ORGANIC SILICA

Dr Loïc Le Ribault

Presentation and instructions

The organic silica (now called OSLLR) developed by Loïc Le Ribault, supplies bioavailable organic silica to the body, and comes in either liquid or gel form.

The liquid form may be taken orally and the gel form was formulated for direct application onto the skin. Both forms are rapidly absorbed and distributed throughout the body for almost immediate results.

Silica is well documented to play a vital role in restructuring the fibers of elastin and collagen, and is critical for bone mineralization, and supports the metabolism in general.[1]

Extensive research and numerous testimonials from both patients and their doctors indicate that OSLLR:

- Supplies bioavailable organic silica to the organism.
- Is easily absorbable and preferentially distributed throughout the body.
- Plays a vital role: in restructuring the fibers of elastin and collagen, in the early stages of bone mineralization, and in maintaining a healthy metabolism in general.[2]
- Is compatible with any other medications or supplements that may be prescribed.
- Accelerates the processes of scar formation and tissue healing.
- Strengthens the immune defenses of the organism.
- Protects and enhances the integrity of the cellular makeup.
- Is effective as an analgesic.

FOR ORAL USE

When 30 ml of OSLLR per day is taken for 1 to 3 months. there is usually a noticeable improvement in various indicators of health within 2 - 30 days. These include: sleep patterns, appetite, muscle tone and lessening of anxiety. We recommend discontinuing use after a month, but it can be started again if a need is indicated. However since OSLLR is adaptable, and has not shown any side-

[1]Nutrition Today,July/August, 1993 pages 13-18 by Dr.Carol D.Seaborn and Dr.Forrest H. Nielsen Becker C-H, Matthias D, Wossmann H, Schwartz A, Engler E. Investigations on a possible medical importance of silicon. In: Anke M, Baumann W, Briunlich H, Bruckner C, eds. 4. Spurenelement-Symposium. Jena: Friedrich-Schiller-Universitat, 1983;142-8.

[2]Carlisle, E. M. andW. F. Alpenfels (1978) A requirement for silicon for bone growth in culture. Federation Proceedings 37: 1123

effects, more can be taken if needed. We suggest seeking the assistance of a qualified health care professional if any side affects or health concerns continue.

It is recommended that OSLLR be taken the first thing in the morning. If allopathic or homoeopathic medications have been prescribed, OSLLR should be taken one hour before or after, for maximum effect.
A few seconds or minutes after taking OSLLR a slight prickly sensation or heat feeling may be felt. This is normal and such reactions usually disappear in a few minutes.

Uses For Liquid Organic Silica Liquid[3]

Compresses
Moisten a piece of cotton gauze the size of the painful area with OSLLR. Place the gauze over the area. If possible, cover with plastic wrap as it adheres to irregular surfaces such as small joints, without needing adhesive. This will hold it in place and make it waterproof. The pad should be left in place for 1-2 hours, or overnight. Sometimes, a prickly sensation may be felt (normally described as a feeling of electricity in the area), and/or a sensation of heat or cold spreading through the body. This is completely normal. If there is no particular sensation, it does not mean that the OSLLR is not working.

Poultices
Moisten a piece of cotton gauze as above, and apply to the skin for about 20 minutes. A prickly sensation, described as 'pins and needles' often follows with heat or cold spreading through the treated area. If there is no particular sensation, however, this does not mean that the OSLLR is not working. Remove the poultice after about 20 minutes and let the skin dry in the open air. Repeat as necessary if the trouble or pain recurs. If inflammation or an itchy reaction occurs, temporarily discontinue use.

Unction - (Soothing agent)
Moisten a piece of cotton gauze with OSLLR and apply by dabbing the affected area.

Spray
Put some OSLLR into a clean spray bottle and spray over the painful or troubled area. Leave this untouched for about 10 minutes, dry the area with a tissue or sterilized gauze, or allow the skin to dry naturally. Repeat as necessary if the pain or trouble recurs. Use a new spray bottle kept exclusively for the use of OSLLR.

Uses For Organic Silica Gel

Sore Muscles or Sprains
Spread a thin layer of gel and leave untouched for five minutes, then massage until completely absorbed. Repeat as necessary. If redness occurs, stop

[3]"Le G5 Silicium Organique à usages interne et externe" ©2006 Loïc Le Ribault

application for several days. Avoid applying other products for 30 minutes after application of gel.

Skin Care Anti-aging
OSLLR gel can be massaged onto the face once a day to support the growth of collagen and to assist in preventing or diminishing wrinkles. Avoid the eye area. Makeup can be applied after 20 minutes, after rinsing one's face to remove residue.

For use on babies and children
Follow the same procedure as for adults, but with a proportional dosage to weight. The following table gives an estimated dosage based on weight.

Weight (Kg)	Dosage (ml)
10-20	2
20-30	4
30-40	5
40-50	7
50-60	8
60-70	10
70-80	12
80-90	14
90-100	16

Pregnancy and Breastfeeding:
Using OSLLR is safe during these stages

Side effects and adverse reactions: Secondary effects
OSLLR has been shown to be well tolerated by most people, as it is a nutritional supplement supplying bioavailable silica to the body.

No side effects are evident even after several years of use. It does not affect prosthetics or metallic dental appliances. In the acute oral toxicity, tests carried out with a dosage of 5000 mg/kg, confirm the absence of any toxic reaction which provides a high level of security that this product can be safely, used by humans. Studies demostrate this product falls within category 5, which is a DL 50 > 5000 mg/Kg (which indicates non toxic reaction).

Interaction with medications
As stated previously, OSLLR provides silica as a trace element in an organic form. No promoting or inhibiting effects on medicines have been found when taken simultaneously. OSLLR is compatible with any medicine or dietary supplement, although for best results it is recommended that OSLLR be taken one hour before or after taking other medicines or supplements.

Storage
Once opened, use the bottle within 6 months. Unopened bottles can be kept for 3 years. OSLLR does not need to be kept in the fridge but should be stored in a cool dry place. However, refrigeration will not harm the product. No special precautions should be taken as far as contact with metals is concerned. Therefore, it may be taken with a metallic spoon.

TECHNICAL DATA ABOUT THE ORGANIC SILICA

Family: Organic silicon
Scientific name: monomethylsilanetriol
pH: Around 6.6
Appearance: Clean and colorless, no particles
Taste: Slightly bitter
Composition: Liquid Organic silica: 0,2 % monomethyl silanetriol, distilled water.
Gel: Organic silica: 0,4 % monomethylsilanetriol, vegetable cellulose, grapefruit seed extract as a preservative

HOW IT WORKS

The beneficial effect of OSLLR on the body is explained by several factors:
1) its bioavailability and its effect on collagen and elastin synthesis
2) its structural role on the glycosaminoglycans;
3) its power in interacting positively with other elements.
4) its electrochemical role in regulating the electric potential of the cell membrane and the ability to contribute to intercellular communication.

OSLLR is not a medicine, but a dietary supplement that supports the natural defenses of the body. This explains the positive results obtained when treating diverse complaints.
OSLLR may re-establish the polarity of deficient cells in the body by releasing or exchanging positive or negative ions. Therefore it would seem to act as an ionic balancer of the whole body, giving a cell the necessary energy to cope with any form of stress it may suffer. This may explain the prickly, warm, or cold sensations that patients report after taking or applying OSLLR to the body.

RESULTS SHOWN WITH OSLLR

GENERAL HEALTH CONCERNS

TIREDNESS, ANXIETY, LOSS OF APPETITE, INSOMIA, HORMONAL DISORDERS

INTENSIVE USE
This includes compresses, topical application, spray, and massage of affected areas whenever necessary.
After a few days or several weeks of use an improvement in sleep patterns, more energy, lessening of anxiety and lessening of pre-menstrual and menopausal symptoms are observed.

JOINTS BONES AND CARTILAGES[4]

PAINFUL JOINTS, ARTHRITIS, POLYARTHRITIS, ARTHROSIS, REUMATISM, OSTEOPOROSIS, DESCALCIFICATION, DUPUYTREN´S CONTRACTURE, ALGODISTROPHIA, ANKYLOSING SPONDYLITIS.

INTENSIVE USE
This includes compresses, topical application, spray, and massage of affected areas whenever necessary. Excellent results were obtained after combining gel applications and oral intake. Benefits to painful joints, bones and cartilage are among the most well documented areas of use for OSLLR. Immediate positive results have included: the decrease of pain intensity (neck, joint, bone), in a few weeks. For continued improvement regular use over a period of several months is encouraged. OSLLR gel should also be applied on major and minor joints; knees, hips, shoulders, hands, feet, ankles and elbows in addition to daily oral intake of OSLLR liquid. 3-4 applications per day are usually sufficient for pain relief. Duration of use may vary depending on the level of pain and location of the affected areas. After taking OSLLR for a period of time, an increase of the bone and cartilaginous capital, and/or the bone density may be observed. In auto-immune diseases like arthritis, or spondylitis, symptomatic relief may vary from several days to a couple of months. It is recommended to continue to use OSLLR liquid orally and in the gel form as a topical application to help achieve stability and to allow patients to sleep better, recover mobility, and relieve painful joints.

OTORHINOLARYNGOLOGY (Ear, Nose & Throat)

SINUSISTIS
Poultices, spray or gel applications 3 or 4 times per day, together with instillations (installation means to put a few drops of organic silica on the hand and breathe in, while tilting the head back for several minutes.)

SKIN PROBLEMS[5]

ACNE
INTENSIVE USE
This includes compresses, topical application, spray, and massage of affected areas whenever necessary. In addition, wash the face with liquid organic silica + apply gel 3 times per day.

ECZEMA AND DERMATITIS
INTENSIVE USE
This includes compresses, topical application, spray, and massage of affected areas whenever necessary. In addition, moisturizing gauze, or poultices, using a gel application 2 to 4 times per day on the affected area.

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[4]Carlisle, E. M. andW. F. Alpenfels (1980) A silicon requirement for normal growth of cartilage in culture. Federation Proceedings 39: 787

[5]Schwartz, K. and S. C. Chen (1974) A bound form of silicon as a constituent of collagen. Federation Proceedings 33: 704

There may be a temporary worsening of the condition. This is usually followed quickly by an improvement. Effectiveness may vary, depending on the method of application. For some people, the application of a poultice gives better results than the application of gel or when lightly sprayed on the area.

HERPES

INTENSIVE USE

This includes compresses, topical application, and massage of affected areas whenever necessary. Use moistened gauze, poultices, spraying or gel application 2 to 4 times per day on the affected areas.

Very good results obtained in labial herpes. Other types of herpes require oral intake together with direct application to the area. Application can be continued until desired results are obtained. Duration of use depends on severity of problem.

PSORIASIS

INTENSIVE USE

This includes compresses, topical application, spraying and massage of affected areas whenever necessary. Moistening the affected areas with gauze, using poultices, or applying gel to the affected areas 2 times per day.

The results obtained are usually very good, and include: lessening of the areas of inflammation, increasing the time between its reappearance, to the complete disappearance of the condition. During the first days of oral intake or direct application, an apparent aggravation of the skin may appear. This is normal and disappears quickly, followed by an improvement in the condition.

CARDIOVASCULAR PROBLEMS

HEMORRHOIDS, SWOLLEN LEGS OR ANKLES, VARICOSE VEINS, COUPEROSIS, SPIDER VEINS

INTENSIVE USE

This includes compresses, topical application, spray and massage of affected areas whenever necessary. This should include gel application, followed by medical examination to monitor and adjust usage as required.

If the results obtained from using OSLLR are not sufficient, after a medical examination the dosage may be increased. OSLLR also works on blood circulation problems as well as venous problems such as hemorrhoids and varicose veins, reducing edema and inflammation. Once the vascular walls improve, the circulation also improves. It has shown definite improvement in the effects caused by varicose veins such as sore legs, itching, heat and pain and helps to prevent hemorrhoids.

VASCULAR HEADACHE (MIGRAINES, AND HEADACHE)

INTENSIVE USE

This includes compresses, topical application, and massage of affected areas whenever necessary. Poultices and/or gel applications on the affected areas are very effective on migraines and chronic headaches.

CHOLESTEROL
INTENSIVE USE
This includes daily intake of OSLLR liquid and may include compresses, topical application, spray and massage of any areas of discomfort. A period of use should be followed by blood tests to monitor the results and adjust usage regimen. During the first month, an increase in cholesterol level is normal. This could last for several weeks or even months. The temporary increase of cholesterol level in blood is believed to mean that the recovery process of the arterial walls has started and the fat deposits are being reduced. This does not only apply to cholesterol but also to triglycerides, LDL, lipoproteins and other risk factors that have been accumulating in the arterial walls for years and are being dissolved and carried away in the bloodstream.
Wait for a second test. Obviously, an increase of cholesterol lowering drugs might be unwise in this case. When in doubt, check with a trained medical professional familiar with OSLLR use.

HYPERTENSION, HYPOTENSION
INTENSIVE USE
This includes daily intake of OSLLR liquid and may include compresses, topical application, spray and massage of any areas of discomfort.
Take regular blood pressure readings during use. After the release of lipid deposits in the arterial walls, the arterial tension tends to normalize quickly. This is because the arteries start recovering their flexibility.

INTESTINAL AND DIGESTIVE PROBLEMS

POOR DIGESTION, HERNIA, BLOATING, CONSTIPATION
INTENSIVE USE
This includes daily intake of OSLLR liquid and may include compresses, topical application, spray and massage of any areas of concern.

Good results have been achieved in dealing with all kind of gastrointestinal problems, colic, hiatal hernia, ulcer, poor digestion. Initially there may be some gastrointestinal disturbance such as gas, or bloating, or diarrhea, but this usually disappears within a few days.

HEPATITIS
INTENSIVE USE
First perform blood tests to document the baseline condition and any change during and after use. If improvements are not observed during the first tests, the dosage should be increased until an improvement is shown and then maintained.

Symptoms improve or disappear very fast in some patients, even at the biochemical level. In other patients, it can take several months for improvements to show. OSLLR absorption can be enhanced when accompanied by poultices or by gel application over the liver area. Occasionally, after the first few applications, patients can feel varying amounts of pain over the liver area, which usually disappears within minutes. This is a normal reaction which indicates that OSLLR is helping the liver, but to make sure, it is always wise to have a blood test.

- If the same pain continues to appear, stop use for several days.
- If the pain reappears but is less intense, reduce the dosage of OSLLR
- If the pain does not reappear, continue use, and maintain the initial dosage.

In case of poultices or gel application, an occasional temperature increase may occur. If this happens, stop applying for several days. When treating hepatitis or hepatic problems, the patient may feel tired, accompanied by other symptoms such as changes in the color of feces, or lighter or darker urine can also be observed. These symptoms will disappear after a few days.

If a test is carried out immediately after the first OSLLR use, aminotrasferases level may rise. This is a temporary and normal reaction that lasts for a non-defined period. Organic silica improves hepatic activity and helps the liver to eliminate toxins. For instance a high alcohol level in blood is eliminated quickly by the liver.

CIRROSIS
Follow the same use as for hepatitis. Intensive use should have a positive action on liver fibrosis.

CHRON'S DISEASE
INTENSIVE USE should be followed by a blood test to monitor the results and adjust dosage as needed. Oral intake may also be accompanied by gel application.

1. - Certified by Doctor Denis G., Bordeaux: I Doctor Denis G. certify that on 14th November I examined 80 year old Mr. Rene Arnaez, diagnosing a third degree burn on his upper left limb. He stated that one minute after applying organic silica, the pain disappeared. The healing was satisfactory after applying poultices. A next visit on 17th November: no problems. Another on 21st November: we decided to leave the burn uncovered. On 27th November: Complete healing with scab, but no pain.
N.B, Photographs have been taken at regular intervals to show the evolution.

2. - Ms. Valérie Z., 30 years, Roche-sur-Yon
Patient affected by the CROHN DISEASE. On 8th November, blood tests show the following results:
-Fibrin: 4,87 g/l (normal=2-4);
-Haptoglobin level: 1,55 g/l (normal=0,7-3,8);
-Reactive Protein C: 11,9 mg/l (normal=0-6).

Use starts mid November; consisting of one spoonful of organic silica per day. On 6th January, the results are not very satisfactory and the problem gets worse.
-Fibrin: 5,12 g/l;
-Haptoglobin level: 2,11 g/l;
-Reactive Protein C: 12,7 mg/l.
On 5th January, she shows a slight improvement
- Fibrin: 3,81 g/l;
- Haptoglobin level: 1,91 g/l

- Reactive Protein C: 8,92 mg/l.
On 7th March, all results are normal
-Fibrin: 2,88 g/l;
-Haptoglobin level: 1,69 g/l;
-Reactive Proteín C: 5,6 mg/l.

After that date, all the results were normal and the patient was in excellent health. The following letter was written by the patient on 8th January: “Affected by a disease against which conventional medicine has no cure. For the last three years I have been treated with organic silica and since them, I have recovered as is proven by blood test (…) however; I stopped the use twice in a year. Each time I stopped, my health got worse (as is shown on medical examinations)”

3.- Doctor Bernard D., Bordeaux: Certification related to the use of a patient suffering from Dupuytren disease. “Net increase in the 4th and 5th finger extension. Excellent results”.

4.- Mr. P.S., Bordeaux: Patient suffering from hepatitis B. On 31st October, blood tests show the following results:

-Alkaline fosfatase: 511 U.I./l. (Normal: 60-170).
-Transaminases SGOT: 76 U.I./l.
-Transaminases SGPT: 63 U.I./l. On 11th November, use commences based on organic silica poultices applied to the liver overnight.
On 19th November, the results are as follows:
-Alkaline fosfatase: 295 U.I./l.
-Transaminases SGOT: 44 U.I./l.
-Transaminases SGPT: 49 U.I./l.

On 13th December, the doctor stated: “I have just examined Mr. S. His clinical state has improved over the last weeks. He gained 3 kilos in weight and has gained his appetite. The clinical examination is negative. The liver is almost perceptible. There is no abdominal pain. There are no edemas on inferior parts of the body. The biological balance is also in net improvement. Transaminases level is normal, alkaline fosfatases are 240 units for a normal level inferior to 200 (…), I would like to examine this patient in a month’s time, hoping that the present situation will continue.

On 30th January of the same year, the results are as stated below:
-Alkalinas fosfatases: 170 U.I./.
-Transaminases SGOT: 26 U.I./l.
-Transaminases SGPT: 41 U.I./l.
On 2nd September, the patient wrote: “The result is fantastic, I do not feel tired, even although the pace of my work is as usual, traveling quite often during the last weeks. Likewise, I have overcome my sleeping problems. As an example: several days before use, going for a 5 km walk left me exhausted, having to suffer the consequences for three days. Over these few days, I have spent several hours per day visiting my clients in big cities without feeling tired. I have recovered the same capabilities I had before the hepatitis.

5. - Ms. A.D., Chemist: I hereby certify that for the last six months I have advised my patients to use organic silica based products, for herpes uses. Verified by friends, patients and myself, I am absolutely sure there are no products on the market as efficient as the organic silica nowadays, not only as a preventive measure (in cases of crisis, commencing the use after the first symptoms) but also as a regressive measure for the people who are sensitive to the virus. I have also advised organic silica to combat herpes zoster (5 cases) with excellent results, as well as rheumatisms, arthritis, articular rheumatism (around 20 cases). Most clients came back completely relieved, asking for the product again.

6. - Doctor C.M., Sainte Colombe: I hereby certify that Ms J.L, affected by cutaneous psoriasis, is currently cured after being treated exclusively with organic silica.

7. - Ms. Yvonne L., 85 years old: The patient has suffers from sinusitis since 1920.
18-02-1922: Amygdalitis surgery and polyps removed. Regular Medical checkups (silver nitrate) of the polyps which cause nostril blockage
1961: Puncture use
Bacteriological examen:
Staphylococcus aureus=70%
Friedlander Bacillus=70%
1962: Treated with Flabelline and (in october) Lantigen B.
1963: Treated with Auréomycine.
1964: Treated with Auréomycine and l Nibiol. Punctures in December.
1965: Punctures in March, as well as on December, 19th, 24th, 28th and 31st.
1966: Punctures (with Soludecadron) on June, 3rd, 10th and 17th. Simple punctures: on October 20th, 28th and November, 4th.
1967: Examination showing the existence of Staphylococcus aureus. Puntures with
Diamante on June, 9th, 13th, 16th and 20th.
1970: Use with Locabiotal.
1971-1980: Improvement. None or few colds.
1981: Repeated sinusitis crisis, treated with Soframycine, Gomenol and Balsofumine M4%.
1982: Ídem.
1983: Ídem until October, when an intense crisis occurs.
After 15 days of conventional use, there is no improvement. On 23rd October midday, poultices of organic silica are applied for the first time on the lower part of the nose. One hour later, mucosa appears, making her blow her nose all night. During the night, he applies organic silica again, and three times the following day, after this the patient feels better and can breathe as normal
1996: He has not suffered from a sinusitis crisis for the last 13 years.

8. - Miss E.D 18 years old: Suffering from AIDS. On July, 1995, shows the following results:
-Lymphocytes CD4+: 6% (normal levels ranges from 35 to 55)
-Lymphocytes CD8: 22% (normal levels ranges from 18 to 38)
-Reports CD4+/CD8+: 0.3 (normal levels ranges from 0.6 to 2.8)

On 8th July, use commences by taking 3 spoonfuls of organic silica per day. On 17th July, she has more energy and seems to be happier. On 1st August, improvement is observed: recovering energy although she still feels very tired. Although she stops taking laroxil she begins to sleep better and her improvement continues.
Blood tests are as follows:
-Lymphocytes CD4+: 8%
-Lymphocytes CD8:24%
-Reports CD4+/CD8+: 0.33

9. - Ms. L.G Royan: Patient suffering from hepatitis C. On 15th March, shows the following results:
SGOT: 109 U.I/l. (normal levels ranges from 8 to 39)
SGPT: 146 U.I/l. (normal levels ranges from 9 to 52)
Gamma GT: 140 U.I./l. (normal levels ranges from 2 to 60)
Alkaline phosphatases: 65 U.I./l. (normal levels ranges from 43 to 122)
With her health deteriorating in July, the patient starts taking 3 tablespoonfuls of organic silica per day. Pads are not applied.
On 9th August, the results are as follows:
SGOT: 29 U.I/l.
SGPT: 53 U.I/l.
Gamma GT: 59 U.I./l.
Alkaline phosphatases: 40 U.I./l.

10. -Mr. L.E, 52 years old: Dr. J.M. Bordeaux: “Diagnosis: tibio-tarsal arthrosis. Use: Pad application and ionization for 10 consecutive days, then twice a week. Examination after use: Oedema disappearance. No pain when walking. Net pain and inflammation improvement”

Certificates by Dr. J.J from Bordeaux, France:

11. Mr J.R showed herpetic keratitis with cornea ulceration, intense lacrimation and a considerable conjunctive vessel dilatation, treated with cortisone eye drops but with no positive results. After applying organic silica, the inflammation disappeared within 24 hours, and in 7 days a scar was formed. 3 months later, the patient showed no after effects.

12. Mr M.L suffering from genital herpes affecting the prepuce and glans. Organic silica moistened in cotton wool was applied directly three times a day to the affected area. After 3 weeks, the herpes had disappeared. After 3 months, the patient had no further outbreaks.

13. Mr. R.B suffered from icterus. Examination confirmed the diagnosis of viral hepatitis. The transaminases level was high: 1100. Organic silica moistened in a pad was applied; the pad was then made waterproof and kept in place for 10 hours per day. After 6 days, the icterus had clearly improved, and the transaminases level had also dropped to 50. After 2 months, the patient did not show any biological or clinical sign of hepatitis.

14. Mr. E.F suffered from nocturnal dyspnea crisis with suffocations. Before sleeping, external applications of organic silica on cotton wool were applied to the forearms. Apart from the applications, nasal instillations were also carried out. After four days a decrease in the crisis intensity was noticeable, then disappearing progressively. The use was continued by one application per day for 2 months. During this time, the patient was advised to apply organic silica (referring to nasal instillations), even as a preventive measure for minor respiratory problems. After 3 months, the patient had no further crisis and for the last 8 months, no reappearance of the problem.

Official therapeutic efficacy tests
("Declaration under 37 CFR § 1, 132") carried out by Professor Jean Cahn Director of Sir International Institute. Professor of Pharmacology and Neurobiology at the Faculties of Science and Medicine at the University of Pavia (Italy), former Director of the Centre for Experimental Therapies at Pitié-Salpêtrière hospital, Paris, former Director of Experimental Therapy and Clinical Research Institute, Paris) These tests were carried out by using organic silica Monomethylsilanetriol.

15. - Tests carried out on animals: "Some tests were carried out on tri-coloured guinea pigs with surgical wounds. They were treated with a lactate of organic silica. Each time, complete healing of the epidermis was observed, with collagen reorganization and a recovery of elastin fibers. Melanocytes in treated animals increased by 80% as did melanin production, compared to control animals where melanocytes were not activated by exposure to UV"

16. - Tests carried out on humans: 110 patients were treated. The procedure consisted in the application of different products, by dabbing the product directly on the affected area using a piece of cotton. The results were obtained by determining, for each product and affection the percentage of patients who showed a positive response to each use.

17. - Pierre Plages and Norbert Duffaut
"Some odonto-stomatology results obtained from organic silica compounds ("minutes from the Physical Sciences Society Bordeaux, 1976-1977"): in addition to its effectiveness, the organic silica offers several advantages:

-- Excellent tolerance (over 250 ml can be injected per day). A local reaction has never been observed despite the presence of anaesthetics. This is because of its anti-inflammatory property. This allows daily infiltration, with no risk of causing (such as chromium salts) undesirable reactions.

-- Organic silica can also spread into the tissues very fast, or by direct application (mouth wash, which allows the liquid to be in contact with mucous membranes for more than a few minutes, and not just a brief rinse). Preferably it should be applied by ionotherapy which shows no counter-indication and is more effective than infiltration

-- Speed of action, greater than most ingested drugs.

CONCLUSION: Experiments and comparative tests carried out over a period of five years, has led us to believe the efficiency of organic silica compounds when treating gums, epulis and in helping and aiding surgeries in mouth and dental extractions. At the same time, organic silica compounds reinforce anaesthesias and avoid alveolitis and other post surgical inflammatory problems.

Activity percentage for different problems (direct application)

	ASTHMA	ALLERGIES	HERPES
G4	80%	65%	70%
G5	85%	75%	75%
Nº OF TREATED PATIENTS	35	20	55

G4: previous generation silica product.
G5: current generation silica product.

18. Dr. Rager "Chronic coronary and arterial occlusive diseases of lower limbs controlled by ionocenesis ("Agressologie", 1967, VIII): From 60 treated patients, 9 were failures(...). In another 51 patients, 43 in phase 2 and 8 in Phase 3, showing ischemic pain at night with initial gangrene, results were very satisfactory. Patients in phase 2, it decreases significantly and in 18 patients, it disappeared completely. The subjective improvement together with an objective improvement in plethysmograph results. In Phase 3 patients, recovery is generally fast, decubitus pain normally disappear at the 7th session. The patient was able to sleep again with legs under the bed clothes. Initial gangrene steadily healed.

19. Mr. A. L., **Saint Seurin de Prats**: "Diabetic, having pierced the sole of his left foot. In May 96, I had a swollen leg with an infected wound. For 6 months, I was treated by both a dermatologist and my family doctor with no positive result. Early November, I was sent to hospital. After being informed of your discovery, (...) and with the consent of my doctor, I ordered 2 litres of organic silica (...). After applying poultices for a month, my leg began to recover mobility and the wound also started healing. I continued use until early September 97, applying at the same time bandages with Betadine. My wound has now healed. My doctor is very surprised and stated that in people suffering from diabetes, this type of injury does not normally heal (…) ".

20. Mr. Frank Amy, Condestable de Grouville, Jersey: "(…) Suffered from back pain for the last eighteen years. He had tried all possible types of treatments, heat use, massage, aquatic exercises, three epidural injections, etc. except surgery. Over a period of seven years, I took Voltrol, starting with 25 mg per day but in January 1998 the dose had been increased to 100 mg. At that time, I started organic silica use giving up the previous use. In one week, as I said, I started feeling better, and in three weeks my back ache had almost disappeared. Over the past three months, I have gradually stopped taking organic silica, but I always keep a bottle in case it is needed.

21. Dr Jean Claude Mainguy, Director of Antiaging Centre, Montreux, Switzerland: I had suffered from arthritis for a long time so I decided to try organic silica as a first remedy. In two weeks I had extraordinary results. All I can say is my arthritis was cured and has never reappeared. I then got more information on organic silica and I have taken it for all kinds of complaints, with very good results. Taking into account the fact that science is not always 100% accurate, results depend on many factors and are not fixed. Nevertheless for me this product is extremely effective. [6]

22. Dr John Mansfield, Director of BurghWood Clinic of London: I started prescribing organic silica for muscular and ligament problems, obtaining spectacular results. Now it is also prescribed for different pathologies and with no side effects or problems due to interactions with other medicines.

OTHER CLINICAL HISTORIES

PATIENT 1
AGE: 79 years. SEX: Male
REASONS for taking ORGANIC SILICA
Dyslipidemia, lumbar arthrosis, frequent respiratory infections, general ill-health (pulmonary thromboembolism)
LENGTH OF TIME AND INTAKE FRECUENCY
10 ml/ 3 times per day for a month (September 2004)
10 ml/ once a day (taken on an empty stomach) for one year.
PATHOLOGICAL RECORD
Dylslipidemia over a period of 15 to 20 years
Degenerative lumbar arthrosis.
Pulmonary tromboembolia 2003, he is still on Sintrom use.
Tuberculosis 1955, treated with terramycin (tetracycline) in acute phase treated with Cemidon (Isoniacide) for 6 years.
Prostatic hypertrophy surgery
Ex smoker
Bilateral hypoacusia
PHARMACOLOGICAL RECORD
Acenocumarol (Sintrom): thromboembolic anticoagulant
Fenofibrat: dyslipidemia
EVOLUTION: Remarkable improvement of the general conditions Decrease in the respiratory infection. The patient suffered frequently during winter, but his problems almost ceased after taking organic silica.
After a 2 year use of anticoagulant (after a thromboembolic episode), the patient stopped taking the product, with optimum conditions. Also a significant improvement to the health and good test results. Reducing his joint pains, has given him a much better quality of life

COMMENTS
(after taking organic silica) At the same time, he modified his eating habits and added supplements to his diet so in all probability this has reinforced the positive action of organic silica.

[6] «Mandat d'arrêt contre un chercheur» Un film documentaire Satya productions 2002

PATIENT 2
AGE: 77 years. SEX: Female
REASONS for taking ORGANIC SILICA
Spinal disc herniation, (L4-L5), degenerative spinal cord stenosis, paresthesia and frequent fasciculations in EEII.

LENGTH OF TIME AND INTAKE FRECUENCY
10 ml/3 times per day for a month. (September 2004)
10 ml/once a day (1 time per day) (taken on an empty stomach) for one year.
Once a day (1 time per day), direct application (facial senile spots)
PATHOLOGICAL RECORD
Dyscal hernia L4-L5
Degenerative spinal cord stenosis
Post traumatic hip arthroplasty
Post chirurgical fibrosis on L5-S1 that touches the dural sack and the S1 left infundibulum.
Vertebral crush
Intraocular hypertension
Facial senile spots.
PHARMACOLOGICAL RECORD
Timolol: Ocular hypertension
Pergabaline: peripheral diabetic neuropathy and postherpetic neuralgia.
EVOLUTION
Remarkable improvement of health
Immunocompetence against infections (she has not suffered any kind of infection)
Reducing facial senile spots.
Fascicular pain relief
Sleeping much better (she has stopped taking hypnotics)

COMMENTS
(after taking organic silica)
At the same time, he has modified eating habits and added supplements to his diet with all probability this has reinforced the positive action of organic silica.

PATIENT 3
AGE: 77 years. SEX: Male
REASONS for taking ORGANIC SILICA: Dizziness, and fatigue. Frequent respiratory problems
LENGTH OF TIME AND INTAKE FRECUENCY
10 ml/ 3 times per day for a month.
10 ml/ once a day (on an empty stomach) for 1 year and 2 months.
Direct application once a day (facial senile spots)
PATHOLOGICAL RECORD
Dyscal hernia L4-L5
Degenerative spinal cord stenosis
Post traumatic hip arthroplasty
Post chirurgical fibrosis on L5-S1 that touches the dural sack and the S1 left infundibulum.
Vertebral crush

Intraocular hypertension
Facial senile spots.
PHARMACOLOGICAL RECORD
Timolol: Ocular hypertension
Pergabaline: peripheral diabetic neuropathy and postherpetic neuralgia
EVOLUTION
Remarkable improvement of the general conditions
Inmunocompetence against infections (she has not suffered any kind of infection)
Reducing facial senile spots.
Fascicular pain relief
She has overcome many sleeping problems (she has stopped taking hypnotics)

COMMENTS
(after taking organic silica)
At the same time, he has modified eating habits and added supplements to his diet with all probability this has reinforced the positive action of organic silica.

PATIENT 4
AGE: 73 years SEX: Female
REASONS for taking ORGANIC SILICA
Progressive degeneration of the disease (Multiple sclerosis), showing paresthesia on right
EEII and EESS.
Cephalea and cervical pain.
LENGTH OF TIME AND INTAKE FRECUENCY
10 ml/ 3 times per day for a month.
10 ml/once a day (on an empty stomach) for the last year and 2 months (she still continues the use)
PATHOLOGICAL RECORD
Idiomatic arterial hypertension progressing over and pharmacologically treated.
Multiple sclerosis diagnosed at the age of 39, without taking Interferon.
Progressive degenerative of right hemiparesis.
Bilateral faquectomy.
Anexectomy and hysterectomy.
PHARMACOLOGICAL RECORD
Enalapril; Arterial hypertension.
Atenolol: Cardiac Arrhythmias and arterial hypertension.
Trankimazin (alprazolan): Hypnotic and ansiolytic.
EVOLUTION
Immunocompetence against some infections.
An improvement to his health, although he still suffers from paresthesias, cepahleas and
cervical pain.
RESULTS AFTER TAKING ORGANIC SILICA
Slow but constant improvement. She still shows the symptoms of her illness although less intense. She still continues the use of Organic Silica, although she also needs other natural treatment.

PATIENT 5
AGE: 48 years SEX: Female

REASONS for taking ORGANIC SILICA
Polyarthralgia caused by fibromyalgia.
Sever asteny.
LENGTH OF TIME AND INTAKE FRECUENCY
10 ml, 3 times per day for six months
10 ml/ once a day for six months
Direct application twice a day (fracture)
PATHOLOGICAL RECORD
Fibriomyalgia diagnosed 7 years ago with use and medical monitoring.
Idiomatic arterial hipertensión.
Severe asteny.
PHARMACOLOGICAL RECORD
She does not usually take medicine.
RESULTS AFTER TAKING ORGANIC SILICA
A slight improvement to the patient physical condition and mental state of mind is observed.

PATIENT 6
AGE: 64 years SEX: Male
REASONS for taking ORGANIC SILICA
Post-surgical symptoms
Prostatic syndrome
Arthralgias EESS
Tendonitis (not well defined) in the scapular-humeral articulation
LENGTH OF TIME AND INTAKE FRECUENCY
10 ml/ 3 times per day for three months
Direct application several times per day on the genitor-urinary area
PATHOLOGICAL RECORD
Neoplasia operated 6 months before
Arterial hypertension diagnosed 15 years ago. He does not follow any pharmacological use.
Inguinal hernia at the age of 19.
Prostatic hypertrophy.
PHARMACOLOGICAL RECORD
He does not usually take medicine.
RESULTS AFTER TAKING ORGANIC SILICA
Important decrease in arthralgias and tendonitis
Complete disappearance of the prostatic symptoms
Improvement to the patient physical condition and mental state.

PATIENT 7
AGE: 65 years SEX: Female
REASONS for taking ORGANIC SILICA
Usual symptoms of reumatoid arthritis
LENGTH OF TIME AND INTAKE FRECUENCY
3 times per day over a period of three months.
PATHOLOGICAL RECORD
Topical applications to the articulations
Rheumatoid arthritis, diagnosed one year before and pharmacologically treated
PHARMACOLOGICAL RECORD

Cortisone (AR).
EVOLUTION AND OBSERVATIONS
(after taking the organic silica).
Total remission of algic symptoms. Patient claims a complete disappearance of pain. Patient recovered good spirit, plus emotional and physical state of mind
Note: She has stopped taking cortisone.

PATIENT 8
AGE: 58 years SEX: Female
REASONS for taking ORGANIC SILICA
Hiatus hernia
Generalized itching
Anxiety
Insomnia
LENGHT OF TIME AND INTAKE FRECUENCY
10 ml 3 times per day over a period of two months
PATHOLOGICAL RECORDS
Hiatus hernia no operated
PHARMACOLOGICAL RECORD
Unknown
EVOLUTION AND OBSERVATIONS
(After taking organic silica).
General health improvement
Problems in general almost asymptomatic, sleeping and rest problems improved.

PATIENT 9
AGE: 48 years / SEX: Female
REASONS for taking ORGANIC SILICA
Bimalleolar fracture EEII
LENGHT OF TIME AND INTAKE FRECUENCY
10 ml 3 times per day for six months
10 ml once a day for six months
External application twice per day (fracture)
PATHOLOGICAL RECORDS
Idiomatic arterial hypertension
Severe Asthenia
PHARMACOLOGICAL RECORD
She does not usually take medicine
EVOLUTION AND OBSERVATIONS
(After taking organic silica).
Great improvement to the recovery of tibia and perinea malleolus fracture. An improvement on the patient general physical condition and his good spirit has been observed.

Reflexology consulting based in Spain[7] Dr. Aletxu Epelde MD
Dear Sir or Madam: Please find attached the results after treating with organic silica. We verify that silica gel relieves all different types of articular algias: [joint pain]. Signed Aletxu Epelde

[7] Doctor Aletxu Epelde, Castro Urdiales Spain 2007

Woman, 67 years old, insulin-dependent diabetic since 1973. Medical use: NOVORAPID, 3 units at breakfast time and 6 units at lunch time. S. AVENTIS 32 units at night time. Normal diet of a person suffering from diabetes, no fats, no glucose, some exercise.
Silica use starting on April 20th, 2007.
Dosage: 15-0-15: No obvious results for the first month.
May 12th, 2007: Dosage increase 20-0-20. After one week on this dosage, hypoglycaemias start appearing. The insulin dosage is reduced to 2 units. The same dosage is maintained, and as results she suffers from less hypoglycaemias, but they do not disappear.
Use is reduced once again to 1 unit, and the hypoglycaemias are often less. Regular check – ups are carried out at her Endocrine.

Work carried out BY LOIC LE RIBAULT
Loïc Le Ribault worked with silica for more than 30 years. In two articles published in 1972 by the Academy of Sciences, Le Ribault demonstrated that quartz crystals, containing amorphous silica, are soluble in water. After studying many samples, he proved the frequent presence of micro organisms such as bacteria and diatoms, on the surface of certain grains of sand.[8]

At a later date, he showed that the superficial amorphization of detritic quartzes is due to a combined action of these microorganisms; organic acids they secrete, and different mechanical and/or chemical actions, which are characteristics of the sedimentary environment in which they evolve.[9]
In order to explore more deeply into the role of these micro organisms in the organic silica cycle, in 1975 Le Ribault developed a method for collecting silica deposits. Subsequently it was shown that solutions obtained this way, contain a significant percentage of organic silica. When carrying out these experiments he found the therapeutic effectiveness of organic silica.

At this time, Le Ribault suffered from psoriasis, affecting his hands and nails. It was assumed tat there was no cure for this but when he was kneading sand with a high concentration of organic silica, he realized that after two days the psoriasis had disappeared of his right hand. Since he was intrigued at what had happened, he tried to find a cause-effect relationship, so he carried out the same experiment at the same concentration on his left hand, obtaining the same results.
Le Ribault became interested in the role of organic silica when treating skin disorders, and in collaboration with doctors, he performed hundreds of successful tests until 1982. During this period, he improved his method of extracting organic natural silica, based on some kind of siliceous sand and debris, and provided

[8]LE RIBAULT L. (1972) : Exoscopie : caractères distinctifs des quartz à évolution fluviatile, Comptes rendus de l'Académie des Sciences, Paris, 274, D, pp. 3190-3193. LE RIBAULT L. (1972) : Exoscopie : caractères distinctifs des quartz à évolution marine, Comptes rendus de l'Académie des Sciences, Paris, 275, D, pp. 735-738.

[9]LE RIBAULT L. (1971) : Présence d'une pellicule de silice amorphe à la surface de cristaux de quartz des formations sableuses, Comptes rendus de l'Académie des Sciences, Paris, 272, D, pp. 1933-1936.

professionals with therapeutic solutions that could be described as G3 (Third Generation).
Surprisingly, doctors realized that treated patients were relieved of their aching joints, and it was also demonstrated through blood tests, that those who suffered from viral diseases, were relieved very quickly of their infections. In other words, organic silica seems to act positively in many different disorders.

Collaboration between Duffaut and Le Ribault[10]
On 1982, Le Ribault and Duffaut met on a scientific demonstration in Bordeaux. Duffaut had been working for several years on a synthetic molecule of organic silica. Le Ribault had very sophisticated microanalysis material, and had just created the famous microanalysis laboratory **C.A.R.M.E.** (Centre d'Applications et de **Recherches** en **Microscopie** Electronique). Immediately both investigators began to collaborate on therapeutic applications of organic silicates. The following year, the collaboration of both scientists led to the synthesis of a very effective molecule for treating viral diseases: G4, called DNV, obtained by adding sodium hyposulfite.

For nearly a decade, Duffaut and Le Ribault gathered evidence of the incredible efficiency of organo silicon compounds for healing a large number of disorders, sometimes in collaboration with doctors, but always for free. In 1985, they filed an international patent to protect the therapeutic applications of G4, and in Paris 1986 they organized a press conference, where the most notable result was, the absolute indifference of medical authorities.

In 1987, Le Ribault and Duffaut issued an authorized document and it was handed over to Jacques Valade (at that time French Minister of Research), stating that this product could represent some kind of expectation in the use of AIDS. And, research in this field should be carried out immediately. Eighteen years later, the minister still had not answered.

After the death of Duffaut, Le Ribault continued his work alone. At that time, organic silica was only applied externally and in order to have some effect they had to add small quantities of products used in allopathic medicine or homeopathy. The products presented many other problems such as: its short duration, precipitation, flocculation, etc.: they were not stable.
In 1994 Le Ribault developed a new molecule which was tested three years ago. The result was that it was no longer necessary to add other drugs to enhance its effectiveness, as it was discovered to be more effective on its own and was also completely stable. Later on, he demonstrated that the effects lasted for years, and that it could also be taken orally showing no toxicity: its toxicity, which is a big problem in all other types of silica, is equivalent to that of water.[11]

According to Ribault, the molecule monomethylsilanetriol of organic silica is absolutely unstable as it is constantly reorganizing. It possesses a high vibratory power. The great advance he made was that this labile molecule could be

[10]Nobert Duffaut – Les tribulations d'un Découvreur Non Reconnu

[11]Laure Pouliquen « *Le silicium organique de Loïc Le Ribault* » (éditions Trédaniel, 2006).

stabilized. One of his most notable findings was in how to stabilize the Labile molecule.
A further improvement he made, and one of the reasons for its effectiveness, is its high purity. Le Ribault managed to get a complete purified organic molecule, with no contamination of silanodiols or any other compounds found in anterior preparations. This product was called 5th generation organic silica and it was the result of work carried out over 4 stages of trying to stabilize organo silicon compounds.

SILICA IN HUMAN BEINGS

Silicon is an essential oligoelement for humans, meaning it is indispensable for the body[12]. In 1972 the American Dr. Edith Muriel Carlisle confirmed this theory. " The importance of silicon in biology is a relatively recent discovery. It still has not been given the attention it deserves by most of scientists and doctors although its benefits are evident and therefore, its use is spreading quickly. Present in all living organisms, silicon is involved in numerous metabolic functions and is required for normal tissue formation. The latter fact supports the multipurpose nature of silicon use"[13]
Tests carried out on hundreds of thousands of patients around the world have shown and confirmed the predictions made by Louis Pasteur in relation to future use of silicon in numerous pathologies.

THE LACK OF SILICA

Modern farming methods which destroy the soil flora, and the few fibrous elements contained in our foods, have led to silicon poor diets in comparison to ancient diets or diets from less developed countries. The subsequent lack of silicon in foods can produce deficiencies of this element in the body.[14]
It is difficult to diagnose because it overlaps with other causes, but it is possible that a lack of silicon may be a trigger factor in atherosclerosis and problems like arthritis, arthrosis and in those with chronic physical pain. Many of these ailments can be corrected, or lessened with a silicon-rich diet and/or a silica supplement with no observable side effects.

A lack of this element would not normally show up in a typical medical profile, making diagnosis difficult, since it presents as symptoms of other diseases. In a typical western diet, despite the high consumption of refined foods and low fiber content, silica traces are still sufficient to avoid acute deficiency. This may lead professionals to believe there is no serious deficiency; however, the following facts should be taken into account:

1.- Humans are genetically conditioned to diets containing at least ten times more silicon than their current typical diet.
2.- The intensive use of synthetic fertilizers, insecticides and pesticides in agriculture has considerably reduced the microbial flora of the humus responsible for the solubility of the silicon in soils.

[12]Carlisle EM. Silicon as an essential element. Fed Proc 1974;33:1758-66.

[13]Nutrition Today,July/August, 1993 p. 13-18 by Dr.Carol D.Seaborn and Dr.Forrest H. Nielsen

[14]Lecture by 'Académico Supernumerario Excmo. Sr. D. Enrique Ronda Laín' April 19, 1995

This worrisome fact is recognized by all agronomists. Plants nowadays have less silicon content. Hence the fact that their cuticles are weaker and more vulnerable to pests, which has been proven by tests. Extensive use of pesticides is known to be harmful to the humus flora.
3.- Silicon is found primarily in fibrous parts which are consumed far less in modern diets, thus causing problems with colds, diverticulosis, hernias and even colon cancer. With a healthy diet these problems could be prevented or corrected. The tendency to consume low fiber diets with a corresponding diminished silicon content has caused individuals to consume far less silicon today than in past centuries.
4.- Eating habits today provoke intestinal environment which is poor in healthy intestinal bacteria (probiotics) such as lactic acid, which helps create silica solubility. This could be solved with bacterial input - buttermilk, yogurt, kiefer or probiotic supplements and products derived from these - and soluble fiber.

According to some authors a lack of silica can cause:

- Stunted growth
- Fragile bones
- Dehydrated skin
- Acne
- Fistulas and/or abscess susceptibility
- Boils
- Tonsillitis
- Intellectual deficiencies
- Conjunctivitis
- Cavities
- Hair fragility or hair loss
- Opaque and fragile nails
- Tendonitis
- Fibrosis
- Joint problems
- Coronary problems
- Tuberculosis and cancer
- Osteoarticular and supportive tissue problems in general
- Weakened Immune system
- Lung and bronchial tube problems

SILICON IN BIOLOGICAL PROCESS

A high concentration of silicon is also found in organs and glands that do not require mechanical strength: thymus, adrenal, pancreas, spleen, where it plays a different role. Although it has not been studied in depth, it is related to bio-electronic functions. It is important to bear in mind that silicon as well as germanium, are used in semi-conductors, because they are able to easily mobilize electrons, and are therefore used in electronic chips. In this respect, silicon can have a very important role as an electron transport intermediary, amplifying the impulses between different molecules.
This was suggested by Vincent, a bio-electronic pioneer, and quoted by Monceaux in 1956. More modern authors such as Fazekas, Schafer and

Chandler and Bornens (mentioned by P. Creac'H[15]) based on the presence of silicon aggregates in mitochondrias, centriols, and other cellular elements, have suggested this role, and have also added that they act as quartz regulating the pulses or very stable frequency signals governing the centriole movement. In the connective tissue, silicon forms part of the glycosaminglycans[16], which constitute the main structural elements.
Schwartz identified approximately 500 ppm of silicon combined with hyaluronic acid, chondroitin sulfate, dermatan and heparan[17] in the soluble collagen found in the skin. The tendon of a rat's tail was found to have between 1000 and 2000 ppm. of silicon, indicating at least 3 to 6 silica atoms per protein chain in the collagen molecule. Schwartz concludes that silicon is found as **silanolate** forming ester or ether derivates on the bridges constituting the structural organization of glycosaminoglycans and poliuronids. The latest works by Carlisle [18], confirms this structural aspect of the silicon in the connective tissue. Therefore, silicon is a link between polysaccharides (glycosaminoglycans) and minor protein fractions.
In vitro tests on cultured organs and cells (cartilage) in poor and rich silicon content culture media show clear evidence of the stimulating effect of silicon in the course of developing silicon. Positive interactions have also been found between silicon and ascorbate in cartilage formation, resulting in a high prolyne and hexosamine production in the presence of both compounds. Silica also increases hydroxyproline, the total protein, and the non-collagen protein, apart from enhancing ascorbate effects.

After adding silica supplementation, cultures isolated from chicken epiphyses showed an increase of nearly 250% in collagen, measured as hydroxyproline, and an increase of 150% in the polysaccharides matrix.
In addition to its support of structural function, It has been demonstrated that silica acts as an activator of prolylhydroxilase, which is an essential enzyme for the synthesis of the 20 known types of collagen. In previous experiments, Carlisle isolated this enzyme from embryonic chicken bones. This enzyme is involved in hydroxyproline synthesis, and this activity is affected by the silicon content in the culture medium.
This confirms the "in vivo" and "in vitro" results of silicon requirements in collagen synthesis, where the prolyl hydroxilase activity measures this biosynthesis activity.[19]

VARIATIONS OF SILICA CONTENT IN TISSUES

Apart from an inadequate silicon supply in our diet, levels of silica can vary depending on:

[15]Creac'H, P. and J. Adrain (1990) Le silicium dans la chaîne alimentaire et sa localisation dans l'organisme. Méd. et Nut. 26: 73-90 de Mesquita, R. P. and I. B.

[16]Schwartz, K. (1973) A bound form of silicon in glycosaminoglycans and polyuronids. Proceedings of the National Academy of Sciences of U.S.A. 70: 1608-1612

[17] Schwartz, K. and S. C. Chen (1974) A bound form of silicon as a constituent of collagen. Federation Proceedings 33: 704

[18] Carlisle, E. M. andW. F. Alpenfels (1980) A silicon requirement for normal growth of cartilage in culture. Federation Proceedings 39: 787

[19]Carlisle, E. M., J.W. Berger, et al. (1981) A silicon requirement for prolylhydroxylase activity. Federation Proceedings 40: 866

Sex
Gohk and School (quoted Desmonty 1988), observed 35% less silicon content in muscular tissue in females compared to those of males. This can possibly explain the difference in muscular power between the sexes. Although, Charnot and Perez observed the opposite effect on rats: adult females have higher rates than males.

Age
Monclaux (quoted by Desmonty 1988) observed a general decline in silicon levels with age. For example, silicon content in the integumentary system decreases by 30% in older age groups compared to younger age groups. In the aortic wall, as noted by Loeper, silicon content is 4 times higher in children than in adults. James Duke (1998) proved that as estrogen levels decrease with age the absorption of silicon reduces simultaneously. This explains the tendency of toward decalcification, with the onset of menopause. Intestinal absorption of silica also decreases with age (Desmonty 1988). Silicon content in the aorta, the thymus and skin in humans, also decreases with age (Murray 1996). Loeper found that the silicon content in the aortic wall is 4 times higher in children than in adults.

IN CERTAIN PATHOLOGIES
Tuberculosis
Tuberculosis produces an accelerated loss of silicon content in the body (which led to different therapeutic experiences with silica since the twentieth century).

Cancer
Remmets has observed a significant decrease in silicon content in the conjunctive tissue.

Atherosclerosis
Loeper and Golan studied the connection between the silica content in the tissue and aortic atherosclerosis, showing that any atherosclerotic lesions decreases the silica in artery walls.[20]

Moreover, a study carried out on 72 people over a period of 61 years,[21] demonstrated that in atherosclerotic arteries, the silicon content is 14 times less than the content measured in healthy arteries. This deficit mainly affects the medium and intima layers. Silicon gives flexibility to the arteries. (Desmonty 1988) Silicon is one of structural compounds of the vascular walls.
At the beginning of the demineralization process in bone pathologies, silicon diminished by 50%; while the calcium and sulphur rate only fell from 5 to 8% (Desmonty 1988). In different bone pathologies, such as osteomalacia, bone tuberculosis an osteosarcoma. a progressive silica loss has been found.

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[20]Loeper, J., J. Goy-Loeper, et al. (1979) The antiatheromatous action of silicon. Atherosclerosis 33: 397-408

[21] Loeper J, Loeper J, Fragny M. The physiological role of the silicon and its antiatheromatous action. In:Bendz G, Linquist I, eds. Biochemistry of silicon and related problems. New York: Plenum, 1978:281-96.

STUDIES CARRIED OUT BY LOEPER

In 1966, Loeper reported on the levels of silicon content in different tissues of mice, rabbits and men.[22] He noted that organs containing high quantities of conjunctive and elastic tissue have a higher concentration of silica. Normal and pathological human aortas obtained from autopsies were studied from all different age groups: from babies to adults. The first important observation was that silicon level decreases considerably with age. This decrease starts at the age of 10, and becomes more noticeable from the age of 35 onwards. Generally men have a higher silicon content than women.

In 1968 Loeper noted the high silicon concentration in proteoglycans: approximately 400 to 550 mg. per 1000g of dry tissue. He also demonstrated its structural role.[23]

In a study carried out in 2002, Ravin Jugdaohsingh[24] analyzed silicon content absorption from different foods due to silicon's importance in bone formation. Conclusion: Absorption is greater in men than in women but decreases with age. 41% of absorbed silicon is proportionally excreted via urine depending on the silicon content in food. Solid foods are the main source of available silica. In low silicon diets normal young animal growth decreases resulting in problems in bones and connective tissues. Supplementary silicon in postmenopausal women suffering from osteoporosis, not only inhibits bone resorption loss of bone mass, but also increases trabecular volume, and mineral density.
In vitro experiments showed that silica added to osteoblasts and bone marrow cells, increase bone synthesis markers, including type 1 collagen, which is the largest organic component of bone matrix. Silicon increases bone matrix mineralization.

Silicon absorption and availability from plants is low, the majority is excreted via urine and feces. The kidney filters silica from plants. In food, silicon is available in most grains, cereals and vegetables, as well as meat and dairy products. Asians and Indians have diets higher in silica content than Westerners which explains why these groups have less hip fractures.

Minimum daily requirements are between 10-25 mg /day.

American Journal of Clinical Nutrition, Vol. 75, No. 5, 887-893, May 2002

American Society for Clinical Nutrition Dietary silicon intake and absorption Ravin Jugdaohsingh, Simon HC Anderson, Katherine L Tucker, Hazel Elliott, Douglas P Kiel, Richard PH Thompson and Jonathan J Powell From the Gastrointestinal Laboratory, The Rayne Institute, St Thomas' Hospital, London.

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[22] Loeper J, Loeper J, Fragny M. The physiological role of the silicon and its antiatheromatous action. In:Bendz G, Linquist I, eds. Biochemistry of silicon and related problems. New York: Plenum, 1978:281-96.

[23] (Loeper J. y Leumpert a. "Estude du silicium en biologie et au cours de L'atherome",Presse Med. 1966, 74- 85, 868).

[24] A provisional database for the silicon content of foods in the United Kingdom, *The British Journal of Nutrition: an international journal of nutritional science*, Vol 94, pp. 804-812, Cambridge University Press, United Kingdom

OSTEOARTICULAR SYSTEM

OSLLR can be used to gradually eliminate or diminish the incidence of bone pain and to help the patient regain mobility.

In the ossification process, silicon is linked to calcium, making it essential for calcium absorption and utilization in bone. Controlled X-ray studies of treated patients show a remineralization of the decalcified areas.[25]

These results confirm the connection between calcium and silicon. Moreover, the contribution of silicon to bones, tendons and muscles greatly improves rheumatic problems. Studies carried out since the sixties have shown that organic silica also accelerates the process of healing bone fractures and recalcification.[26]

More recent studies have shown that a higher silicon concentration near areas of intense calcification (epiphyses and fractured areas), has a catalytic role in calcium, sulphur and phosphorus fixation.

The effect of silicon on bone and cartilage is related to its role in collagen, elastin and glycosaminoglycan synthesis. [27] It has been demonstrated that animals with a silicon deficiency also show a matrix deficiency of bone and cartilage. A higher concentration of silicon has also been found in tendons.

SILICA AND OSTEOGENESIS

Schwartz and Carlisle have carried out the most classical studies on this subject. [28] The following conclusions were obtained:

Silicon concentration is relatively high in calcification sites.

- At the beginning of the decalcification process, silicon concentration in tissues dramatically decreases (up to 50%) compared to minerals such as calcium or sulphur which only decrease 5 to 8% (Desmonty, 1988).

- X-Ray electromyography studies and biopsies of rat bones show almost complete absence of silicon in mature bone. Silicon presence is associated with low calcium concentrations in areas of osteogenesis. (Desmonty, 1988).

- Experiments with rats fed on diets low in calcium since birth show the positive effect of silicon on bone and cartilage mineralization: rats fed a silicon supplement weighed much more than those which weren't given any type of supplement (Desmonty,1988). [29]Silicon concentration is high

[25] Birchall, J. D. (1990) The role of silicon in biology. Chemistry in Britain: 141-144
[26] Faure, C. (1973) Le OSLLR, agent méconnu de minéralisation et de prévention de la carie dentaire. Maroc Médical: 572-574
[27] Schwartz, K. (1973) A bound form of silicon in glycosaminoglycans and polyuronids. Proceedings of the National Academy of Sciences of U.S.A. 70: 1608-1612
[28] Carlisle, E. M. andW. F. Alpenfels (1978) A requirement for silicon for bone growth in culture. Federation Proceedings 37: 1123
[29] DESMONTY, Marie-Laure, Silcium et silicea, Tesis para obtener el diploma de Estado como doctora en Medicina, Universidad de Burdeos, Francia, 16 de Junio de 1988

when calcification commences, then drops when the calcium concentration increases and is transformed into hydroxyapatite (a highly resistant mineral similar to marble).

The calcification and mineralized action of silicon occurred in these experiments during the first two weeks of life, but after 5 weeks there was no difference between both groups of rats.

With reference to human health, Tolonen (1995) [30] pointed out that silicon intake is more important at low calcium levels. Several researchers have demonstrated low silicon diets may lead to a bone density reduction (Nielsen 1991).

The effect of silicon has also been studied in teeth. We must take into account that bone is basically made up of a matrix of protein and calcium salt deposits. The fibrous matrix gives flexibility to the bone and supports tension, while calcium salt (65% of its weight) gives firmness and allows the bone to withstand pressure. In bone formation, the matrix components are considered to be produced first - protein-polysaccharide, and collagen fibers - creating a structure in which calcium salts are also deposited (Jacob Francote Lossow 1982). [31]

According to the information we have until now, silica is said to be important in osteogenesis because it acts in the matrix production and the calcium salt deposition in bones. Further studies have confirmed that silicon contributes by giving form to the matrix tissue. In fact, several studies carried out by Calcagni (1984) on tissue composition such as that found in cartilage, the umbilical cord, etc. proved that silicon is linked to internal structures of polysaccharides biopolymers (such as hyaluronic acid, chondroitin, etc..) via non-reactive and extremely stable bonds.

According to Calcagni, these results verify the role of silicon in transversal bonds between proteins and polysaccharides, or (just only) simply bonds in polysaccharides. This role is involved in the neat protein structure forming the bone matrix. This applies to all the connective tissue.

After providing accurate technical data on silica concentrations related to several samples of animal connective tissue, Calcagni (1988) concludes as follows:
"Current research suggests the structural role of silica in connective tissue, which is involved in glycosaminoglycan synthesis and in matrix mineralization"

ORGANIC SILICA AND THE CARDIO VASCULAR SYSTEM

The quality of our arteries is determined by their flexibility and diameter. Silicon plays a key role in artery wall flexibility, which is in fact, one of the tissues with the highest silicon concentration. The well-known French naturopathic Doctor Daniel Kieffer, describes in his book Anti-Stress and Global Health, an aorta which has suffered a stroke shows 25 times less silicon than a normal aorta. This is one of the most interesting areas of silicon application although not much

[30] Food Science and Technology International, Jan 1995; vol. 1: pp. 146
[31] ANATOMIA Y FISIOLOGIA HUMANA DE Jacob Francote Lossow, ED. INTERAMERICANA, MEXICO, 1982

attention has been given to it. Regarding the cardio-vascular system, silica has three functions:

1. It protects the arterial wall
2. It reduces cholesterol levels
3. It reduces blood pressure

ARTERIAL WALL PROTECTION

The majority of all research carried out on silicon has been in this field. Blood vessels show high silicon content. The highest silicon concentration is located in the aorta. Silicon determines artery elasticity. In fact, this is a key element giving shape to elastic fibers not only in blood vessels but also throughout the whole body: skin, ligament, tendon, cartilage, etc., which are all rich in silica.

Studies carried out since the 60's, show the structural and protective role of silicon in the elastic fibers of the arteries. The results obtained from these studies have been of great importance in understanding arterial disorders:

- The deterioration of elastic fibers in arteries coincides with the loss of silica.
- Silica level drops with age: arteries in children show a silica concentration 4 times higher than older people.
- The formation of cholesterol plaque runs parallel with silica losses: cholesterol plates show a lack of silica.
- The lack of silicon makes elastic fibers more permeable to lipids.
- This lack of the elastic fibers precedes fat and calcium deposits in arterial walls.
- Diminishing levels of silica result in thicker cholesterol plaque calcification.
- An artery suffering from atherosclerosis has from 10 to 20 times less silica than a healthy artery.

Examinations carried out by Professor Schulz revealed silicon presence in all connective tissues and demonstrated that silica content varies inversely with age. Elements which make up the connective tissues of the arterial wall in the cardiovascular system are: 25-30% collagen fibers, 30-40% elastin fibers and 30-40% muscle and fundamental substances, mainly mucopolysaccharides. These mucopolysaccharides form the matrix which is between the elastin and collagen.

In humans, both proteins show a very high silicon content, through which vascular elasticity is maintained. Significant silicon concentration in young arteries has been found in comparison to a decrease in silicon in aged or diseased arteries. The physiological silica decrease with age is linked to loss of vascular elasticity.

It has been proven that the silicon content in the wall of damaged arteries decreases. The connection between silicon index in the aortic tissue and arteriosclerosis was studied, and by means of lipid infiltrations, a progressive decrease of silica in arterial walls has been noticed. In 1988 Dr. Desmonty carried out a study on 72 patients who were 61 years old and she found that

arteries suffering from arteriosclerosis showed a silica level fourteen times inferior to those of veins. With regard to atheroma prevention, silicon decreases arterial wall permeability, increases the intercellular mass and the thickness of elastic fibers. It also maintains a high level of hydrolases activity, which is able to transform esterified cholesterol into free cholesterol.

Schematically described, the plaque formation process in arteries is developed in three phases:
1. Damage to interior arterial wall caused by oxidation (free radicals).
2. Due to oxidation, arteries become more permeable thus allowing the formation of fat deposits in damaged areas, at the same time as scar tissue
3. Calcium deposit in plates, (plaque) which leads to the hardening of arteries.
Silicon protects arterial walls on those three levels.

Classical studies referring to this are those carried out by Loeper (quoted by Pometan 1978). [32] Loeper demonstrated that silicon is mainly concentrated on blood vessel walls, especially in the aorta, giving them elasticity.
A decrease in silicon was also found with atheroma formation. Loeper noted that silicon concentration has a protective role on the arterial wall. Several studies with rabbits (Loeper) showed that atheroma plaque formation goes from 80% in untreated animals to only 25% in animals treated with organic silica. This action is due to the protective role of silica on the arterial wall.

SILICA AND ARTERIAL PERMEABILITY
The integrity of elastic fibers which makes up the majority of the arteries, depends on the presence of silicon. It has been suggested that silica acts by making the artery walls impermeable to fat and calcium in blood.

Electric balance, cardiovascular health and silica
A well known fact which is not often considered in modern medicine is that cellular life is an electric phenomenon. Indeed, biological chemistry acts by attraction-repulsion forces generated by electrical charges of different substances and body fluids. Cardiovascular health is also affected by this. The arterial wall and blood components (platelets, leukocytes, red blood cells) are normally negatively charged. Therefore, due to this negative charge they repel against each other (similar poles repel, opposite poles attract). However, electric contamination in modern life (lack of the direct contact with earth, contact with synthetic static fibers, computers, television, high voltage lines, electrical appliances, ingestion and inhalation of positive ions in cigarette fumes, pollution, canned food and in several medicines, etc) generates an overload of positive ions which alters the electrical potential of the arteries, as well as other organs.

This potential change (going from negative to positive), helps the fixation of the electronegative blood components on the arterial walls. In fact, many common diseases such as cancer or osteoporosis, have much to do with this modern electro-positive pollution. Organic silica is very effective in solving this problem: it

[32] Loeper J, Loeper J, Fragny M. The physiological role of the silicon and its antiatheromatous action. In:Bendz G, Linquist I, eds. Biochemistry of silicon and related problems. New York: Plenum, 1978:281-96.

gives ions that allow the reconstruction of the bio-electric balance of the body cells

ANTI CHOLESTEROL ROLE

Organic silica contributes to a healthy cardiovascular life by reducing cholesterol levels and hypertension. Studies carried out on animals by Loeper have led to the following results:

- Cholesterol level decrease in blood.
- Cholesterol level decrease in the liver.
- Cholesterol level decrease in the aorta.

Pads moistened with Silica gel applied directly to the liver area and oral intake of OSLLR can be very helpful in reducing cholesterol levels. A decrease in cholesterol level from 3.5 to 2 gr. / lit. over a period of 30 days was also observed in many cases. With organic silica supplementation, a decrease of cholesterol levels and other risk factors in blood does not usually take long.

HIGH CHOLESTEROL LEVEL AND OTHER FACTORS OF CARDIOVASCULAR RISKS

In some patients a temporarily higher cholesterol level has been observed. This increase is not due to a higher cholesterol production but is caused by the gradual elimination of atherosclerotic deposits from arterial walls. This important mechanism was first explained by Constance Spittle in the medical journal "The Lancet" (1972).[33] She found that a supplement intake in patients suffering from cardiovascular problems, may lead to a temporary increase of cholesterol levels in blood. Alternatively, cholesterol levels in healthy people were not increased after taking dietary supplements.

This temporary increase of cholesterol levels in blood seems to mean that the recovery process of the arterial walls has started and fat deposits on the arterial walls are being reduced and transported out of the body through the blood, and therefore there is a temporary increase in the level of "fats" in the blood - cholesterol, triglycerides, LDL, lipoproteins, and other risk factors.

Due to these findings, it is recommended to continue the dose. After a few months, cholesterol levels in blood will be under initial levels. A high fiber content diet (such as oats, bran, and other cereals) can also help to reduce cholesterol level and other risk factors in blood.

Organic silica helps to reduce hypertension: its capacity to re-establish the arterial elasticity and balance bio-electric values of the cardiovascular system effectively combat hypertension. The effect of organic silica on hypertension has been studied for many years. Many studies in the 60's carried out on humans showed that in 4 or 5 days, arterial pressure was normalized, although the organic silica used then was less effective than the current 5th generation organic silica.

Many additional studies (Pometan 1978) have showed the antihypertensive effect of organic silica. Today, results are usually seen in a few weeks.

[33] *www4.dr-rath-foundation.org/NHC/cholesterol/cellular_solutions.htm*

THE ORIGIN OF ORGANIC SILICA

Loïc Le Ribault worked with organic silica for more than 30 years. After studying thousands of samples, he proved the frequent presence of microorganisms, such as bacteria and diatoms on the surface of certain grains of sand. Later on, he showed that the superficial amorfization on detritic quartz is due to the combined action of these microorganisms, by means of organic acids and some mechanical and/or chemical actions, typical of the sedimentary environment in which they evolved.

In order to further study the role of these microorganisms in the silica biological cycle, in 1975, Le Ribault, created a procedure to obtain silica deposits derived from the action of these microorganisms.. He then showed that solutions obtained in this way contained a high concentration of organic silica. In doing these experiments, he realized the beneficial effects of organic silica by chance.

Current OSLLR is of semi-natural origin. Silica obtained from quartz, undergoes a solubilization process by organic synthesis and subsequent stabilization and filtering in order to create the same type of molecular silica found in the marine environment, where organic silica is created by the action of diatoms.

ARTICLE:

Silicon: a nutritional beneficence for bones, brains and blood vessels? Nutrition Today, August, 1993 by Carol D. Seaborn, Forrest H. Nielsen [34]

"Ample evidence exists to indicate that silicon is essential for forming and maintaining normal healthy bones, brains and blood vessels. The absence of adequate silica may be a factor in the occurrence of some human diseases involving these tissues.

Silicon has been long suspected to be important in maintaining health in humans. [3] Before much was known about silicon in biology, one of the luminaries of medical science, Louis Pasteur, predicted that silicon would be found to be an important therapeutic substance for many diseases. At the beginning of this century, numerous French and German reports suggested that the prediction of Pasteur would become fact. These reports described therapeutic successes in treating numerous diseases, including atherosclerosis, hypertension and dermatitis with sodium silicate, with simple organic silicon compounds and with tea made from the silicon-rich horsetail plant. However, by 1930, silicon in medicine faded into obscurity as a consequence of therapeutic failures and inadequate evidence for silicon being biologically active. For the next 40 years, silicon, as consumed in the diet, was generally considered a biologically inert, harmless, nonessential element for living organisms except for some lower forms of life (diatoms, radiolarians and sponges) in which silica serves a structural role.

In 1972, it was reported that silicon was essential for bone formation.[5] About the same time, other reports appeared suggesting, like earlier reports, that inadequate dietary silicon may contribute to some cases of atherosclerosis and hypertension, in addition to some bone disorders and the aging process.[6]

[34]Nutrition Today,July/August, 1993 pages 13-18 by Dr.Carol D.Seaborn and Dr.Forrest H. Nielsen

Since then, reports have periodically appeared that give further support for silicon being nutritionally important in preventing some chronic diseases associated with aging. Surprisingly, these reports seem to have been generally ignored or considered inconsequential by clinical and nutritional professionals, media personnel or the general public. For 20 years, the battle of bringing attention to the nutritional importance of silicon has been essentially fought by Dr. Edith Carlisle.[5-10] Recently, we decided to join the fray.
Based upon our findings during the past 2 years, we believe the possibility that silicon is needed for healthy bones, blood vessels and brain deserves more attention by the research and clinical communities.

SILICON BIOCHEMISTRY

Organosilicon compounds are analogues of organocarbon compounds[19]; thus, the possibility of a silicon based life analogous to a carbon-based life has been a seductive idea for science fiction writers. Support for this possibility could be the finding that silicon can partially replace carbon in the biosynthetic processes of nocardioform chemo-autotrophic bacteria from leprosy tissues.[11] However, the biochemistry of silicon makes it unlikely that silicon-based life exists anywhere in the universe. Silicon is larger and less electronegative than carbon. Silicon forms very rigid bonds; they do not bend, nor does silicon undergo stereochemical conversions as easily as carbon.[19] Nonetheless, silicon has some properties that make it a possible structural or bonding agent in living organisms. Silicon forms Si - O - C bonds with a strong ionic component that can be transferred from an oxygen atom to another with only small changes in energy, and thus the Si - O bridge could act as a "switch" mechanism.[19] Also, hydrogen bonding via silanol groups could occur in vivo. For example, hydrogen-bonded complexes between silicic acid and compounds containing hydroxy groups can be sufficiently stable to be important in the secondary structure of biopolymers such as collagen. In animals and humans, silicon is found both in the free and bound forms. Silicic acid probably is the free form. The bound form of silicon never has been rigorously identified.

SILICON AND BONE

Silicon deprivation results in abnormal skeletal development in animals. In silicon-deficient chicks, the leg bones have reduced circumference, thinner cortex and reduced flexibility. In both silicon-deficient chicks and rats, skulls are abnormally shaped with the cranial bones appearing flatter, or more "serpent-like," than normal. The distribution of silicon and the biochemical changes caused by silicon deprivation in bone indicate that silicon influences bone formation by affecting cartilage composition and ultimately cartilage calcification.

Carlisle also found that the more mature the bone, the smaller the amount of measurable silicon. In the process of bone mineralization, initially silicon and calcium contents rise congruently in bone tissue. In the more advanced stages of mineralization, the silicon concentration falls markedly while the calcium concentration approaches proportions in bone apatite. These findings suggest that silicon is involved in the initiation of calcification through some effect on the preosseous matrix (early bone structure).

Further support of the concept that the primary role of silicon in bone formation involves the organic matrix, is that hexosamine (glycosaminoglycans) and collagen concentrations are depressed while macromineral composition of bone mineral is not markedly affected in bone of silicon-deficient animals. In addition, research suggests that silicon is involved with phosphorus in the organic phase in the series of events leading to calcification.

In the last few years, a large number of extracellular matrix macromolecules containing glycosaminoglycans and saccharide, for which functions are beginning to be defined, have been described. Some of these macromolecules provide communication between cells and their surrounding matrix; this communication allows cells to monitor the composition and properties of the matrix and to respond to matrix alterations by changing their synthetic activity.

Silicon may be necessary for the communication between one or more of these macromolecules and cells, and in this way affects cartilage composition and ultimately cartilage calcification. We recently found further evidence that silicon status affects a circulating or local macromolecular mediator of bone metabolism.

Based upon substantial evidence accumulated to date, there is little doubt that silicon deprivation affects bone health. Because silicon apparently affects the initiation and rate of calcification of bone, silicon may be an important factor in disorders characterized by an imbalance between bone formation and resorption. Furthermore, because silicon affects cartilage composition, including articular cartilage, inadequate silicon may be of consequence in some joint disorders such as osteoarthritis.

SILICON AND THE BRAIN

Recently, silicon deprivation in rats have shown other affects unrelated to connective tissue and bone. Rats fed a low-calcium diet accumulated high amounts of aluminum in all brain regions when dietary aluminum was high and silicon was low. Further evidence that silicon performs a vital function in the brain is the pattern of distribution of silicon in the brain. The concentration of silicon is higher in brain than in plasma. Furthermore, silicon concentrations vary widely among the different brain regions, with much higher concentrations in the hippocampus, caudate and lentiform nucleus than in the spinal cord and brain stem.

Alzheimer's disease has been associated with an increased concentration of aluminum in the brain. Perhaps because silicon is associated calcium and phosphorus in the brain, silicon deprivation, especially when dietary calcium is low, has an effect similar to the Alzheimer's disease process. That is, it alters the blood-brain barrier, allowing aluminum to enter and accumulate in nerve cells when dietary aluminum is high. Although the mechanism through which silicon affects brain biochemistry is unknown, accumulating evidence clearly indicates that silicon is needed to prevent detrimental changes in the brain, especially under stress conditions of low dietary calcium, high dietary aluminum and/or inadequate thyroid function. Thus, silicon supplementation may be of consequence in some aging and disease processes that affect the brain.

SILICON AND BLOOD VESSELS

Because blood vessels contain glycosaminoglycans and collagen, which are affected by silicon deprivation, it is not surprising that silicon has been implicated in maintaining normal blood vessels and in preventing atherosclerosis. French investigators have reported that the silicon content of normal human aorta decreases markedly with age and that the concentration of silicon in the arterial wall decreases with the development of atherosclerosis. The changes in the aortic silicon content were found to occur mainly in the elastin and mucopolysaccharide fractions.

The beneficial role of silicon in preventing atheroma formation has been suggested to involve assuring the integrity of elastic fibers and thus impermeability of the arterial wall to fatty infiltration and calcium deposition.

DIETARY CONSIDERATIONS OF SILICON

Although a biochemical function for silicon is unknown, the preceding strongly suggests that silicon is required by humans. However, postulating a silicon requirement for humans is difficult; no appropriate human data are available and only limited usable animal data exist. If dietary silicon is highly available, based on animal data, the human requirement for silicon is quite small, perhaps in the range of 2 to 5 mg/day.

Total dietary silicon intake of humans varies greatly with the amounts and proportions of animal-based foods (silicon-low) and plant-based foods (silicon-high) consumed and the amounts of refined and processed foods in the diet. Normally, refining reduces the silicon content of foods. However, in recent years, silicate additives have been increasingly used in prepared foods and confections as anti-caking or anti-foaming agents. Although this increases total dietary silicon, most of it is not bio-available. The silicon content of drinking water, and beverages made thereof, shows geographical variation; silicon is high in hard water and low in soft water areas. The richest sources of silicon are unrefined grains of high fiber content, cereal products and root vegetables.

CONCLUDING STATEMENTS

Ample evidence exists to indicate that silicon can be accepted as an essential nutrient for higher animals, including humans. Findings from animals indicate that silicon supplementation apparently affects macromolecules, such as glycosaminoglycan, collagen and elastin, and thus is needed for healthy bones, brains and blood vessels. Although more should be known about the physiologic function and requirement for silicon, it is seductive to speculate about specific disorders that can be augmented or caused by inadequate silicon supplementation; those that have been proposed are atherosclerosis, osteoarthritis and hypertension.

Even if these speculations are not found to be true, silicon probably should be considered a nutrient of concern for humans. Finding pathologic conditions caused by silicon deprivation in humans would not be surprising, because:
1.- the silicon content in human diets can easily be lower than that inducing changes in animals (especially diets containing refined and animal-based foods),

2.- the response of animals to silicon deprivation can be enhanced by stressors commonly found with humans, such as low dietary calcium, high dietary aluminum and low estrogen status (post-menopausal)".

OSLLR anti-inflammatory action[35]

The anti-inflammatory and soothing action of monomethylsilanetriol has also been proven in several experiments.

In vitro studies confirm OSLLR protects against cell infiltration and inflammation.

In vitro studies also demonstrate a decrease in interleukins production. Another in vitro study of the anti-inflammatory potential of OSLLR showed that it has an inhibitory activity against irritant and inflammatory agents on cultured human keratinocytes. Based on these studies, OSLLR helps to restore vascular tissues when inflamed.

Monomethylsilanetriol enhances collagen production, contributing to connective tissue architecture and resilience. This is a direct consequence of their cytostimulating effect.

OSLLR significantly enhances collagen production (by 13% and 19%) at concentrations of 0.5 and 1% respectively, on cultured fibroblasts in relation to the control. The same experiment showed that Orgono Silica shows no toxicity regarding cultured human fibroblasts at different concentrations of 0.2%,0.5% and 1%.

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