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Coffee, the wonderful fragrant „black magic”, or the foamy thick Capuccino. Hot or frozen blend cappuccino or moccachino and the wide range of energy drinks are all forms of caffeine. Some people rely on caffeine to wake up every morning, or any time of the day for fun. Despite of the latest research founding that caffeine decreases the chance of diabetes, did you know that by drinking caffeine will get you prone to high blood pressure, cardiovascular disease and even gets you even more stressed?

Lot of people ask me – What is my opinion on caffeine and coffee consumption? And can coffee be consumed as part of a healthy nutrition? My answer is – *it depends*. It depends on the amount, the quality of the coffee bean, the frequency of consumption and the time of the day when it consumed. In order for my answer to make sense lets talk about the effect of caffeine in our physiology.

The effects of caffeine in a normal healthy body

Lets look into what does caffeine do in a normal healthy individual. It is well known that caffeine is a stimulant. Most people drink coffee in the morning to wake up or in the afternoon before important meeting. Students drink coffee to stay awake at night to study or before taking an exam. Drinking caffeine on regular bases makes us dependent and addiction sets in.

What happens to those who drink coffee before going to bed and can sleep like a baby? What happens to the stimulating effect? The detoxification of the caffeine in these people is genetically very fast, therefore caffeine has no stimulating effect. However most of us don't belong to this category and caffeine does provide the mental “pick up”.

The effect of caffeine on stress level

In most people caffeine linger long in the blood stream before it brakes down in the liver. The longer the caffeine lingers in the body the bigger damage it causes.

Researchers of the Duke University investigated the effect of caffeine and showed that consuming caffeine after 1pm – allowed the caffeine to linger in the body and until late at night (bed-time) and still affecting our physiology. It takes time to brake down caffeine, and the complete detoxification may last for 12 hours. Those people whose liver works slower detoxifying caffeine, will have a lot higher “pick up” effect and it will last a lot longer. Consuming caffeine on a regular bases, due to the constant elongated “pick up” may worsen the chance of stress-related diseases: anxiety, nervousness, and cardiovascular disease.

Consuming 500 mg caffeine a day (4 cups of coffee) before 1pm increases the adrenal level by 33%, as a result increases the blood pressure and anxiety level (Psychosomatic Med 2002, 64,:593-604)

The effect of caffeine on blood sugar regulation

Caffeine not only affect the stress-hormone adrenaline, but also has negative effect on our blood sugar regulating hormone, insulin. Latest research on oral glucose tolerance test of and the follow up of 910 adults by The University of California San Diego, showed that caffeine may have a protective effect against incidents of type 2 diabetes. Dr Smith and colleagues said that the quantity of coffee consumed daily did not predict diabetes risk, and warranted further investigation (Medscape Oct 25, 2006).

Despite of this favorable data, we must remember, that the decrease in insulin sensitivity of the cells is the major factor in type 2 diabetes, which results in further degenerative disease (obesity, high cholesterol level, myocardial infarct, stroke etc.)

Coffee, the liver detoxification and degenerative disease

Coffee bean, is the most pesticide and insecticides sprayed crop. Even though the cleaning processes, there is still high amount of residual chemicals left in the coffee beans. We cant really trust the “cleanness” of the organic coffee, when its brewed through dioxin-containing white-bleached paper filter and made of chlorinated water. Beside the stimulating effect of caffeine, drinking coffee heavily taxes our liver detoxification due to the incoming chemicals.

The effect of caffeine may be even more harmful for pregnant women. Caffeine increases estrogen level, which increases the risk for endometriosis and breast cancer. Therefore drinking coffee is definitely a big no for pregnant women.

Caffeine increases the risk of stroke and rheumatoid arthritis.

Caffeine as appetite suppressant, “fat-burner” and diuretic

Caffeine, due to its stimulating effect, decreases the sensation of hunger in the brain. This was the reason, why caffeine became a favorite ingredients in weight loss products. However, the emotional “pick up” and constant wired up feeling through the high stress level the damage may be lot higher in the body.

Caffeine increases “fat-burning”. It has been common knowledge among endurance athletes that caffeine can increase performance. Moderate intake is allowed, however, caffeine in high amounts is a forbiddance substance and banned by the IOC.

Caffeine is also a diuretic. Caffeine increases water excretion from the body, therefore it negatively effects hydration status. Loosing 2% of body weight as fluid (e.g.1 kg weight loss during exercise in a 50 kg person) in an athlete decreases performance. Not only athletes, but those who physically active or involved in hard physical labor is affected. Drinking caffeine on the top of loosing fluid from seat is a straight road for dehydration.

Our fluid homeostasis is crucial for our body temperature regulation. When the body fluid decreases, the body temperature increases. Physical activity especially in hot an humid environment increases fluid loss up to 1.8 l/hour in a 70 kg person. Even though it is cooling to drink an iced coffee or cappuccino, however it is not suggested before exercise.

Caffeine as “medicine”

After the long list of negative effects, lets us talk about the benefits of caffeine. Caffeine dilates the bronchi in the lungs and supports breathing in pre-term, premature babies living in incubator. Caffeine also supports breathing during the initial time when infants are taken out from the incubator and to regular air.

Caffeine and chronic fatigue

Caffeine indirectly increases the other stress-hormone, cortisol. In healthy individuals the constant high production of cortisol further increases anxiety. Long-term anxiety and mental emotional stress exhausts the adrenals, which no longer can produce the required normal amount of cortisol. Low cortisol levels during the day results in chronic fatigue and the difficulty of waking up in the morning. In individuals with lab-test confirmed low cortisol levels, 1 cup of caffeine-containing drink actually therapeutic.

What can exhaust the adrenal gland and cause chronic fatigue?

Running in the “fast lane”, long-term anxiety and mental emotional stress— topped off by relying on caffeine for the even higher “pick up” effect—can actually exhaust the capacity of the hormone-producing cells in adrenal gland, which result in the decreased cortisol output. Normal healthy cortisol levels keep us active during. Low cortisol levels consequently bring on the feeling of fatigue. It is very simple to experience the effect of cortisol. During the hard work-day you don’t even feel hungry and can accomplish many different tasks. However, spending 5 minutes in front of the TV relaxing at night can bring on the accumulated fatigue and the feeling of hunger.

Low cortisol level and chronic fatigue results in low immunity and low capacity of healing. This was natural in older people and was considered as normal results of aging. However, today the symptoms of adrenal exhaustion are more frequent in younger population between 30-40 years.

How to wake up in the morning without caffeine?

Besides caffeine, there are several other healthier options to help us to get going in the morning, once we our cortisol level is very low. We can actually avoid the chemical left in the coffee bean and take licorice root extract (*Glycyrrhiza glabra*) and ginseng, which increases cortisol level. Due to its

stimulating effects these should be taken only up to 4pm. For individuals with high blood pressure these products are contraindicated.

How can I get off coffee?

It is been common knowledge the withdrawal effect of coffee can cause temporary migraines and headaches. Progressive reduction of the amount of coffee consumed can help to avoid the migraines. During the withdrawal period of 2- 3weeks, it is suggested to drink caffeine fortified water (place small amount of caffeine in pill in pure water). Lower the caffeine dose day by day until we reached complete withdrawal. This way the liver progressively slows down caffeine detoxification and the migraine is avoided.

If you still *have to* drink coffee, keep the following advice:

1. Consume organic coffee, to avoid the chemicals sprayed on the corp.
2. Consume de-caffeinated coffee. There are many different ways to remove caffeine form coffee, but the most natural is the Swiss water process. The decaffeination process is marked on the packaging so look for decaff coffee as „*Naturally decaffeinated*”
3. Avoid sugar, condensed milk and cream in your coffee, which can further increase the negative effects. Artificial sweetener are calorie free, however they are another burden on the liver detoxification. If you need to drink your coffee sweet, use small amount of fructose or stevia (it made of the leaves of an African plant, which is actually low glycemic index) Drink decaff coffee diluted such as the “American coffee”
4. Use natural paper filter to brew your coffee. Hot water flowing through the white bleached filter can dissolve the chlorine from the paper into your coffee. To avid chlorine, use bottled water and not the tap water to make coffee.

What else can you drink?

- For those you enjoy a hot morning drink, best to drink decaff green or black tea. It is important to note, that these teas should be brewed traditionally and not from the paper filter.
- If you like to take green tea for its anti-oxidants effects consume it from extract or capsule.
- It is very healthy to drink hot water with lemon in the morning. Lemon cleans the liver and the acidity can reduce glycemic index of the consumed foods esp if rice, potato or white bread is the breakfast. Adding 2 tbs of lemon juice to a glass of water can reduce the GI of the food by 3—40% and provide a favorable blood sugar response.