THE NEWSLETTER FOR WINNERS

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Finally, Ready to Shoot Our New Video

by Thomas Kurz

About a year ago, we began to consider making a video on tumbling. We knew the benefits of including tumbling skills in athletes' training but we wanted to gauge the interest of our customers and of visitors to our Web site. So we made a survey and a great many people responded saying that they wanted us to offer such a video. We ended the survey and got busy preparing production of the video, but we ran into delays and now get quite a few questions like this:

Having participated in the survey, and not having seen anything in the newsletters about the final decision of whether or not the acrobatics training video course was to be produced, I wondered if you might be able to tell me what the decision was.

Having purchased several of Stadion's products in the past, and having experienced first-hand the quality and results, I am hopeful that the course will indeed be produced, and made available. It's very hard to find gymnastics schools that will accept students over 13 years of age, even those of us with a background in the sport.

Answer: The acrobatics and tumbling video will be produced. Initially this video was planned to be edited, and perhaps even published, in December of last year. Unfortunately for us, but luckily for the acrobatics instructors, they had a busy competition season last Fall and also had a movie engagement (they do stunt work too) so our initial schedule fell apart. We postponed the project and planned to begin shooting the video in February or March. No luck again—the main Spring competitions were rescheduled and instructors had no time for working on our project until May.

Now the final dates for videotaping are set and I am flying to Poland on May 1st to be there during the shooting. I will be sitting by the cameraman and pestering the instructors about every little detail of their teaching method, to make sure that viewers learn all that there is to learn about the skills, about learning them well, and that nothing is taken for granted. Then, as soon as I see that the shot video meets my standards I will bring it back to Vermont, have it edited and released on DVD.

Highlights

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Natural Sunscreens by Thomas Kurz

It's that time of the year when most workouts can be done outside, and if sunny enough, in beach attire.*

Sunshine stimulates metabolism, blood production, and activity of the endocrine glands; increases immunity; reduces allergies; and forms vitamin D in the skin.

When I work out outside, or just rest in the sun, I never wear sunscreen. If I feel that the whole workout in the sun would be too much for my skin, I put on a hat and rub olive oil on my exposed skin. If the workout drags on for more than 90 minutes and the sun burns really strongly, I can put on a shirt. Actually, I do not remember having to do that during my workouts here in Vermont—and I usually work out at noon.

I protect myself from sunburn with only natural means: my suntan, which I keep all year long because even in the winter, on sunny days, I do some exercises outside in shorts (sometimes I wear a warm hat and even a neck warmer with my shorts); and the right foods, which prevent sunburn and inflammation.

Foods that prevent sunburn are those

* Suntanning is contraindicated for people who have lung tuberculosis, cancer, poor circulation, tendency for internal bleeding, hyperthyroidism, and advanced arteriosclerosis (Mika 1983).

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Natural Sunscreens

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that contain carotenoids (including lycopene), vitamin E, vitamin C, flavonoids, and omega-3 fatty acids (Sies and Stahl 2004; Greul et al. 2002) such as:

- Olive oil (cold-pressed only)—because it contains vitamin E and other antioxidants. Applied to the skin, olive oil has been proven to reduce the risk of skin cancer induced by ultraviolet (UVB) radiation (Gallardo et al. 2005). Vitamin E, which occurs naturally in olive oil, taken internally together with vitamin C improves resistance to sunburn (Eberlein-Konig et al. 1998).

There are more sources of vitamin E, the richest being vegetable oils such as wheat germ oil, sunflower oil, cottonseed oil, safflower oil, soybean oil, corn oil, palm oil, and rice bran oil. Other foods providing vitamin E include nuts, sunflower seeds, whole grains, fruits, green leafy vegetables, and meats, especially their fatty portion. Of the oils I prefer the olive oil because it tastes good, smells good, and has been used as an ointment already in Ancient Egypt and Ancient Greece by people who spent a lot of time in the sun with few clothes on.

- Fruits and vegetables with high vitamin C content—vitamin C boosts effectiveness of vitamin E.
- Tomatoes—natural source of lycopene, which protects against UV-light-induced reddening and inflammation of the skin (erythema). People who ate 40 g of tomato paste with 10 g of olive oil had 40% less skin reddening than people who did not (Stahl et al. 2001).
- Tea—I drink both black tea and green tea. Both have anti-inflammatory and anti-cancer properties. In a human study, drinking about three teacups of green tea was shown to lower the DNA damage by ultraviolet A (UVA) radiation (Morley et al. 2005). Animal studies on hairless mice showed that both green and black tea consumption can reduce the incidence of skin cancer induced by ultraviolet (UVA + B) light, but black tea was more effective. Black tea reduced the number of sunburn cells in the epidermis of mice 24 hours after UVA + B irradiation, while green tea had no effect. Black tea also provided better protection against UVB-induced tumors than green tea (Record and Dreosti 1998). Decaffeinated teas (green and black) were slightly less effective than the regular teas at preventing UVB-induced skin cancer (Wang et al. 1994).
- Fish such as sardines, salmon, tuna, and mackerel—they contain anti-inflammatory omega-3 fatty acids. Eating fish oil rich in omega-3 polyunsaturated fatty acids reduces sunburn (Rhodes et al. 1995; Shahbakhti et al. 2004).

I don't take vitamin E supplements, pills, or capsules. I get my vitamins from natural sources. Natural sources of vitamin E, in addition to being good food, contain all or most of its forms (tocopherols and tocotrienols) plus other antioxidants. For example, olive oil contains such antioxidants as beta-carotene and phenolics.

Manufacturers of natural-source vitamin E convert the less popular and less researched forms of vitamin E (beta, gamma, and delta tocopherols) to d-alpha tocopheryl acetate or d-alpha tocopheryl succinate because these are more chemically stable and because only alpha tocopherols officially count as vitamin E. So, for the manufacturers' convenience and the right to claim that their supplements contain so much vitamin E, people eat these industrially processed forms that are far less absorbable by the human body than the natural form of vitamin E. It takes several days to break down these acetates or succinates, mainly in the liver, to a bioavailable vitamin E—provided one is not ill or very old. I have better uses for my liver than to struggle with synthetic or semisynthetic forms of vitamins, so I'd rather get my vitamins in their natural form.

As far as applying those synthetic forms of vitamin E directly to the skin—I wouldn't bother. A study done at the Arizona Cancer Center showed that topically applied alpha tocopherol acetate was not metabolized to the active free form of alpha tocopherol in plasma or skin. It was absorbed into the skin, but there was no evidence of its conversion to the active free alpha tocopherol (Alberts et al. 1996). In another study, researchers found that the topical application of alpha tocopherol acetate or succinate did not prevent UVB-irradiation-induced skin cancer in hairless mice and may have even enhanced the carcinogenic process (Gensler et al. 1996). For more reasons not to use commercial sunscreens, read my article in the *Stadion News* of Spring 2005.

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Facts About Nutrition

by Thomas Kurz

Here are some facts about nutrition that guide my choices of foods and meal composition:

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Animals obtain energy by breaking hydrogen bonds in molecules of foodstuff. The more hydrogen bonds in the molecules of a nutrient, the more energy it can supply.

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Edible fats (those that end in a COOH group) have more hydrogen bonds than do proteins or carbohydrates—1 g of fat provides about 9 kcal, versus 4 kcal from protein or from carbohydrate. I do not consider fully or partially hydrogenated fats to be edible even though the FDA does—I guess because such fats do not cause people to drop dead soon enough. Those unnatural fats contain a high percentage of trans fats, as well as ions of metals (nickel or platinum) used as catalysts in the hydrogenation process. (Small quantities of natural trans fats occur in animal fats: dairy products and meat. However, animal fats also contain beneficial fatty acids, such as lauric acid, stearic acid, and conjugated linoleic acids—which all help immune function and metabolism when eaten in reasonable quantities.)

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The greatest number of hydrogen bonds is in saturated fats, in which there are no double bonds between carbon atoms—all carbon atoms, except the COOH group, are attached to two hydrogen atoms each. Next are monounsaturated fats, which have only one double bond between the carbon atoms. Polyunsaturated fats have many double bonds between the carbon atoms, so they are a poorer source of energy than saturated or monounsaturated fats.

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Respiratory quotient—the ratio of the volume of CO2 released to the volume of O2 consumed in a given period—is lowest when the predominant source of energy is fat, because molecules of fat have fewer oxygen atoms than do molecules of carbohydrate or protein. This is why one needs to have greater oxygen uptake when using fat for energy than when using carbohydrates.

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Fat is used as a predominant energy source when (a) one can supply enough oxygen to cells to satisfy requirements of aerobic reactions of fat metabolism and (b) one's metabolic pathways are set up to preferentially process fatty acids.

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Which metabolic pathways are preferred depends on the amount of enzymes available to process given nutrients, which in turn depends on what one eats. Someone who eats mainly carbohydrates will have metabolic pathways set up for deriving energy most efficiently from carbohydrate while not so efficiently from fat—which then gets stored.

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Because carbs are easier to process than fats (require less oxygen), eating lots of them interferes with metabolizing fats and using them for energy. This is why people who eat both fats and high amounts of carbohydrates (or just high-glycemic-index carbs) get fat and sick.

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Arctic hunters (Eskimo) did not suffer from obesity, diabetes, dental caries, or cardiovascular disease when their diet contained very little (if any) carbohydrate—until they got "civilized" and switched to an agricultural diet. Then they started developing all those diseases.

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Modern urban and farming people do not differ genetically from hunter-gatherers, either those of the Stone Age or of today. The hunter-gatherers and the agricultural people have the same metabolism, which evolved over millions of years of scavenging and hunting and gathering—not farming. Farming began only 10,000 years ago in some areas of Asia and much later elsewhere. Archaeological evidence shows that hunter-gatherers were much healthier and stronger than farmers. But one does not need to dig for old bones to see that—it is enough to view current documentaries about the lives of today's hunter-gatherers, such as those from Amazonia (except those who attach things to their lips and thus ruin their bites—those people do not look so healthy).

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According to anthropologists, the Stone Age diet consisted of 35% lean protein (mainly lean meat and fish) and 65% fruits, vegetables, legumes, and nuts. This leaves one with a false impression that the Stone Age diet was low in fat. Hunter-gatherers at least as early as homo erectus ate (and those of our times still eat) the bone marrow and brains of animals (of other people, too). Even the leanest game's brain and marrow are mostly fat. Taking that into account would change those percentages of calories from protein and from carbs, wouldn't it!

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Animal parts contain/supply the best building blocks for corresponding human parts—muscles for muscles, tendons for tendons, ligaments for ligaments, bones for bones, kidneys for kidneys and so on. Organs of a healthy animal have all the amino acids, enzymes, minerals, and vitamins those organs need to have—that is why all this stuff is in there. So, a healthy animal muscle contains the best building materials for human muscles—it has whatever it needed for the animal's muscles to function well. I prefer game meat—deer, or better yet, moose—because wild animals must be more fit than domesticated animals, although a free-ranging cow or bull is very fit too. I'd rather build myself with parts of a more fit rather than a less fit animal. Organ meats (from organs other than muscles) such as liver, kidneys, and so on contain what human organs need for optimal function.

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The healthiest carbohydrates are low-glycemic-index vegetables and fruits, preferably from the same area one lives in. Edible plants native to the area one lives in have all it takes to keep native animals feeding on those plants in good health.

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Your diet is good if you feel good both right after the meal and in between meals, every day. It is good if it would serve you well if you were living in the wild or among mortal enemies. In the wild, any digestive dysfunction or discomfort (gas, diarrhea, constipation) or not feeling well enough to fight or to flee at any time is a fatal liability. True, top predators can afford to gorge themselves, but then even they retire to a safe place afterwards.

I will end with a quote from the chapter "Nutrition" in *Science of Sports Training:* "How to tell if an athlete's last meal was good for him or her? It is simple—if the athlete feels well, alert and energetic, and not hungry four hours after the meal—then the meal was suitable and good. If the athlete is hungry four hours or less after the meal, then it was not suitable."

Q and A on TRAINING

Study this typical question on training carefully. You may find information that relates to questions of yours. Question is in ***italic boldface.***

■ ***I am going to begin the workout outlined by Dr. Strossen in his book* Super Squats: How to Gain 30 Pounds of Muscle in 6 Weeks.** ***Partly for vanity (in gaining size) but also for strength. I am aware much of it is hypertrophy, but I am hoping this will be offset by the 6 weeks after, where the reps will come down to 3 to 5.***

In this workout Strossen recommends large amounts of milk. I have done this program once before, and although I did have vast gains in muscle (checked on a fat percentage monitor—about 15 lb!), I did get vast gains in fat also (about 20 lb!).

Should I not worry about the fat this time around and diet down after? Or should I cut down the carbs such as rice, etc., as you suggest in* Science of Sports Training *to keep the fat at bay during the workout? Or as another option go with skimmed milk instead of semi-skimmed to reduce fat? I did go a little nuts on drinking milk last time (up to 12 pints a day), and I was planning on bringing that down to 4 pints on rest days and 6 on training days (I also take a D3 supplement to offset the problem of calcium absorption).

Anything (food, exercise, whatever) that is truly good for you is good for all parts of your body. If something is bad for any part, then it is not good for the whole. If you gain muscle mass but even more idle fat, your fitness goes down and so does your health. Gaining some fat (but not as much as you gained) during strength training for hypertrophy is normal. This happens because during high-resistance training, mainly the fast-twitch muscle fibers are developed, while the slow-twitch fibers that are best suited for burning fat for energy are relatively neglected. At the same time, for most mass gains one also cuts down on high-rep, low-resistance exercises for aerobic endurance, since doing intense work both on hypertrophy and aerobic endurance reduces possible gains of either because these opposing efforts put conflicting demands on muscle fibers. This is explained in several standard texts on exercise physiology.

Now about milk: If drinking so much milk makes you feel good, then drink it. If it agrees with your metabolism, your guts, your liver, your immune system, and so on, then it is good for you. I suspect something was not good for you since you gained more fat than muscle on this program.

General comment on strength and mass: From your past e-mails, I guess that you have been lifting weights for about 1 year, so you are not exactly a beginner. Nevertheless, when you introduce new exercises or suddenly use much greater resistance in old exercises, for the first weeks (even up to 8), most of your strength gains will be due to neural factors and not to muscle hypertrophy. Instead of jumping into Dr. Strossen's program and stuffing yourself silly with food when your muscles are not responding yet by growing, you could get better results by going more slowly. First, do his exercises (if you are really ready for them) until you see your muscle mass starting to increase (it may take more than one monthly cycle of training). Then, when you see your muscle mass growing which means that the muscles are ready to absorb more protein, do the whole program with the gargantuan eating (maybe in a new cycle). Otherwise most of the food will turn into flab—as it did.

More information on resistance training for mass, maximal strength, explosive power, and other forms of strength; on training cycles; and on preparation for serious strength training is found in *Science of Sports Training*. The book *Super Squats* is listed at the Athlete's Bookshelf (www.stadion.com/bookshelf.html).

Let us know what you think about our newsletter. Have you learned something that improved your or your athletes' performance or health? What would you like to learn more about?
Write to us at news@stadion.com