,500 per year.

Still, despite early reports of success, many dermatologists are cautious. Dr. Neil Shear, for one, at Sunnybrook Hospital in Toronto, says that he would like to see more information before he decides whether to put a machine in his office. "Hair loss is not a trivial problem," said Shear. "It would be a real boon if this worked. But we'll see what happens." With so few other options available, there will likely be many bald people eagerly watching for any new developments.

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Proanthocyanidins from Grape Seeds Promote Proliferation of Mouse Hair Follicle Cells *In vitro* and Convert Hair Cycle *In vivo*

TOMOYA TAKAHASHI, TOSHIKAZU KAMIYA and YOSHIHARU YOKOO

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For the purpose of discovering natural products which possess hair growing activity, we examined about 1000 kinds of plant extracts concerning growth-promoting activity with respect to hair follicle cells. After an extensive search, we discovered that proanthocyanidins extracted from grape seeds promote proliferation of hair follicle cells isolated from mice by about 230% relative to controls (100%); and that proanthocyanidins possess remarkable hair-cycle-converting activity from the telogen phase to the anagen phase in C3H mice *in vivo* test systems. The profile of the active fraction of the proanthocyanidins was elucidated by thiolytic degradation and tannase hydrolysis. We found that the constitutive monomers were epicatechin and catechin; and that the degree of polymerization was 3.5. We demonstrated the possibility of using the proanthocyanidins extracted from grape seeds as agents inducing hair growth. **Key words:** cell culture; condensed tannin; hair growth.

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Many materials have been investigated since ancient times in attempts to cure male pattern baldness. However, no really effective materials were discovered until the 1980s. Minoxidil, initially prescribed in its oral form for hypertension, was found to cause hypertrichosis (1), and was approved by FDA as a medication (Rogaine[®], Upjohn Co., Kalamazoo, MI, USA) for curing male pattern baldness (2). It is known that this drug stimulates the growth of hair follicle cells *in vitro* (3) and has hair cycle converting activity *in vivo* (4).

On the other hand, many plant extracts have been traditionally used for curing male pattern baldness. For instance, it has been reported that extracts of *Suertia japonica* Makino promote capillary blood flow and cause hair growth (5). Intradermal injection of capsaicin (one of the components of *Capsicum annum* L.) into the back skin of telogen mice (C57BL/6) caused anagen induction (6). However, in most cases the efficacy was not examined and the active compounds were not identified.

We examined about 1000 kinds of plant extracts with the aim of finding hair follicle cell growth-promoting materials, and discovered proanthocyanidins extracted from grape seeds to be active compounds.

We report here on the *in vitro* growth-promoting activity with respect to hair follicle cells and the *in vivo* hair-cycle-converting activity from the telogen phase to the anagen phase possessed by proanthocyanidins extracted from grape seeds. We also propose the application of proanthocyanidins extracted from grape seeds as an active agent for curing androgenetic alopecia.

Acta Derm Venereol (Stockh) 78

MATERIALS AND METHODS

Materials

Grape seeds (Chardonnay variety) were obtained from the Sainte Neige Wine Co. (Yamanashi, Japan). (+)-Catechin, (-)-epicatechin, (-)-epicatechin-3-O-gallate were purchased from the Kurita Kogyo Co. (Tokyo, Japan).

Isolation and culturing of hair follicle cells

Mouse hair follicle cells were isolated and cultured in MCDB-153 medium (7) according to the method reported by Tanigaki et al. (8) with minor modifications, which can be obtained from the authors.

Colorimetric assay for cell proliferation by MTT

The degree of cell growth was determined from an MTT [3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide] assay (9).

Preparation of topically applied agents for *in vivo* evaluation

Fourteen grams of ethyl alcohol, 0.6 g of proanthocyanidins purified from the grape seeds, 2 g of 1,3-butylene glycol, 0.1 g of isostearyl *N*-acetylglutamine (Kyowa Hakko Kogyo Co., Japan), 0.05 g of polyoxyethylene (25) glyceryl monopyrrolidate monoisostearate (Nihon Emulsion Co., Japan), and 3.25 g of pure water were mixed, whereby the solids were dissolved to prepare a sample solution for the *in vivo* mice test.

Vehicle without proanthocyanidins was used as the control. Minoxidil and other drug-containing agents were prepared in the same way as the proanthocyanidin-containing agent.

Test for hair-cycle-converting activity in mice

With reference to the method of Hattori & Ogawa (10), the hair-cycle-converting activity was measured. In this test, 8-week-old male C3H/HeStc mice whose hair cycle was in the telogen stage were used (11).

Purification of proanthocyanidins from grape seeds

Dry grape seeds (Chardonnay variety) was extracted with 75(v/v)% acetone, further purified using a column (9 cm x 28 cm size with a volume of 1780 ml) filled with Diaion HP-20 resin (Mitsubishi Kasei Co., Japan) followed by preparative high-performance liquid chromatography (HPLC) using an ODS column.

Preparation of procyanidin B-2 [epicatechin-(4β-8)-epicatechin]

Apple juice was applied to an HP-20 column (15(v/v)% methanol wash and 40(v/v)% methanol eluate), next applied to an LH-20 column (Pharmacia Biotech Co., Sweden, 50(v/v)% methanol wash and 75(v/v)% methanol eluate), followed by preparative HPLC (ODS column mobile phase was 15(v/v)% methanol).

Preparation of procyanidin B-3 [catechin-(4α-8)-catechin]

Barley husk was extracted with 70(w/w)% acetone; this extract was evaporated, and the following column purification proceeded by the same procedure as that of procyanidin B-2.

Determination of the structure of proanthocyanidins

The profile of the extracted and purified proanthocyanidins was characterized by the composition of the flavan-3-ol units (Fig. 1), the degree of polymerization and the degree of galloylation. The

HAIR GROWTH STIMULANTS

(CA is Chemical Abstracts)

- 1) Vitamin E, Nicotinic Acid Ester (0.5%-5%) CA 80:40933q
Japan Patent 72-47,663 (Cl. A-61K) 1 Dec. '72
- 2) Colebicine; CA 80:52381w Australian Patent # 440,609 (Cl. A-61K) 4 Oct. '73
- 3) Auxina Triogena; CA: 81:58760 extract increases skin histamine, stimulates hair growth
- 4) L-Methionine; CA 81:176108e
- 5) L-Serine; "" Nippon Nogei Kagaku Kaishi 48 (5): 279-284 (1974)
- 6) L-Cysteine; ""
- 7) Biotin; CA: 85:182269e
- 8) Sesame ^{30%} Oil / ^{1%} Essence of Bergamot / ^{1%} Cloves; CA 77:9595v
French Patent Demande 2,070,045 (Cl. A-61K) 15 Oct. '71
2% rum
66% beef marrow
- 9) 4-Iodo-3,5-Dimethyl-2-CycloHexylPhenol (5%-10%);
CA 77:118119p & Menthol 0.5%-2%; Camphor 0.5% 2%; Bornyl-Salicylate 0.5-2%
French Demande # 2,085,627 (Cl. A-61K)
- 10) Husks of Green Walnuts; CA 77:130493p
German Patent Offenbach
2,107,641 (Cl. A-61K)
18 Aug. '72
- 11) Urea; CA 85:182269e 4 May '76
Netherlands Patent Appl. 74-14,311 (Cl. AG1K7/06)
- 12) 1-(Chloromethyl)-Silatrane; CA 88:177201j German Offen. # 2,615,654 (Cl. A-61K.31/695)
(1%-3%) & triethanolamine
- 13) Lactobacillus Culture/Lecithin/Powdered Tea/Ionized Water; CA 88:110537e Japan Patent Kokai 77-136,909 (Cl. A-61K35/38) 16 Nov. '77
- 14) Collagen Extraction of Calf Skin; CA 85:182396n
- 15) Chondroitin Sulfate A ; CA 83:109220
- 16) Chorionic Gonadotropin ; CA 88:54987n
- 17) Pyridoxine.HCl; CA 82 :38779s US Patent 3,826,834 (Cl. 424-263; A61K)
- 18) Acanthens (L-Citronellol, Myristic Acid, Brassidic Acid) & Sannarines; CA 82:47627t German Offenbach # 2,312,091 (Cl. A61K) 12 Sept '74
- 19) Hexadenoic Acid (Ethyl Ester); CA 82 90075y
Japan Patent Kokai # 74-93,518 (Cl. 30, C0, 6B3) 5 Sept '74
- 20) Keratin Hydrolysate; CA 82:115997r U.S. Patent 3,842,848 (Cl. 132-7; A61K)
- 21) Nicotinic Acid; CA 79:23508s German Offenbach # 2,248,290 (Cl. A-61K) 17 May '73
- 22) Ethynyl Estradiol Methyl Testosterone; CA 76:144805h & Quinine Sulfate, extract of jaborandi, coliensis, lemon oil, vitamin C Castor oil South African Patent # 70-32,048 (27 May '71)

Kaminomoto

THE SUPERIOR HAIR SAVER
AND GROWTH ACCELERATOR

Introduction of Kaminomoto

As is commonly known, abnormal hair loss and subsequent baldness are sometimes ascribable to ailments of certain internal organs, however, it is also true that they are quite frequently resulted from deficiency in the hair producing elements under the scalp tissue, often coupled with the lack of proper vitamins and hormones in the body. It will not be always correct to set down hair thinning and baldness solely to a physical hindrance, such as the irregularity of glandular secretion, nerve system or internal organic function, nor will it be just to lay the fault every time to one's own family heredity.

Kaminomoto was perfected in Japan on the basis of the newest scientific discoveries and the thoroughgoing experiments made on the life and substance of human hair, and is already recognized by many medicinal authorities in Japan as a remarkably effective hair saver and growth accelerator.

As one of its principal ingredients, Kaminomoto contains HINOKITOL CRYSTAL extracted from Japanese Hinoki tree, which is acclaimed as a remarkably effective property discovered in recent years for rejuvenating hypodermic cells and helping growing healthy hair. Another outstanding ingredient is PHOTOSENSITIZING DYE T198, an ultrared sensitive coloring matter possessing high potency of increasing the subcutaneous power to absorb the energy radiated by the sun, whereby stimulating the skin metabolism and revitalizing enervated cellular tissue. Also blended in Kaminomoto is Ca-PANTOTHENATE, the famous medical property discovered by Professors F.A. Lipmann and H.A. Krebs, Nobel prize winners. This specific ingredient, which belongs to the vitamin group, is too well known for its usefulness in nourishing hypodermic cells and expediting growth of hair. Furthermore, Kaminomoto contains six other properties, all being remarkably beneficial for accelerating hair growth. Kaminomoto is Differently Effective.

Kaminomoto is effective because its potent essences will gradually infiltrate into the scalp and distribute fresh vitality to the impoverished roots of hair.

Moreover, it will unfailingly stimulate hair producing cells which fallen inactive under the skin, and encourage the normal secretion of melanin color (by red corpuscle) and liquid albumen (by plasma), both of which are imperative for the growth of new hair. Thus, Kaminomoto will step by step remedy every significant cause of hair loss and baldness. Those who suffer from hair troubles, old or young, need not be despaired entirely, for there are many testified cases in which consistent users of Kaminomoto have succeeded in recovering from severe cases and regained healthy hair.

Kaminomoto will in addition to its hair saving and growth accelerating virtues, display a remarkable efficacy in keeping the user's scalp fresh and sweet and free of destructive germs, ugly infectious dandruff, annoying scalp itch and unnatural hair loss. A few drops of Kaminomoto a day will provide his hair with glowing luster, luxuriant looks and exquisite fragrance. Graying hair and thinning eyebrows may also be relieved by daily application of this efficacious preparation to the affected parts.

Kaminomoto is free from any harmful or deleterious effects to human body and skin, if it is used externally.

Directions for Use

Shake the bottle well before use. Sprinkle a few drops of Kaminomoto onto the scalp, patting there lightly afterward. It is not necessary to rub the solution into the skin. Repeat the same application twice a day, morning and evening.

It is particularly advisable to apply it more amply every time before going to bed, as the hair nourishing blood is usually brought to the scalp while the body is asleep, allowing Kaminomoto to exercise its power at its best.

Please refrain from washing your hair too often, except with neutral soap or shampoo. Avoid soap or shampoo that is not of neutral nature. Eat fruits, vegetables and iodine foods as much as possible.

Caution: The users of this medicated hair preparation are cautioned to try a "Skin Test" for any possible allergic effect prior to its application.

Important: Inasmuch as the development of human hair comes by nature in a very slow process, the user of Kaminomoto should not expect visible results of improvement in an unreasonably short period of time. It would require an average of two months, depending on the seriousness of the individual case, before a gleam of hopeful sign can be witnessed. It is requested the consistence and perseverance be exercised by those seeking truly good results of Kaminomoto.

Notice: Kaminomoto will have little effect for the baldness resulted from syphilis, diabetes or serious burns.

Package: General 30c.c. , 65c.c. , 125c.c. , 250c.c. (Economic size)
Higher Strength 50c.c. , 85c.c. , 190c.c.

Kaminomoto is available at department stores, major drug stores and leading cosmetic shops.

Manufactured by: **KAMINOMOTO CO., LTD.**
Kumochibashi-dori 3-chome, Fukui-ku,

United States Patent [19] Ciavatta

[54] AMINO ACID-VITAMIN FORMULATIONS FOR SKIN, HAIR AND SCALP CONDITIONERS

[75] Inventor: Vitale G. Ciavatta, East Hanover, N.J.

[73] Assignee: Mare Corporation, Fairfield, N.J.

[21] Appl. No.: 866,348

[22] Filed: Jan. 3, 1978

[51] Int. Cl. A45D 19/16; A61K 7/06

[52] U.S. Cl. 132/7; 424/DIG. 1; 424/47; 424/70; 424/237; 424/263; 424/266; 424/284; 424/319; 424/365

[58] Field of Search 424/DIG. 4, 319, 284, 424/237, 263, 266, 365, 70, 47; 128/1 R; 132/7

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Primary Examiner—Bernard Helfin
Assistant Examiner—Vera C. Clarke
Attorney, Agent, or Firm—Sherman & Shalloway

[57] ABSTRACT

Compositions comprising mixtures of certain amino acids and vitamins particularly useful in the formulation of topically-applicable cosmetic compositions. The topical application of the compositions acts to improve the general complexion of the skin and to invigorate and revitalize the hair and scalp. Separate formulations are provided for each use.

98:185394w Products for hair care. Kriwet, Manfred PCT Int. Appl. WO 83 00,433 (Cl. A61K7/06), 17 Feb 1983, DE Appl. 3,130,894, 31 Jul 1983; 9 pp. Hair lotions, shampoos and other hair care products contg. exts. obtained from olive pits, apple pips etc., enhance hair growth. Powd. olive pits were extd. with iso-PrOH and the ext. after removal of excess iso-PrOH, was treated with a mixt. of menthol 200, pantothenyl alc. 200 g and 50% iso-PrOH to 100 L. The effectiveness of this hair lotion was demonstrated in humans.

98:185395x Lotion with hair-growth-stimulating, hair-loss-preventing and scalp-protecting activity. Szemenyei, Antal Hung. Teljes HU 22,298 (Cl. A61K7/06), 28 May 1982, Appl. 79/Se1930, 16 Feb 1979; 8 pp. Hair lotions are prepd. by exposing a compn. contg. vitamin A [11103-57-4], C [50-81-7], B₂ [68-19-9] and P [1340-08-5], eventually other vitamins, and honey, to a magnetic field (800-1300 Oe). Thus, a compn. contg. vitamins A (8000), C (5000), B₂ [59-43-8] 60, B₂ [83-88-5] 30, B₆ [8059-24-3] 40, B₁₂ 0.001, D₂ [50-14-6] 0.15, E [1406-18-4] 200, P 400, and honey 1000 mg, l. plus the usual hair-lotion ingredients was exposed to a 1000-1300 Oe magnetic field. The lotion can be used against hair loss.

98:204434c Dandruff prevention by vitamin E acetate. Shiseido Co., Ltd. Jpn. Kokai Tokkyo Koho JP 58 39,610 [83 39,610] (Cl. A61K7/06), 08 Mar 1983, Appl. 81/137,061, 02 Sep 1981; 4 pp. Vitamin E acetate [58-95-7] prevents dandruff. Thus, vitamin E acetate 1.5, polyoxyethylene oleyl ether 2, and perfume were added to 55 g EtOH, and this mixt. was added to 39.5 g water contg. 5 g glycerin and some coloring to obtain a hair tonic with antidandruff activity.

98:204435d Hair tonics containing vitamin E acetate and pantothenyl ethyl ether. Shiseido Co., Ltd. Jpn. Kokai Tokkyo Koho JP 58 39,611 [83 39,611] (Cl. A61K7/06), 08 Mar 1983, Appl. 81/137,062, 02 Sep 1981; 4 pp. Pantothenyl Et ether [667-83-4] added to vitamin E acetate [58-95-7]-contg. hair tonics enhances the dandruff preventive action of vitamin E acetate. Thus, vitamin E acetate 0.1, pantothenyl Et ether 0.01, polyoxyethylene oleyl ether 2 g and some perfume were dissolved in 55 g EtOH, and added to 37.89 g water contg. 5 g glycerin and coloring to obtain a hair tonic. The prevention of dandruff by using the hair tonic was demonstrated.

98:221612b Hair tonic. Gozite, I.; Zilbers, J.; Kazakova, G. A.; Korotkaya, N. V.; Korotkova, E. A. ("Biokhimreaktiv" Scientific-Industrial Enterprises; "Alye parusa" Nikolaev Perfume-Glass Combine) U.S.S.R. SU 997,681 (Cl. A61K7/06), 23 Feb 1983, Appl. 2,994,243, 04 Jul 1980. From Otkrytiya, Izobret. Prom. Obratzy, Tovarnye Znaki 1983, (7), 12. A hair tonic with increased biol. activity and stability contains a 6:1 mixt. of aq. and EtOH [64-17-5] exts. of pollen 1.5-1.6, lavender oil 0.65-0.75, geranium oil 0.1-0.3, rose oil 0.02-0.05 wt. % in addn. to glycerol 5-7, Ca pantothenate 1.5-1.8, p-aminobenzoic acid 2.5-3.1, Me p-hydroxybenzoate 0.1-0.3 wt. %, the balance being H₂O.

98:221613c Hair tonics containing ovalbumin and methionine. Shiotsu, Shizuya Jpn. Kokai Tokkyo Koho JP 58 41,811 [83 41,811] (Cl. A61K7/06), 11 Mar 1983, Appl. 81/141,240, 08 Sep 1981; 3 pp. Hair tonics contain ovalbumin and methionine [63-68-3]. Thus, a hair lotion was prepd. contg. 3 g ovalbumin, 0.3 g methionine, 200-800 mL distd. H₂O and 200-800 mL EtOH. The effectiveness of the prepn. was tested in 5 male human subjects and 4 female human subjects.

98:221618h Hair tonics containing amino acids. Shiotsu, Shizuya Jpn. Kokai Tokkyo Koho JP 58 55,431 [83 55,431] (Cl. A61K7/06), 01 Apr 1983, Appl. 81/152,261, 26 Sep 1981; 2 pp. Hair tonics contain amino acids from egg white, methionine [63-68-3], tocopherol acetate [1406-70-8], pyridoxine-HCl [58-56-0], salicylic acid [69-72-7], p-hydroxybenzoates, EtOH and glycerol. Thus, 40 g egg white and 1 g trypsin in 700 mL distd. H₂O were thoroughly mixed, followed by addn. of 1 g salicylic acid in 300 mL EtOH to give soln. A. Sep. 3 g L-methionine and 1 g pyridoxine-HCl in 700 mL distd. H₂O were mixed with 3 g tocopherol acetate, 2 g Et p-hydroxybenzoate and 1 g Bu p-hydroxybenzoate in 300 mL EtOH to give soln. B. A hair tonic contained 80% soln. A and 20% soln. B.

98:8087c Prevention and reversal of hair graying. Szemenyei, Antal Hung. Teljes HU 22,624 (Cl. A61K7/06), 28 Jun 1982, Appl. 79/Se1967, 26 Nov 1979; 17 pp. Propolis and vitamins are synergistic in preventing hair graying and restoring hair color. The effectiveness of the synergistic mixt. can further be increased by exposing the components, sep. or jointly, to a magnetic field. Thus, a compn. is given contg. vitamin A [11103-57-4] 4000, vitamin B₁ [59-43-8] 70, vitamin B₂ [83-88-5] 70, vitamin B₆ [8059-24-3] 30, vitamin B₁₂ [68-19-9] 0.01, vitamin C [50-81-7] 2500, vitamin E [1406-18-4] 1000, vitamin D₂ [50-14-6] 0.15, vitamin P [1340-08-5] 3000, and propolis 5000 mg in 1 L soln. in addn. to the usual hair prepn. ingredients. The compn. is exposed to a 800-1300 Oe magnetic field. Application to humans, every 2nd day, for 15 wk, restored hair color.

98:8171a The use of retinoids and their derivatives to increase the rate of growth of human scalp hair and the rate of growth of fur in certain fur-bearing animals. Bazzano, Gail Sansone PCT Int. Appl. WO 82 02,833 (Cl. A61K7/06), 02 Sep 1982, US Appl. 235,169, 17 Feb 1981; 18 pp. Retinoids esp. all-trans-retinoic acid (I) [302-79-4] and its derivs. administered orally, systemically, or topically increases the rate of growth of scalp hair in humans and the rate of fur growth in fur bearing animals, and retard molting. Thus, a lotion for topical application contg. 1 0.1, propylene glycol 5.0, butylated hydroxytoluene 0.1, safflower oil 1.0, α-tocopherol acetate 0.5 and EtOH to 100% by wt applied at 10 mg/day for 21 days to a male subject increased hair growth by 0.45 mm/day compared to 0.3 mm/day for controls.

99:10695p Lecithin and bovine heart extract compositions for arresting the loss of hair and for promoting the growth of hair. Kastell, Wolfgang Eur. Pat. Appl. EP 60,933 (Cl. A61K7/06), 29 Sep 1982, DE Appl. 3,109,420, 12 Mar 1981; 12 pp. Hair tonics are prepd. contg. lecithins obtained from plants and bovine heart ext. contg. cytochromes, phosphatidylinositols, phosphatides, and free phosphatidic acids, esp. in an alc. or aq. alc. soln. A hair tonic contained: 400 mL abs. EtOH, 400 mL H₂O, 50 g plant lecithin, and the ext. of 250 g fresh beef heart. The beef heart was freed of fat, homogenized with H₂O, and filtered. The filtrate was heated to boiling, filtered, and the cytochrome-contg. soln. was refrigerated. The residue from the 1st filtration was extd. with 250 mL Et₂O at room temp. for 2 days, filtered, the aq. phase was sepd. and discarded, the Et₂O was evapd., and the residue was suspended in 150 mL H₂O. This suspension was mixed with the cytochrome soln., 50 g extd.-purified plant lecithin, 400 mL EtOH, and H₂O to 1 L. Ascorbic acid, 1% by wt., could be added as a preservative. Expts. with men showed redn. of hair loss and an increase of hair follicles in the growth stage.

98:40415u Hair lotions promoting hair growth. Shiotsu, Shizuya Jpn. Kokai Tokkyo Koho JP 57,171,908 [82,171,908] (Cl. A61K7/06), 22 Oct 1982, Appl. 81/57,436, 15 Apr 1981; 4 pp. Lotions, which promote hair growth, contain egg white, EtOH, and L-methionine [63-68-3]. Thus, 40 g egg white, 200-800 mL water, and 1000 mL EtOH were mixed, and 80 parts of this was added to 20 parts of a mixt. consisting of 1 g L-methionine, 200-800 mL water and 1000 mL EtOH. The efficacy of the lotion was shown by applying daily to the hair of 41 volunteers.

30 Mar 1982, Appl. 80/128,764, 17 Sep 1980; 4 pp. Hair tonic formations contain cinnamyl alc. [104-54-1], its esters, cinnamic acid [621-82-9], and/or its esters. Thus, a hair tonic consists of cinnamyl alc. 2, methanol 0.2, 95% EtOH 60, and water 37.8%. The acceleration of hair growth by cinnamyl alc. was demonstrated in mice.

97:78685z Hair conditioner. Lion Corp. Jpn. Kokai

[54] AMINO ACID-VITAMIN FORMULATIONS FOR SKIN, HAIR AND SCALP CONDITIONERS

3,778,502 12/1973 Aubin et al. 424/266

[75] Inventor: Vitale G. Ciavatta, East Hanover, N.J.

FOREIGN PATENT DOCUMENTS

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[73] Assignee: Mare Corporation, Fairfield, N.J.

[21] Appl. No.: 866,348

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[51] Int. Cl. A45D 19/16; A61K 7/06

[52] U.S. Cl. 132/7; 424/DIG. 1; 424/47; 424/70; 424/237; 424/263; 424/266; 424/284; 424/319; 424/365

[58] Field of Search 424/DIG. 4, 319, 284, 424/237, 263, 266, 365, 70, 47; 128/1 R; 132/7

[57] ABSTRACT

Compositions comprising mixtures of certain amino acids and vitamins particularly useful in the formulation of topically-applicable cosmetic compositions. The topical application of the compositions acts to improve the general complexion of the skin and to invigorate and revitalize the hair and scalp. Separate formulations are provided for each use.

[56] References Cited

U.S. PATENT DOCUMENTS

2,887,437 5/1959 Klioze et al. 424/319 X
3,256,095 6/1966 Crosby et al. 424/319 X
3,697,287 10/1972 Winitz 424/319 X
3,773,930 11/1973 Mohammed 424/319 X

20 Claims, No Drawings

98: 8171a The use of retinoids and their derivatives to increase the rate of growth of human scalp hair and the rate of growth of fur in certain fur-bearing animals. Bazzano, Gail Sansone PCT Int. Appl. WO 82 02,883 (Cl. A61K7/06), 02 Sep 1982, US Appl. 235,169, 17 Feb 1981; 1- pp. Retinoids esp. all-trans-retinoic acid (I) [302-79-4] and its derivatives administered orally, systemically, or topically increases the rate of growth of scalp hair in humans and the rate of fur growth in fur bearing animals, and retard molting. Thus, a lotion for topical application contg. 1 g/l propylene glycol, 5.0% butylated hydroxytoluene (BHT), safflower oil, 1.0% retinophenyl acetate 0.5 and EtOH to 10% by wt applied at 10 mg/day for 21 days to a male subject increased hair growth by 0.45 mm/day compared to 0.3 mm/day for controls.

98: 40415u Hair lotion promoting hair growth. Shiotsu, Shizuya Jpn. Kokai Tokkyo Koho JP 57,171,908 [82,171,908] (Cl. A61K7/06), 22 Oct 1982, Appl. 81:57,436, 15 Apr 1981; 4 pp. Lotions, which promote hair growth, contain egg white, EtOH, and L-methionine [63-68-3]. Thus, 40 g egg white, 200-800 mL water, and 1000 mL EtOH were mixed, and 80 parts of this was added to 20 parts of a mixt. consisting of 1 g L-methionine, 200-800 ml. water and 1000 ml. EtOH. The efficacy of the lotion was shown by applying daily to the hair of 41 volunteers.

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AMINO ACID-VITAMIN FORMULATIONS FOR SKIN, HAIR AND SCALP CONDITIONERS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to compositions comprising mixtures of certain amino acids and vitamins useful in cosmetic formulations for topical application to the skin, hair and scalp.

2. Description of the Prior Art

A variety of compositions containing amino acids and vitamins have long been known to be used with a host of dietary formulations either as nutritional supplements or in conjunction with other medicaments to correct specific physiological dysfunctions. All of the prior art patents reviewed containing amino acid-vitamin components generally involve the oral ingestion or the intravenous injection by the subject of the amino acid-vitamin combination formulation. For example, U.S. Pat. No. 3,914,419 discloses stable aqueous multivitamin preparations containing amino acids for intramuscular injection. U.S. Pat. No. 3,962,416 discloses an encapsulated nutrient comprising vitamins, amino acids, lipids, enzymes and minerals. U.S. Pat. No. 3,697,287 relates to an amino acid food composition comprising all the essential amino acids and vitamins. U.S. Pat. No. 2,887,437 discloses a distinguishable and palatable tablet comprising specific vitamins and amino acids. U.S. Pat. No. 3,256,095 discloses a complete synthetic diet comprising an amino acid-vitamin composition. U.S. Pat. No. 3,773,930 also relates to a dietary composition having the subject combination. U.S. Pat. No. 3,639,587 provides amino acid-vitamin compositions as components for medicinal compositions for animals.

The prior art also discloses the use of amino acids alone as components in hair or scalp conditioning compositions. In this regard, U.S. Pat. No. 3,778,502 discloses a method of combatting scaling of scalp by applying to the scalp a solution of specific amino acids together with other organic acids. U.S. Pat. No. 3,849,576 relates to compositions comprising as an active ingredient, a derivative of cysteine or cysteamine, which is useful for the treatment of skin and scalp. U.S. Pat. No. 3,997,659 relates to hair bleaching compositions containing arginine or various proteins or polypeptides having a high arginine content. U.S. Pat. No. 3,998,761 relates to a shampoo composition containing as an essential conditioning ingredient a relatively high level of beer solids which, of course, contain a mixture of amino acids.

However, none of the prior art references disclose the specific combination of amino acids and vitamins for topical application according to the present invention which unobviously improves the general appearance of the skin, hair and scalp.

SUMMARY OF THE INVENTION

It has been discovered that mixtures of certain amino acids and vitamins within narrow concentrations provide compositions which are useful for topical application to the skin, hair and scalp to enhance softness and luster to the hair and to improve the general appearance of the skin. Separate formulations are provided for the skin and for the hair and scalp. Thus, the hair and scalp conditioner active compositions of this invention comprise mixtures of amino acids and vitamins in the fol-

lowing proportions given in grams per liter of the active composition:

Table with 3 columns: Component, Minimum, Maximum. Lists various vitamins (B6, B5, B3, Methionine, Arginine, Cysteine, Cysteine hydrochloride, Phenylalanine, Leucine, Lysine, Glycine, Valine, Iso-leucine, Tryptophane, Histidine, Tyrosine, Threonine, Zinc sulfate, Cystine, Propylene glycol, Vitamin D, Vitamin A, Vitamin E) and their respective minimum and maximum amounts in grams or I.U. per liter.

Compositions useful for the treatment of the skin according to this invention comprise mixtures of amino acids and vitamins in the following proportions given in grams per liter of the active composition:

Table with 3 columns: Component, Minimum, Maximum. Lists various vitamins (B5, B6, B3, Arginine, Cysteine, Lysine, Tryptophane, Histidine, Tyrosine, Cystine, Vitamin D, Vitamin A, Vitamin E) and their respective minimum and maximum amounts in grams or I.U. per liter.

The invention includes a method for preparing the novel amino acid-vitamin compositions for hair and scalp conditioners, which comprises a series of manipulative steps to produce stable homogeneous products. These steps include:

- (a) preparation of cystine diluent;
(b) preparation of an amino acid mixture;
(c) preparation of a vitamin mixture using the cystine diluent of step (a);
(d) blending the amino acid mixture of step (b) with the vitamin mixture of step (c);
(e) incorporating additional vitamin components into the mixture of step (d);
(f) adding an aqueous solution of zinc sulfate into the amino acid-vitamin mixture of step (e); and
(g) incorporating adjuvants into the mixture of step (f);

and thus forming a stable homogeneous composition. In addition, this invention encompasses a process for treating the skin and the hair and scalp comprising contacting the skin and the hair and scalp with the respective compositions described above.

Accordingly, it is an object of this invention to provide novel compositions for use in topical cosmetic formulations.

Another object of this invention is to prepare novel compositions which may be incorporated in cosmetic formulations.

A still further object of this invention is to provide a method for the treatment of hair and scalp to condition the hair and revitalize the scalp.

These and other objects are obtained by the present invention, as will become apparent from the following specification and claims.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In accordance with this invention, it has been found that certain amino acids in combination with certain vitamins provide novel compositions which have unusual cosmetic and conditioning properties, while another specific combination of amino acids and vitamins impart unusual cosmetic and conditioning properties to the skin.

Of equal importance is the novel procedure by which these compositions are produced.

The initial step in the process of preparing the hair and scalp active compounds consists of the preparation of a cystine diluent. This involves introducing cystine into a vessel and refluxing until all the cystine dissolves. In another vessel, a mixture of amino acids is dissolved in distilled water and the mixture is heated to boiling, then is refluxed until all the contents dissolve, and then cooled. In yet another vessel, a portion of the cystine diluent made in the first step and the vitamin mixture component are mixed until an emulsion is formed. To this vitamin emulsion is added sequentially the amino acid solution prepared in a separate vessel, a polyhydric alcohol solvent, vitamin D (ergocalciferol in a solution of a lower alkanol), vitamin E (d-α-tocopherol) in an oil and a conventional surfactant. The additional vitamin E (d-α-tocopherol polyethylene glycol 1000 succinate) is added to the resulting solution and thoroughly mixed with zinc sulfate to provide a blend of active compounds.

In the preparation of the skin conditioner active compositions, the cystine diluent, amino acid solution and the vitamin mixture are prepared in the same manner described above, albeit the amino acid combination, and the concentration of amino acid and vitamin mixtures are different. Only, arginine, cysteine, lysine, tryptophane, histidine and tyrosine are the amino acids used in this system. The procedure also differs in that polyhydric alcohol is first added to the amino acid solution and then followed by sequentially adding, a vitamin D solution, the vitamin mixture, a cosmetic base, vitamin E and additional vitamin E in the form of d-α-tocopherol polyethylene glycol 1000 succinate.

It should be understood that other methods of mixing can be used and the order of the manipulative steps can vary without interfering with the efficacy of the active compound, although the stability of the final composition may be less than that desired.

The amino acids employed in this invention encompass the α-amino acids which include neutral α-amino acids, i.e., those having an equal number of amino groups and carboxyl groups, basic α-amino acids, i.e., those having more basic groups than carboxyl groups, and acidic α-amino acids, i.e., those having more carboxyl groups than amino groups. Natural and/or syn-

thetic α-amino acids are intended, including those termed essential and nonessential amino acids.

Examples of essential α-amino acids or derivatives thereof are 1-arginine, which is 1-amino-4-guanidovaleric acid; 1-arginine hydrochloride, which is C₆H₁₄N₄O₂C₆H₃N₃O₇·2H₂O; 1-histidine, which is α-amino-4-imidazolepropionic acid; dl-histidine; 1-histidine dihydrochloride; 1-isoleucine, which is α-amino-β-methylvaleric acid; dl-isoleucine; 1-alloisoleucine; 1-leucine, which is α-aminoisocaproic acid; dl-leucine; 1-lysine, which is αε-diaminocaproic acid; 1-lysine monopicrate, which is C₆H₁₄N₂O₂C₆H₃N₃O₇; 1-lysine dihydrochloride, which is C₆H₁₄N₂O₂·2HCl; 1-lysine monohydrochloride, which is C₆H₁₄N₂O₂·HCl; dl-lysine dihydrochloride; dl-lysine monohydrochloride; dl-monopicrate; 1-methionine, which is γ-amino-α-methylmercaptobutyric acid; dl-methionine; 1-phenylalanine, which is C₆H₅CH(NH₂)CO₂H; dl-phenylalanine; 1-phenylalanine picrolonate, which is C₉H₁₁NO₂·C₁₀H₈N₄O₅; dl-phenylalanine picrate, which is (C₉H₁₁NO₂·C₆H₃N₃O₇; 1-threonine, which is α-amino-β-hydroxybutyric acid; the monobenzoyl derivative of 1-threonine, which is C₁₁H₁₃NO₄; 1-threonine picrate, which is C₁₀H₁₂N₄O₁₀; dl-threonine hemihydrate; dl-threonine; 1-tryptophane, which is 1-α-amino-3-indolepropionic acid; 1-tryptophane hydrochloride, which is C₁₁H₁₂N₂O₂·HCl; 1-tryptophane picrate, which is C₁₁H₁₁N₂O₂·C₆H₆N₃O₇; dl-tryptophane; 1-valine, which is α-aminoisovaleric acid; and dl-valine.

Other α-amino acids and derivatives thereof which can be added, for example, are the following neutral α-amino acids and derivatives thereof: glycine, which is aminoacetic acid, CH₂(NH₂)COOH; glycine hydrochloride; tyrosine, which is α-amino-β-(4-hydroxyphenyl) propionic acid; cysteine, which is α-amino-β-mercaptopropionic acid, HSCH₂CH(NH₂)COOH; cysteine hydrochloride, cystine which is 3,3'-dithiobis(2-amino-propanoic acid); and cystine hydrochloride. The amino acids can be used in either their levorotary (l) or racemic (dl) forms.

The vitamins employed in this invention are a specific mixture of Vitamin A, Vitamin B₃, Vitamin B₅, Vitamin B₆, Vitamin D and Vitamin E. The vitamins are incorporated into the formulations in any suitable form. Examples of vitamins which are added are listed below: Vitamin A is 3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,4,6-nonatetraen-1-ol and can be produced by total synthesis. The esters of Vitamin A are more stable to oxidation. Vitamin A acetate is C₂₂H₃₂O₂, and can be extracted from fish liver oils. Neovitamin A is 5-cis-Vitamin A and is naturally occurring isomer of vitamin A. Vitamin B₃ is nicotinic acid amide or niacinamide. Vitamin B₅ is pantothenic acid or can be in the salt form of calcium-d-pantothenate. Vitamin B₆ is pyridoxine. Vitamin B₆ hydrochloride is also termed pyridoxine hydrochloride and is 5-hydroxy-6-methyl-3,4-pyridine dimethanol hydrochloride, which is an advantageous form of Vitamin B₆ which may be used in the practice of this invention. Vitamin D is 9,10-secoergosta-5,7,10(19), 22-tetraen-3β-ol or ergocalciferol. Vitamin E refers to α-tocopherol and α-tocopherol derivatives, such as α-tocopherol esters including α-tocopheryl acetate, α-tocopheryl orotate and preferably, α-tocopherol polyoxyalkylene glycol moiety, generally referred to as the polyethylene glycol moiety of the ester, has a molecular weight in a range from about 600 to about 6000, and preferably, from

about 600 to about 1500. An example of such an ester and one which has been found to be particularly effective is α -tocopheryl polyoxyethylene glycol (1000) succinate wherein the polyoxyethylene glycol moiety of the molecule has an average molecular weight of about 1000.

The blends of the active compositions of this invention used for treating skin and hair and scalp have a pH range from about 4 to 8, and preferably, from about 4 to 6.

Suitable surface active agents may be incorporated into the active composition and may be nonionic or cationic in nature. Suitable anionic surfactants which are co-soluble with the water-alcohol solvent medium include the alkali metal salts of sulfated fatty alcohols or mixtures thereof having about 8 to 18 carbon atoms, e.g., sodium and potassium salts of sulfated cetyl alcohol, sodium and potassium salts of sulfated stearyl alcohol, sodium and potassium salts of sulfated lauryl alcohol, sodium and potassium salts of sulfated coconut fatty alcohols, and the like; alkali metal salts of alkyl esters of sulfated succinic acid having about 8 to 18 carbon atoms in the alkyl group such as the sodium salt of the dioctyl ester of sulfated succinic acid; alkali metal salts of sulfated fatty acid amides having 8 to 18 carbon atoms, e.g., sodium and potassium salts of sulfated lauric amide, sodium and potassium salts of sulfated stearic amide, sodium and potassium salts of sulfated oleic amide, sodium and potassium salts of ricinoleic amide, and the like.

Suitable compatible nonionic surfactants include alkylamine oxides having about 8 to 18 carbon atoms, such as myristyldimethylamine oxide, cetyldimethylamine oxide, lauryldimethylamine oxide, stearyldimethylamine oxide, and the like; fatty acid mono- and di-alkanolamides having about 8 to 18 carbon atoms such as lauric monoethanolamide, myristic monoethanolamide, stearic monoethanolamide, lauric diethanolamide, stearic diethanolamide, mixtures of coconut fatty acid mono- and di-ethanolamide. Further, suitable nonionic surfactants include polyethylene oxide condensates of castor oil. Other suitable nonionic surfactants include condensates of fatty acids, fatty alcohols, and fatty hydroxy acids, which are characteristic of lanolin or wool-fat, with 50 to 70 moles ethylene oxide. Such ethylene oxide condensates are available as water-soluble lanolin designated as ethoxylated lanolin. Acetylated derivatives of these ethoxylated lanolins may also be used as water-alcohol soluble nonionic surfactants. Additional suitable nonionic surfactants include condensates of higher fatty acids having about 8 to 18 carbon atoms, such as ricinoleic acid, with 3 moles ethylene oxide and condensates of the higher fatty alcohols having about 8 to 18 carbon atoms, exemplified by iso-octyl alcohol, nonyl alcohol, decyl alcohol, and oleyl alcohol, with 3 moles ethylene oxide.

Suitable cationic surfactants include the quaternary ammonium compounds of mono- and di-alkylamines having from 8 to 18 carbons in the alkyl chain such as hexyltrimethyl ammonium chloride, dihexyldimethyl ammonium chloride, octyltrimethyl ammonium chloride, dioctyldimethyl ammonium chloride, 25 distearyldimethyl ammonium chloride, dicoco dimethyl ammonium chloride, and the like.

Preferred surfactants for use in this invention are non-ionic surface active agents which are polyoxyalkylene derivatives of hexitol anhydride partial fatty acid esters (e.g. TWEEN® manufactured by I.C.I. United

States, Wilmington, Delaware. Particularly preferred is a polyoxyalkylene derivative of sorbitan monooleate TWEEN® 80).

The surfactant component is well known in the surfactant art and are employed in effective amounts, i.e., in an amount which is sufficient to provide a stable composition having skin, hair and scalp conditioning properties. In general from from about 0.05 to about 5 weight percent and preferably from about 0.5 to about 2 weight percent of a suitable surfactant or mixture of surfactants, based on the total weight of the final compositions, has been found satisfactory. Excessive amounts of surfactant tend to produce foams which are sticky and tacky to the touch, while insufficient amounts of surfactants provide a product having insufficient surface activity and skin, hair and scalp conditioning power.

The solvent system employed in the present invention comprises water and a mixture of monohydric and polyhydric alcohols. Any lower alkanol having one to 3 carbon atoms, e.g., methanol, ethanol, n-propanol and isopropanol can be employed. Polyhydric alcohols include lower alkylene glycols such as ethylene glycol, propylene glycol and glycerine.

The active compositions of this invention can also contain other known adjuvants, including for instance, bactericidal and bacteriostatic agents, detergents, penetrating agents, dyes, perfumes and the like. The carrier or excipient employed with the active compositions will depend on the form of the product desired. Additional ingredients, such as water, mineral oil, lanolin, lanolin derivatives, waxes, gelling agents, and suitable solvents can be compounded with the compositions of this invention to provide the desired form. It is well within the purview of those skilled in the cosmetic and pharmaceutical art to formulate stable lotions, creams, gels or aerosols containing the novel compositions. Thus, the active compounds can be applied topically to the skin and the hair and scalp as an aqueous dispersion, as a cream, as a gel, as a shampoo or an aerosol.

The blends of final formulations used for treating skin, hair and scalp have a pH range of from about 3 to 9 and preferably, about 4 to 6. This pH range is controlled by use of buffering agents well known to the art. In general, the buffering agents are prepared by using a solution of acids and salts, or alkali and salts. Examples of buffering solutions comprising weak acids and salts would be boric acid and sodium borate, citric acid and sodium citrate, citric acid and sodium biphosphate. Exemplary, of buffering solutions with either strong acids or bases and salts would be for example, potassium acid phthalate and hydrochloric acid mixtures and potassium acid phthalate and sodium hydroxide mixtures.

The term "topical" as employed in this application relates to the introduction of the cosmetic, incorporated in a suitable base or vehicle at the site of the area for the exertion of local action. Accordingly, such topical compositions include those forms in which the cosmetic formulation is applied externally by direct contact with the surface to be treated. Conventional forms for this purpose include ointments, lotions, pastes, jellies, powders, and the like. The term "ointments" embraces formulations (including creams) having oieogenous absorption, water-soluble and emulsion-type bases as described in *Reminton's Practice of Pharmacy*, 11th Edition (1956) page 336, Mack Publishing Company. Topical compositions as herein defined include also those forms which afford local as opposed to systemic release into

the immediate affected areas where such areas are not accessible for direct external application, such forms being sprays, aerosols, drops, powders, sterile aqueous suspensions and the like.

In accordance with the present invention, the novel active compositions in a suitable carrier may be topically applied to the hair and scalp of the subject to improve overall conditions of the hair and scalp. The blend of active compounds for hair and scalp is present in amounts of 1 to 25 weight percent of the final formulation and preferably about 5 to 15 weight percent. As an added benefit, topical application to the hair imparts softness, fuller body and luster characteristics to the hair. Additionally, the hair remains natural in appearance and in feel and retains these properties over a long period.

In accordance with the present invention, a method for the treatment of hair and scalp conditioning involves the steps of applying sufficient heat, either wet or dry, by conventional means, to the scalp of the person to be treated until the pores are opened; topically applying to the scalp about 2 to 50 cc and preferably 2 to 10 cc of the above-described composition, depending on the area to be covered; further applying sufficient heat to the scalp until the composition is absorbed by the scalp. This treatment is continued daily for approximately sixty days; thereafter, if desirable, the frequency of the treatment can be reduced to once a day for five days per week until the symptoms subside and then can be replaced by the application of a hair lotion containing said composition to the hair and scalp, or even by shampooing the scalp weekly with a detergent-containing solution of said composition. The beneficial effects produced by the practice of the present invention essentially can be observed by a healthier and cleaner scalp, the softness of the hair is enhanced and the general appearance thereof is improved.

In accordance with the present invention, it has been found that other specific novel amino acid-vitamin compositions are useful for the treatment of human skin. The skin conditioner may be applied in any convenient form described above. The compositions of this invention impart a smoothness and lubricity to the skin and enhance its complexion. Suitable concentrations of the active compositions for skin treatment can range from 5 weight percent to 25 weight percent of the final formulation, and preferably from 5 to 15 weight percent.

The following examples illustrate the present invention:

EXAMPLE I

Preparation of a hair and scalp conditioner.

The following process steps were employed:

- (a) A cystine diluent is prepared by introducing 0.09 g of cystine into a screw-top flask containing 1 liter of distilled water, the contents are heated to boiling and refluxed until the cystine dissolves completely. The solution is cooled to room temperature.
- (b) An amino acid mixture is prepared in another screw-top flask containing 250 ml of distilled water; the following mixture of amino acids was introduced:

l-tyrosine	0.10 grams
d1-histidine	0.30
l-tryptophane	0.30
l-iso-leucine	0.53

-continued

l-valine	0.53
glycine	1.00
l-lysine monohydrochloride	1.00
l-leucine	1.58
l-phenylalanine	1.88
l-cysteine	2.10
l-cysteine hydrochloride	2.10
l-arginine	2.10
d1-methionine	3.25
d1-threonine	2.10

This mixture is boiled with constant agitation. Reflux conditions are maintained until all the amino acids are dissolved. Then the heating is discontinued and the solution cooled and maintained at 30° C.

- (c) A vitamin mixture is prepared in yet another flask containing 125 ml of the cystine diluent made above by introducing the following:

pyridoxine hydrochloride	6.25 grams
calcium-d-pantothenate	5.25
niacinamide	5.25
Vitamin A palmitate	0.52

The mixture is stirred until all the ingredients are dispersed and the mixture is homogeneous.

- (d) In a separate glass flask, a solution of ergocalciferol (Vitamin D) is prepared by dissolving 0.02 grams with 10 ml ethanol or isopropanol.
- (e) A solution containing 250 ml of the amino acid mixture and 125 ml of the vitamin mixture is prepared. To this solution is added with stirring 650 ml of propylene glycol U.S.P. followed by the addition of 2.5 ml of the ergocalciferol solution prepared in step (d). Next, 12.5 ml of Tween 80 and 33,400 I.U. of d- α -tocopherol in vegetable oil are introduced and thoroughly agitated until the resulting solution is homogeneous.
- (f) An addition of 2,600 I.U. of D- α -tocopherol polyethylene glycol 1000 succinate in the liquid phase is added to the homogeneous solution prepared in step (e).
- (g) To the resulting composition in step (f), an aqueous solution prepared by dissolving 2.5 grams of zinc sulfate (ZnSO₄·7H₂O) in 50 ml of distilled water is added with mixing. An effective amount of a suitable fragrance is added to provide a milky white lotion as a final product.

Tween 80 is a polyoxalkylene derivative of sorbitan monooleate, manufactured by the ICI United States, Inc., Wilmington, Del.

EXAMPLE II

Preparation of a skin lotion.

The following process steps are employed:

- (a) A cystine diluent is prepared by introducing 0.09 g of l-cystine into 1 liter of distilled water, the contents are heated to boiling and refluxed until complete dissolution of the cystine occurs.
- (b) In 328 ml of distilled water combine the following:

l-arginine	1.48 grams
l-cysteine	0.82
l-lysine monohydrochloride	0.82

-continued

l-tryptophane	0.32
d1-histidine	0.16
l-tyrosine	0.13

Mix well and heat to boiling. Reflux until all the amino acids are dissolved. The refluxing should be accomplished with a minimum loss of water. Remove from reflux and cool to about 30° C.

(c) Into 82 ml of the cystine diluent prepared in step (a), the following were introduced:

calcium-d-pantothenate	4.92 grams
pyridoxine hydrochloride	2.80
niacinamide	1.64
Vitamin A palmitate	0.55

The mixture is stirred constantly until the blend is emulsified.

The Vitamin A palmitate disperses evenly, but will not dissolve.

(d) In a separate flask, a solution is prepared by dissolving 0.02 gram of ergocalciferol (40,000,000 I.U. units/gram) in 10 ml of ethanol or isopropanol.

(e) To the aqueous amino acid solution prepared in step (b), 295 ml of propylene glycol and 246 ml of glycerol are added with constant stirring.

(f) To the solution prepared in step (e) is added with stirring 1.6 ml (131,200 I.U. units) of the ergocalciferol solution from step (d).

(g) With constant agitation, the vitamin blend of step (c) is added to the amino acid solution prepared in step (f).

(h) To the composition prepared in step (g), 59,000 I.U. of d-α-tocopherol (in oil) is added with constant stirring.

(i) To this liquid composition prepared in step (g), 2,600 I.U. of d-α-tocopherol polyethylene glycol 1000 succinate is added.

(j) An effective amount of a suitable fragrance is added to the composition of step (i) before it solidifies.

(k) The resulting mixture prepared in step (j) is added with stirring to 187 grams of a greaseless ointment base comprising sodium lauryl sulfate, cetyl alcohol, propylene glycol and a paraffin wax; stirring is continued until a homogeneous emulsion is obtained.

It should be understood that the various changes may be made in our process as herein described without affecting the improved results attained. Thus, the various modifications in conditions as to time, temperature, etc., and various changes in procedure differing from those herein given as illustrative of the preferred embodiments of our invention may be made without departure from the scope thereof. Accordingly, the scope of our invention is to be determined in accordance with the prior art and appended claims.

What is claimed is:

1. A composition for topical application to hair and scalp to enhance softness and luster and impart fuller body to the hair comprising a mixture of amino acids and vitamins in the following proportions given in grams per liter of the final composition:

	Minimum	Maximum
Vitamin B ₆	1.80 grams	12.00 grams
Vitamin B ₅	1.80	15.00
Vitamin B ₃	1.20	7.50
Methionine	0.75	4.00
Arginine	0.54	5.00
Cystine	1.60	6.20
Phenylalanine	0.45	2.50
Leucine	0.30	2.25
Lysine	0.20	3.00
Glycine	0.28	2.50
Valine	0.10	2.00
Iso-leucine	0.12	2.00
Tryptophane	0.06	1.20
Histidine	0.05	0.50
Tyrosine	0.03	0.20
Threonine	0.40	3.40
Zinc sulfate	2.50	3.00
Vitamin D	100,000.0 I.U.	200,000.0 I.U.
Vitamin A	34,000.0 I.U.	170,000.0 I.U.
Vitamin E	13,050.0 I.U.	43,000.0 I.U.
in an excipient.		

2. The composition according to claim 1, additionally containing at least one monohydric and at least one polyhydric alcohol.

3. The composition according to claim 2, wherein the said alcohol is selected from the group consisting of lower alkanols, alkylene glycols and glycerols.

4. The composition according to claim 1, additionally containing a cationic or nonionic surfactant.

5. The composition according to claim 4, wherein the surfactant is a polyoxyalkylene derivative of sorbitan monooleate.

6. The composition according to claim 1, wherein said composition is in the form of a stable emulsion.

7. The composition according to claim 1, wherein said excipient is a pharmaceutically acceptable base.

8. The composition according to claim 1 as a lotion.

9. The composition according to claim 1 as a cream.

10. A method of treating hair and scalp to enhance softness and luster and to impart fuller body to the hair comprising the step of topically applying to the hair and scalp, as an active composition, the mixture of amino acids and vitamins according to claim 1.

11. The method of treating hair and scalp according to claim 10, comprising the steps of applying sufficient heat to open the pores of the scalp, topically applying said composition to said hair and scalp, and drying the treated hair and scalp.

12. The method of claim 10, wherein the final composition contains from 1 to 25 weight percent of said active composition.

13. The method of claim 12, wherein the final composition contains from 5 to 15 weight percent of said active composition.

14. A composition for topical application to the skin to improve the general appearance thereof comprising a mixture of amino acids and vitamins in the following proportions given in grams per liter of the final composition:

	Minimum	Maximum
Vitamin B ₁	2.90 grams	9.00 grams
Vitamin B ₆	1.40	6.00
Vitamin B ₃	0.90	5.00
Arginine	0.86	6.00
Cystine	0.40	2.00
Lysine	0.89	2.50
Tryptophane	0.19	1.00
Histidine	0.10	0.50

-continued

	Minimum	Maximum
Tyrosine	0.10	0.20
Cystine	0.003	0.02
Vitamin D	100,000.0 I.U.	200,000.0 I.U.
Vitamin A	34,000.0 I.U.	170,000.0 I.U.
Vitamin E in an excipient.	35,050.0 I.U.	73,000.0 I.U.

15. The composition according to claim 14, wherein said excipient is a greaseless ointment base comprising sodium lauryl sulfate, cetyl alcohol, propylene glycol and a paraffin wax.

16. The method of treating skin to improve the general appearance thereof which comprises the step of topically applying to the skin area as an active composition the mixture of amino acids and vitamins according to claim 14.

17. The method of claim 16, wherein the final composition contains from 5 to 25 weight percent of said active composition.

18. The method of claim 17, wherein the final composition contains from 5 to 15 weight percent of the active composition.

19. A method for the preparation of a composition comprising a mixture of amino acids and vitamins for topical application to the hair and scalp which comprises the steps of:

- (a) preparing a cystine diluent by combining cystine and water and heating until the cystine dissolves in the water;
- (b) preparing an aqueous solution of the following amino acids: methionine, arginine, cysteine, phenylalanine, leucine, lysine, glycine, valine, iso-leucine, tryptophane, histidine, tyrosine and threonine;
- (c) preparing a vitamin blend of vitamin A, vitamin B₃, vitamin B₅ and vitamin B₆ in the cystine diluent prepared in step (a);
- (d) combining the aqueous amino acid solution of step (b) with the vitamin blend of step (c); and
- (e) incorporating vitamin D and vitamin E into the mixture of step (d);
- (f) adding an aqueous solution of zinc sulfate into the amino acid-vitamin mixture of step (e);
- (g) incorporating an excipient into the mixture of step (f) and thus forming a stable homogeneous composition;

wherein the amount of the active amino acids and vitamins in the final composition are in the following proportions given in terms of grams per liter:

Active Ingredient	Minimum	Maximum
Vitamin B ₆	1.80 grams	12.00 grams
Vitamin B ₅	1.80	15.00
Vitamin B ₃	1.20	7.50
Methionine	0.75	4.00
Arginine	0.54	5.00
Cysteine	1.60	6.20

-continued

Active Ingredient	Minimum	Maximum
Phenylalanine	0.45	2.50
Leucine	0.30	2.25
Lysine	0.20	3.00
Glycine	0.28	2.50
Valine	0.10	2.00
Iso-leucine	0.12	2.00
Tryptophane	0.06	1.20
Histidine	0.05	0.50
Tyrosine	0.03	0.20
Cystine	0.003	0.02
Threonine	0.40	3.40
zinc sulfate	2.50	3.00
Vitamin D	100,000.0 I.U.	200,000.0 I.U.
Vitamin A	34,000.0 I.U.	170,000.0 I.U.
Vitamin E	13,050.0 I.U.	43,000.0 I.U.

20. A method for the preparation of a composition comprising a mixture of amino acids and vitamins for topical application to the skin which comprises the steps of:

- (a) preparing a cystine diluent by combining cystine and water and heating until the cystine dissolves in the water;
- (b) preparing an aqueous solution of the following amino acids: arginine, cysteine, lysine, histidine and tyrosine;
- (c) preparing a vitamin solution comprising vitamin A, vitamin B₃, vitamin B₆ and vitamin B₅ in the cystine diluent of step (a);
- (d) separately preparing a vitamin D solution;
- (e) adding to the aqueous amino acid solution prepared in step (b) at least one polyhydric alcohol;
- (f) adding to the solution prepared in step (c) a portion of the vitamin D solution of step (d);
- (g) combining the resulting amino acid solution of step (f) with the vitamin blend of step (c);
- (h) adding vitamin E to the components of step (g) and mixing until the mixture becomes homogeneous;
- (i) adding the composition of step (h) to an excipient with constant stirring until the composition becomes homogeneous and thus forming a stable composition;

wherein the amounts of the active ingredient amino acids and vitamins in the final composition are in the following proportions given in terms of grams per liter:

	Minimum	Maximum
Vitamin B ₅	2.90 grams	9.00 grams
Vitamin B ₆	1.60	6.00
Vitamin B ₃	0.90	5.00
Arginine	0.86	6.00
Cysteine	0.40	2.00
Lysine	0.89	2.50
Tryptophane	0.19	1.00
Histidine	0.10	0.50
Tyrosine	0.10	0.20
Cystine	0.003	0.02
Vitamin D	100,000.0 I.U.	200,000.0 I.U.
Vitamin A	34,000.0 I.U.	170,000.0 I.U.
Vitamin E	35,050.0 I.U.	73,000.0 I.U.

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