

Copper peptides: Can you 'repair' a wrinkle?

If aging, as some say, is a disease, then wrinkles can be viewed as small, improperly healed wounds. Indeed wrinkles are characterized by incorrect deposition of collagen and imperfect skin cell layering, which is also seen in healed wounds albeit on a much larger scale. If so, could the agents that modify the process of wound healing (by minimizing scar formation and improving skin remodeling) have a potential to prevent or even reduce wrinkles? Well, possibly. A good example of a wound-healing agent that appears to also have anti-wrinkle potential is the class of compounds called copper peptides.

What exactly are copper peptides and how can they boost skin rejuvenation? Generally speaking, peptides are small fragments of proteins. (And the proteins are the key building blocks of most living tissues.) Certain kinds of peptides have an avid affinity for copper, to which they bind very tightly. The resulting compound consisting of a peptide and a copper atom has become known as a copper peptide.

The benefits of copper peptides for tissue regeneration were discovered by Dr. Loren Pickart in the 1970s. He found and patented a number of specific copper peptides (in particular, GHK copper peptides or GHK-Cu) that were particularly effective in healing wounds and skin lesions as well as some gastrointestinal conditions. One of the end results of this research was lamin gel approved by the FDA for the treatment of acute and chronic wounds and ulcers.

A lot of substances can have a positive effect on wound healing. A distinctive feature of GHK copper peptides is that they reduce scar tissue formation while stimulating normal skin remodeling. In other words, they help better restore the damaged area to its original look.

The mechanism of copper peptide action is relatively complex. GHK-Cu induces the degradation of "extra-large" collagen aggregates found in scars and promotes the synthesis of smaller more regular collagen found in normal skin. It also promotes the synthesis of elastin, proteoglycans, glycosaminoglycans and other components of skin matrix. Other important effects of GHK-Cu include the ability to regulate the growth rate and migration of different types of cells; significant anti-inflammatory action; and the ability to prevent the release of oxidation-promoting iron into the tissues. The net result is a faster, better and "cleaner" healing.

You might say it's nice to have cleanly healed wounds, but what about people who do not have any wounds or ulcerations to heal? Can copper peptides be useful for regular skin protection and rejuvenation? It appears that they can. However, while the wound healing effects of copper peptide have been investigated and documented in many studies, much less research has been done so far on their cosmetic and anti-aging use. The available evidence indicated the following potential skin benefits:

- Many existing skin care treatments are based on the concept of removing the outermost or even deeper layers of the skin. The resulting healing process stimulates skin remodeling leading to smoother, younger looking skin. Since copper peptides optimize healing and improve skin remodeling, then can augment the effect of treatments based on various forms of controlled skin injury. In particular, copper peptides can be useful after various forms of laser resurfacing, dermabrasion, and chemical peels.
IMPORTANT: If you are considering using copper peptides after a particular procedure, make sure to discuss it with your physician.
- Copper peptides are effective against various forms of skin irritation, mainly due to their anti-inflammatory effects. Skin irritation, even in the absence of open lesions, dramatically accelerates skin aging by promoting the formation of free radicals and other toxic byproducts. Some common skin rejuvenation treatments, such as tretinoin (Retin A, Renova) and alpha hydroxy acids, can cause irritation. If during treatment you experience skin irritation for an extended period of time, your skin will likely end up in a worse shape than when you started. In many cases, copper peptides can reduce or eliminate the irritation and help maximize treatment benefits.

- It is always easier to prevent the damage than to fix it later. To a significant degree, skin aging is caused by the accumulation of minor day-to-day damage from sun, wind, detergents, acne, abrasions and so forth. As these minute lesions heal, they leave microscopic imperfections, which, eventually, accumulate to become visible signs of aging. While it remains to be further researched, it appears that copper peptide can help minimize the damage from daily wear and tear of the skin. For instance, one study demonstrated that copper peptides helped recover skin integrity after exposure to SLS, a common detergent found in many shampoos, cleansers, and dishwashing/laundry products.
- It remains unclear whether copper peptides can reverse wrinkles and other signs of aging in the intact skin. Theoretically, it is possible since copper peptides promote the degradation of abnormally large cross-linked collagen (the one found in scars and, to a lesser degree, in wrinkles). They also stimulate the production of "regular" collagen found in normal skin. In one small study, copper peptides stimulated collagen production in the intact skin. In fact, in that study copper peptides produced a stronger stimulation of collagen synthesis than tretinoin (Retin A, Renova) or ascorbate (vitamin C).

At present, several skin care companies offer a range of copper peptide products. However, to the best of my knowledge, all copper peptides in these products are based on Dr. Pickart's patents.

Caution: While moderate use of copper peptides stimulates collagen synthesis and has antioxidant effect (by stimulating the antioxidant enzyme superoxide dismutase), excessive use can have an opposite effect by increasing the levels of free copper and/or by triggering excessive production of metalloproteinases. Free copper promotes free radical damage and collagen breakdown leading to accelerated skin aging. Metalloproteinases can digest collagen and elastin, weakening the skin and causing sag. These problems do not seem to occur among the majority of copper peptide users. However, there are anecdotal reports indicating that such side-effects might happen with overuse or, rarely, even normal use in sensitive individuals. Ideally, a sufficiently large study is needed to better quantify these risks.

The bottom line

Copper peptides are a promising skin treatment with a good safety profile. Their ability to improve the healing of various types of skin lesions is well established. It is likely that copper peptides may slow down the development of the signs of skin aging by limiting the consequences of daily wear and tear. Also, copper peptides may augment the results of the skin rejuvenation treatments based on controlled skin injury, such as laser resurfacing, dermabrasion and peels. There are also indications that copper peptides have the potential to improve wrinkles and skin texture on their own. However, more extensive and prolonged studies are required to definitively prove it. Also, it appears that copper peptides may cause rare but significant skin damage in some cases of overuse or unusual sensitivity. Further practical details of optimal selection and prudent use and using copper peptides products are discussed in [Skin Rejuvenation Infopack](#).

Search Skin Biology

Quick Shop

VIEW ALL PRODUCTS

[Shop by Skin Condition](#)

[Shop by Skin Type](#)

Skin Biology Aging Reversal

**At Home Use of
SRCPs for Different
Skin Types and Skin
Problems**

BEST SELLERS:

- [CP Serum](#)
 - [Super CP Serum](#)
 - [Super Cop Cream](#)
 - [Super Cop Cream 2X Strength](#)
 - [Super GHK-Copper](#)
 - [Emu Oil-S Lipid Replenisher](#)
 - [Two Timing Tightener](#)
 - [Folligen Therapy Spray](#)
 - [Folligen Therapy Shampoo](#)
 - [Folligen Nutrient Cream](#)
-



- [NEW! FOOT CREAM](#)
- [Sebum Be Gone](#)
- [Two Timing Tightener](#)
- [Super GHK-Copper](#)
- [LacSal Cream / LacSal Serum](#)
- [Body Perfume Spray](#)
- [Tin Peptide Nail Renewal](#)

TIPS ON USING SRCPS

- [Before and After Pictures](#)
- [Frequently Asked Questions](#)

- [Order by Mail](#)
- [Bulk Purchases](#)

- [Skin Biology Policies](#)
- [USA Postage Rates](#)

- [International Postage Rates](#)

CONTACT SKIN BIOLOGY

- [Contact Dr. Pickart](#)
- [Need Help Ordering Online?](#)



Questions about our products
or need advice about what is
best for you?
Call Toll-Free 800-405-1912-
Talk to Real People - No Phone
Menus!
Weekdays - Best Time - 8 am
to 6 pm, Pacific Time
or please send an email to
[Contact Skin Biology](#)

Our Recommendations for Using Copper Peptides for "At-Home" Skin Remodeling

These recommendations are based on my research studies over the past 20 years on the skin's response to various types of copper peptides. We also have been greatly aided by reports from thousands of clients plus

[Driving Directions](#)

[Honest Skin Care Advice](#)

Skin Products

[Remodeling - The Key to](#)

[Skin Beauty](#)

[Acne Scars](#)

[After Shave Repair](#)

[Age Spots](#)

[Anti-Wrinkle Over 30](#)

[Anti-Wrinkle Under 30](#)

[Anti-Wrinkle with Rosacea](#)

[Arms and Legs](#)

[Breast Skin Care](#)

["Bumpy" Skin](#)

[Day Cover](#)

[Eye Skin Tightening](#)

[Exfoliators](#)

[Eyebrow / Eyelash Loss](#)

[Face - Youthful "Glow"](#)

[Foot Care](#)

[Fragile Nails](#)

[Fragile Skin](#)

[Gentle Cleanser](#)

[Heal After Dermabrasion](#)

[Laser Burns](#)

[Loose Skin](#)

[Looking Younger](#)

[Than Your Daughter](#)

[Make Up Remover](#)

[Mature Skin Renewal](#)

[Moisturizers](#)

[Models and Actors](#)

[Moles](#)

[Neck Skin](#)

[Nursing Mothers](#)

[Scars](#)

[Sensitive Skin Cleanser](#)

[Skin Blemishes](#)

[Skin Peel Irritation](#)

[Skin Tags](#)

[Stretch Marks](#)

[Stronger Hydroxys](#)

[Strongest Copper-Peptides](#)

[Sun Damage Removal](#)

[Sun Marks - Décolletage](#)

[Tearing Nails](#)

[Tighten Sagging Skin](#)

dermatologists, estheticians, make up artists and cosmetologists at clinics, spas, and salons.

The recommendation below are of products containing Dr. Pickart's Second Generation Skin Remodeling Copper Peptides.

Products built around Pickart's First Generation Skin Remodeling Copper Peptides are sold by Neutrogena, Procyte, and Simple Solutions.

Facial Skin Remodeling - What to Use	
Facial Skin Type and Goal	Treatment Options
Dry facial skin	CP Serum plus Emu Oil
Dry facial skin (second option)	CP Serum plus Squalane/Retinol
Dry facial skin (third option)	Protect & Restore #3
Very dry facial skin	Use CP Serum plus Emu Oil in the morning and Protect & Restore #3 at night
Generally dry facial skin with too many small bumps and sun damage marks	Exfol Cream in the morning and Protect & Restore #3 at night
Generally dry facial skin with too many small bumps and sun damage marks but want faster	CP Serum in the morning plus emu oil Alternate Protect & Restore , Exfol Cream at night

[Under MakeUp Protection](#)

Hair Products

[Male Hair Loss](#)

[Female Hair Loss](#)

[Shampoo](#)

[Conditioner](#)

[Relaxer Damage](#)

[Irritated Scalp](#)

[Post Transplant](#)

[After Hair Removal](#)

[For Blondes](#)

Body Perfumes with Pheromones

[Attract Women](#)

[Attract Men](#)

[Relaxing](#)

Suntanning

[Suntan Lotion](#)

[Post Tanning Cream](#)

Better Health for Extra Sensitive Skin

[Burn Scars](#)

[Dermatitis](#)

[Diabetes](#)

[Dry, Cracking Skin](#)

[Eczema](#)

[Insect Bites](#)

[HIV](#)

[Psoriasis](#)

[Radiation Burns](#)

[Sjogren's Syndrome](#)

[Skin Allergies](#)

[Wheelchairs](#)

Other Information

[Unauthorized and Counterfeit Products](#)

[Notice of Inaccurate Press Release](#)



effects	
Generally dry facial skin with too many small bumps and blemishes but want fastest effects	<u>Super CP</u> serum in the morning plus emu oil Alternate <u>Super CP</u> and <u>Exfol Cream</u> at night
Oily skin - some breakouts	<u>Exfol Serum</u> in the morning and <u>CP Serum</u> at night
Oily skin but want faster action	<u>Exfol Serum</u> in the morning and <u>Super CP Serum</u> at night
Oily skin - no breakouts	<u>Exfol Serum</u> in the morning and Protect & Restore #2 at night
Oily facial skin with too many small bumps and sun damage marks	<u>Exfol Serum</u> in the morning and <u>CP Serum</u> at night
Oily facial skin with too many small bumps and sun damage marks- want faster action	<u>Exfol Serum</u> in the morning and Super CP Serum at night
Oily facial skin with too many small bumps and sun damage marks - want fastest action	Use a 30 to 40% glycolic acid in the morning - See <u>www.scar-reduction.com</u> for sources of these glycolics <u>Super CP Serum</u> at night

Combination skin - oily T-Zone and dry outer facial areas	Exfol Serum in morning CP Serum in T-Zone and P&R3 in dryer areas
Combination skin - breakout prone	Exfol Serum in morning Super CP Serum at night
Want more skin "glow"	CP Serum
Sensitive Skin	CP Serum followed by Emu Oil in the morning If OK do this morning and night
Rosacea	CP Serum followed by Emu Oil for Skin in the morning
Seborrheic skin	Protect & Restore #2
To protect skin from damage by Make Up colors - oil free	CP Serum
To protect skin from damage by Make Up colors - oil free, more antioxidants	Super CP Serum
To protect skin from damage by Make Up colors - cream base for Make Up	Protect & Restore #2
Protective day cover with copper	Protect & Restore #7 Day Cover

peptides, antioxidants, and sun blocker (titanium dioxide)	
Not certain what to use	Facial Regeneration Test Kit
For reducing various types of skin scars and marks	Go to www.scar-reduction.com

The Color Make Up Problem

Color Make Up creates beautiful skin tones but the dyes and metal salts in the Color Make Up can be very toxic to skin and can also cause severe hair loss in women by age 40, particularly on the eyebrows and eyelashes. Underlying your makeup with a very light coating of P&R Day Cover, Super Cop, or Super CP Serum creates a protective anti-oxidant barrier and helps repair any skin damage caused by the dyes and metal salts.

Special Skin Areas - Remodeling - What to Use	
Skin around the eyes, start slowly, this is usually a very damaged area, sensitive, fragile and reactive	Start Premier CP Night Eyes Next CP Night Eyes Regular Eventually switch to Super CP Serum or Super Cop
Breast and décolletage - improve skin quality and glow	Protect & Restore for Breasts, Nipples, & Décolletage

Breast and décolletage - remove sun damage and tighten loose skin	Exfol Cream in morning Protect & Restore for Breasts, Nipples, & Décolletage at night
General Body Skin Care	Protect & Restore Body Renewal Lotion
Hands and feet - irritated skin	BioHeal
Elbows	BioHeal

Combination Therapies			
Copper Peptides used with in combination:	How to Use	Effects	Cautions
Low strength hydroxy acids such as 7 to 15% glycolic acid or 1 to 2% salicylic acid	1. Hydroxy acid slowly dissolves older skin and skin lesions 2. Copper peptides keep irritation down and help skin repair	Much faster skin remodeling	Too much hydroxy acid can be irritating
Strong hydroxy acids such as 30 to 70% glycolic acid or 17% salicylic acid (Deep peels)	1. Strong acid peels away skin blemishes and scars	Often very rapid skin remodeling and scar removal	Can be very irritating, need an expert to apply hydroxys
Retinoic acid (Retin-A)	1. Usually mixed with a copper	Users report good skin	

	peptide product then applied	effects without redness and irritation	
Micro-Dermabrasion	1. CP Serum applied after dermabrasion	Faster healing, less scarring	
Lasers	1. CP Serum applied after laser procedure	Faster healing, less scarring	

Comparing Copper Peptides

What are Skin Remodeling Copper Peptides?

Certain types of copper-peptide complexes have a broad range of tissue regenerative and remodeling actions. The only types of copper peptides complexes that have been proven to have these actions are those invented by Dr. Pickart after he started ProCyte Corporation (now licensed by several companies such as Neutrogena) and Pickart's newer inventions from Skin Biology. At Skin Biology, we tested over 100 promising copper-complexes before finding the exceptional regenerative actions of a specific fraction of soy protein peptides.

The new breakdown-resistant copper peptides from Skin Biology are designed to give a longer acting effect and stronger skin regeneration. Because of their exceptional stability, they can be used with hydroxy acids for skin renewal.

Because of a number of patents on the uses of various copper peptides held by ProCyte Corporation and others by Skin Biology Incorporated, some cosmetic companies have resorted to using unpatented and untested copper peptides or other copper complexes.

Not all copper-peptides and copper-complexes have these actions. A number of companies sell copper complexes claiming to help skin but there is no credible scientific evidence (such as peer-reviewed publications in dermatology journals) that these complexes give effective skin regeneration. We have tested many of these products and found only marginal activity at best. Most had no activity and some actually inhibited skin renewal. Some are made with yeast and bacteria peptides that may cause allergic reactions in sensitive persons.

Other companies have jumped on the peptide bandwagon with single peptides but these appear to be similar in action to scar producing peptides that were extensively studied for potential uses as wound healing drugs but failed due to excessive scar formation.

For more information on these comparisons, please visit www.skinbiology.com/comparingcopperpeptides.html

Copper Peptides

Copper peptides first arrived on the market in 1997 and are the most effective skin regeneration and skin remodeling products (removal of blemishes and scars) that are readily available. There are several of such copper-peptide skin renewal creams available today. Two based on Dr. Pickart's 1st Generation of tissue regenerating copper peptides that contain GHK-Cu are (1) ProCyte Corporation's Neova line at www.procyte.com and (2) Neutrogena's Visibly Firm line that is available at many drugstores and cosmetic counters. These products are based on discoveries and patents by Dr. Pickart between 1983 and 1988. The third (3) choice is based on Pickart's 2nd Generation of copper peptides such as Skin Biology's Protect & Restore and CP lines that are stronger and composed of high-potency breakdown-resistant, long-acting copper peptides. Pickart developed these more effective copper peptides between 1996 and 2000.

All these creams work in fundamentally the same way. Copper-peptides help activate the natural human biological processes that rebuild and renew skin, nails and hair. This produces a skin, nail and hair biology more like that when you were young. Clinical studies have found copper-peptides to be more effective in restoring the skin's collagen than Vitamin C or retinoic acid (retin-A). Copper-peptides also activate the skin's system that removes damaged collagen and elastin from the skin and from scar tissue.

The copper-peptide products all are exceptionally safe and have passed many rigorous safety tests. When copper-peptides are applied to the skin only a very small fraction of the copper - about 0.1% - actually penetrates into the skin but this is sufficient to accelerate the skin's natural regenerative mechanisms.

Recommended Copper Peptide Products

Skin Biology's Protect & Restore

Protect & Restore is a skin product that mimics the natural processes that trigger skin repair. Its' skin regeneration and anti-inflammatory

actions on damaged skin have been demonstrated by four independent, placebo-controlled studies at the University of California at San Francisco. (See details below).



Protect & Restore is a water and oil cream that both counters the irritation problem and speeds skin renewal. Four independent, placebo-controlled clinical studies have established Protect & Restore's unique ability to reduce irritation while accelerating skin renewal, producing a firmer and more elastic skin (List in chart below). No other skin repair cream has this clinically-proven record of both non-irritation and proven skin repair.

The use of Protect & Restore is often combined with a skin exfoliating cream or retinoic acid to both exfoliate skin and stimulate skin repair. Dermal collagen and elastin (which degrade during aging) is rebuilt leaving a firmer, more elastic skin. The water-holding proteins in the skin (the proteoglycans) are increased, resulting in a moist, naturally hydrated skin. The blood microcirculation is rebuilt, giving the skin a better supply of nutrients and improving skin color. Oxidative damage to the skin is reduced as the nutritional copper ion in Protect & Restore activates the skin's naturally-occurring anti-oxidant enzyme, superoxide dismutase, which combats free-radical damage.

For more details on Protect & Restore www.skinbio.com/protect&restore.html.

Advantages of Protect & Restore

P&R Versions for Specific Skin Types and Stage of Life

Because of personal skin variations and the changes of skin with time, P&R is formulated in various versions. When we are age 20, our skin has too much oil but by age 45 our skin becomes drier as skin lipids are reduced. P&R2 is best for persons under age 30 or with rosacea. P&R 3 contains a high retinol concentration and oil of lavender. Younger women or persons with rosacea should start with version 2. However, many women, especially over age 30, have found the strongest P&R 3 which has the highest concentration of retinol to be the best at improving facial appearance and skin tone. Some find P&R No. 3 to clear chronic cystic acne in a few weeks. However, in some younger women (about 7%), P&R 3 may cause skin outbreaks

which could be due to the retinol or an overall stimulation of the skin's metabolism.

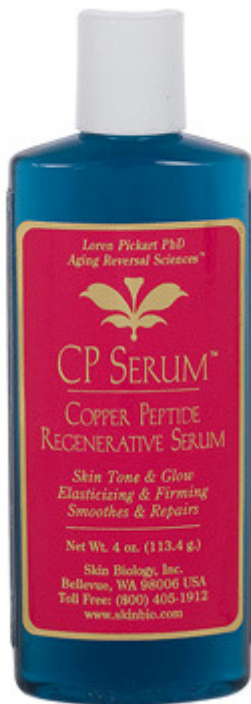
Natural Multiple Repair Stimulators - Protect & Restore is an extension of earlier GHK-Cu-based work on tissue regeneration, but uses a more biological method to renew the skin. Research on skin renewal indicates that optimal regeneration is obtained only when there are multiple signals for renewal. Protect & Restore contains copper ion plus a mixture of numerous different peptide fragments that are generated by natural proteolytic enzymes (as happens after skin damage). This produces numerous copper-peptide complexes in a more natural manner to assist and optimize the skin's natural regenerative processes. See [Copper-Peptide Tissue Regeneration](#)

Rebuilds Protective Acid Mantle - Protect & Restore is formulated to help rebuild the protective acid mantle of the skin that soaps and cleansers strip away. The acid mantle is the combination of sebum (oils) and perspiration on the skin's surface that protects the skin and renders the skin less vulnerable to damage and attack by environmental factors such as sun and wind and less prone to dehydration. The mantle also has strong anti-oxidant properties that protect sebum from air oxidation. Sebum is naturally white but air oxidation turns it black. This is why "whitehead comedos" turn into "blackhead comedos".

Normal skin is somewhat acidic and in the pH range of 4.2 to 5.6. It varies from one part of the body to another and, in general, the pH of a man's skin is lower (more acid) than that of a woman's. The acid mantle inhibits the growth of foreign bacteria and fungi and the skin remains healthier, and has fewer blemishes. Acne, allergies and other skin problems become more severe when the skin becomes more alkaline.

Protect & Restore contains high levels of lipids such as squalane, cetyl alcohol, glyceryl stearate and stearic acid that closely resembles the fats of the acid mantle. Furthermore, they contain antioxidants such as allantoin, aloe, vitamin E and retinol to aid the mantles protective anti-oxidant properties. Squalane is the skin's most important protective lipid and declines from levels of 11% in teenager's skin to less than 5% in adults after age 20.

Use of this system helps avoid the chronic irritation, itching, burning and redness produced by exfoliating agents alone such as Retin-A or hydroxy acids (AHA's and BHA's). All Skin Biology products are made from plant materials. (*Retin-A is a trademark and product of Johnson & Johnson*).



Use CP Serum on the T-Zone and Protect & Restore in Dryer Skin Areas

CP Serum is a water-based lipid-free product. Many clients use CP Serum on oily skin areas such as the T-Zone and Protect & Restore on dryer skin areas. Many users report that it reduces skin oil in the T-Zone.

Often acne is reduced or eliminated by washing the face (as with a pad) with 2% salicylic acid morning and evening and follow this with CP Serum in the evening.

Persons with rosacea often see improvement with CP Serum.

It is at www.skinbio.com/cpserum.htm.



A Safer Day Cover with Skin Remodeling

Protect & Restore Day Cover is a skin repair cream that helps protect against sunlight (ultraviolet radiation) and environmental pollution. The cream uses many natural absorbers of ultraviolet radiation and does not contain any dangerous sunscreen chemicals. It also can be used under Color Cosmetics to reduce skin damage caused by color cosmetics.

P&R Day Cover is designed as a daytime replacement for sun protective creams with dangerous chemical sunscreens. This cream contains a high level of natural ultraviolet absorbers such as squalane, peptides, and nucleotides that have been protecting mammalian skin for over 100 million years. In addition, the Day Cover contains titanium dioxide, a safe reflective sun blocker.

P&R Day Cover is built around:

1. Using the skin's natural sun blockers
2. Using additional safe and reflective titanium dioxide
3. Including broad spectrum natural anti-oxidants to neutralize oxygen radicals
4. Helping to rebuild the the skin's acid mantle
5. Including P&R's clinically-proven skin repair actions
6. Avoiding the use of irritants, alcohol, and harsh chemicals

Protect & Restore Skin Renewal Body Lotion with Copper-Peptides and Retinol



This is for general use of the body. The lotion helps renew and protect your skin. The product is somewhat similar to P&R Day Cover but is easier to spread and contains no titanium dioxide. It comes in a generous 8 ounce bottle and contains copper-peptides and retinol for skin renewal, plus protective lipids and anti-oxidants.

See: <http://www.skinbio.com/bodyrenewallotion.html>

Super Cop and Super CP Serum

This products have very strong skin repair properties. It is very similar to the strongest copper peptide cream that we had tested in studies at UCSF Dermatology Department.

Rub a very small amount of the cream or serum into scars. Do not over use. The cream is designed to have strong and selective uptake into scars and skin lesions but this may make them more apparent as the copper stains the scars and lesions. So it is best to use this cream at night. Be cautious if using it on your face because of potential staining.

Surprisingly, a number of our clients are using these products for facial care. Super Cop is often used as an eye cream and Super CP Serum over the entire face. But start these products lightly.

See www.scar-reduction.com/supercop.html

Other Skin Remodeling Copper Peptides

ProCyte's Neova and Neutrogena's Visibly Firm

ProCyte Corporation sells a number of gels and creams for skin treatment after laser resurfacing, dermabrasion, and chemical peels such as Neova, Complex Cu3™ Intensive Tissue Repair Creme, Complex Cu3™ Hydrating Gel, and Complex Cu3™ Gentle Face Cleanser. These products are based on the Iamin skin healing technology discovered by Dr. Loren Pickart (who also founded

ProCyte Corporation in 1985). This type of product has been shown to have positive effects on collagen deposition, skin tensile strength, angiogenesis, and superoxide dismutase activity.

These products are sold to enhance healing, reduce skin crusting after repair procedures, and help minimize discomfort. The products are applied during the first 24 hours post surgery, and then as needed for the first 10-14 days post procedure.

Neutrogena sells a Visibly Firm product line based on GHK-copper. Neutrogena presented several papers on these creams at the American Academy of Dermatology in 2002. Most of these results were known and published in 1988 by Pickart and colleagues. Summaries of these abstracts are at [Copper-Peptide Tissue Regeneration](#).

P66 A Clinical Evaluation of a Copper-Peptide Containing Liquid Foundation and Cream Concealer Designed for Improving Skin Condition Yohini Appa, PhD; Neutrogena Corporation, Los Angeles, CA; Thomas Stephens, PhD; TJ Stephens & Associates, Inc, Dallas, TX; Sylvia Barkovic; Neutrogena Corporation, Los Angeles, CA; Mary Beth Finkey, MS; Neutrogena Corporation, Los Angeles, CA

P67 The Effect of Tripeptide to Copper Ratio in Two Copper Peptide Creams on Photoaged Facial Skin James J Leyden, MD; University of Pennsylvania, Philadelphia, PA; Gary Grove, PhD; KGL, Inc/Skin Study Center, Broomall, PA; Sylvia Barkovic; Neutrogena Corporation, Los Angeles, CA; Yohini Appa, PhD; Neutrogena Corporation, Los Angeles, CA

P68 Skin Care Benefits of Copper Peptide Containing Facial Cream James J Leyden, MD; University of Pennsylvania, Philadelphia, PA; Thomas Stephens, PhD; Thomas J Stephens & Associates, Inc, Dallas, TX; Mary Beth Finkey, MS; Neutrogena Corporation, Los Angeles, CA; Sylvia Barkovic; Neutrogena Corporation, Los Angeles, CA

P69 Skin Care Benefits of Copper Peptide Containing Eye Creams James J Leyden, MD; University of Pennsylvania, Philadelphia, PA; Thomas Stephens, PhD; Thomas J Stephens & Associates, Inc, Dallas, TX; Mary Beth Finkey, MS; Neutrogena Corporation, Los Angeles, CA; Sylvia Barkovic; Neutrogena Corporation, Los Angeles, CA

P72 Requirement of Copper and Tripeptide Glycyl-L-Histidyl-L-Lysine (GHK) Complex Formation for Collagen Synthesis Activity in Normal Human Dermal Fibroblasts Thierry Oddos, PhD; Johnson & Johnson Consumer, Val de Reuil, France; Aurelie Jumeau-Lafond; Johnson & Johnson Consumer, Val de Reuil, France; Gerd Ries, PhD; Johnson & Johnson, Dusseldorf, Germany

Other Copper Peptides

For more information on these comparisons, please visit www.skinbiology.com/comparingcopperpeptides.html

Comparison of Skin Renewal with Biologically Effective Copper-Peptides, Retin-A, and Vitamin C

Skin Effect	Skin Remodeling Copper-Peptides	Retinoic acid (Retin-A, Renova)	Vitamin C
Reducing wrinkles	Yes, four recent abstracts of studies	Several positive studies published	Minor improvements
Skin color tone	Very good tone "glow"	Often reddish, leathery appearance	Fair tone
New collagen	Yes, significant in 70% of users in one month	Yes, significant in 40% of users in one month	Yes, significant in 50% of users in one month
New elastin	Yes	Yes	Minor improvement
Increase water-holding proteoglycans and glycosaminoglycans	Yes	Yes	No
Repair skin barrier	Yes	No, actually degrades skin barrier	No
Improve capillary circulation	Yes	Yes	No
Activate metalloproteinases to remove damaged	Yes	No, Actually increases production	No

proteins		of scar forming factor TGF-beta	
Causes irritation	No	Yes, strong irritant	No
Anti-inflammatory	Yes	No	No
Anti-oxidant	Yes, activates superoxide dismutase in skin	No	Yes, vitamin C acts as anti-oxidant
Used for clinical skin repair?	Yes, for wound healing and dermatological skin repair	Yes, for skin renewal and anti-acne	No, effects are too minor

Skin Collagen Production and Wrinkle Reduction with Copper-Peptides, Retin-A, and Vitamin C

A clinical study which compared the effect on the skin's production of collagen after using creams containing copper-peptides, vitamin C, or retinoic acid (retin-A) was published by researchers in the Dermatology Department at UMDNJ - Robert Wood Johnson Medical School (Abulghani et al 1998). Twenty volunteers applied the various creams to their thighs daily for one month. New collagen production was determined by studying skin biopsy samples using immunohistological techniques.

The study found, that after one month, copper-peptides had the most significant effect on collagen production. Significant increases in collagen production were found in 70% of the persons treated with copper-peptide creams, 50% of the persons treated with the vitamin C cream, and 40% of the persons treated with retinoic acid.

Significant wrinkle reduction is still difficult. Many products are sold for the reduction of wrinkles but effects are temporary. Keep in mind that a piece of tape on your skin for a day will produce a temporary wrinkle reduction. There have been several successful studies on significant reduction of major wrinkles with retinoic acid. Procyte and Neutrogena have announced successful studies on wrinkle reduction with copper-peptides. There are no published studies on significant

wrinkle reduction with vitamin C despite heavy sales of the product for seven years.

Copyright 1998-2008 by Dr. Loren Pickart. All rights reserved. No reproduction without written permission.

References

Abulghani et al 1998 - Abulghani, Shirin, Morales-Tapia, Sherr, Solodkina, Robertson, and Gottlieb, J. Invest. Derm. 110(4), page 686, 1998.

Alain et al 1999 - Alain, Monier, Emonard, Gillery, Birembaut, Homebeck and Maquart, Expression and activation of matrix metalloproteinases in wounds: Modulation by the tripeptide-copper complex glycyl-L-histidyl-L-lysine-cu²⁺, J. Invest. Dermatol. 112: 957-964.

Iamin Gel Wound Dressing®, Iamin Impregnated Gauze Dressing®, OsmoCyte® PCA Pillow, Iamin Wet Dressing (copper-saline)®, Iamin-2 Hydrating Gel®, Iamin-Vet®, GraftCyte® Advanced Hair Restoration Technology, GraftCyte® Moist Dressings, GraftCyte® Hydrating Mist, GraftCyte® Post-Surgical Shampoo & Conditioner, GraftCyte® Head Start Single Patient Pack, Tricomin® Solution Follicle Therapy Spray, Tricomin® Revitalizing Shampoo, Tricomin® Restructuring Conditioner and Tricomin® Conditioning Shampoo, Complex Cu3® Intensive Tissue Repair Cream, Complex Cu3® Hydrating Gel, Complex Cu3® Gentle Face Cleanser, Iamin-IB® and Neova®, are trademarks of ProCyte Corporation and marketed by ProCyte and Bard Medical. Blue Copper Firming Elasticity Repair®, Climate Extreme Body Repair®, Blue Razor Aftershave® and Kinetin® are products and trademarks of Osmotics Inc. Propecia® is a trademark of Merck Pharmaceuticals. Aging Reversal Technologies(TM) is a trademark of Skin Biology, Inc. Biopeptide-CL is a trademark of Sederma. A-Copper Moisturizer is a trademark of Serious Skin Care. Kinerase(TM) is a product and trademark of ICN Corporation.

121707FP 020508CM

In the skin, copper helps to:

1. Stimulate Collagen Formation, diminishing fine lines and firming the skin.
2. Stimulate Elastin Formation, cutting down on sagging and fine lines.
3. Stimulate the formation of the extracellular cement between cells, thus improving skin strength, cutting down on fragility.
4. Stimulate the formation of GAGS (glycosaminoglycans). This helps to thicken the dermis resulting in a lessening of sagging and helps firm the skin.
5. Increase blood vessel formation and oxygenation within the skin.
6. Act as a potent antioxidant by stimulating the enzymatic function of Superoxide Dismutase.