

DETOXIFICATION EFFECTS OF HONEY MASSAGE

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Introduction

The apitherapy world uses honey massage since long ago. One of the web pages [6] summarises: "It belongs to natural healing methods. It strongly invigorates the whole body, so it is suitable for tension problems, states of exhaustion, nervous disorders and restlessness. It purifies the whole body from deposits that accumulate in the body due to the environment, food and medical products. Honey has excellent detoxifying effects, cleanses your skin leaving it velvety soft and smooth to touch."

Objectives

Honey massage is considered a type of soft tissue massage. The effects of honey massage are based on the interaction between the human skin and the biologically active and nourishing components of pure honey, the mechanical micro – pump effect of honey massage, as well as the powerful stress-relieving effects of reflex therapy.

Honey improves blood circulation in the tissues under the skin and in muscles, improves the thermal regulation of the skin and thus its overall state, and has a positive influence on the entire nervous system. Honey massage is **widely accepted** for its detoxification effect.

The main challenge of natural healing practice is the separation between the dreams, the marketing and the facts.

We wanted to know exactly what happens with the honey on the skin during the honey massage. Are there minerals or other elements, which is extracted from the skin? Are there toxins? Are there some elements, which are absorbed by the skin? For the extraction test we used mineral poor honey and for the absorption test we used mineral rich honey.

Materials

For the massage we used two different types of honeys.

- Honey poor in minerals. We chose acacia honey, because it contains very few pollen. The acacia (*Pseudoacacia robinia* L.) honey is a world wide acknowledged honey. One of the main producers in the world of acacia honey is Hungary. The beekeeping technology is essential to get the proper, clean mono floral honey. We chose an expert in the field. For the test the acacia honey was produced by an 81-year old Hungarian beekeeper Károly Rádóczy and his bees near Lake Balaton, one of the largest in Central-Europe.
- Honey rich in minerals: We chose an Electuaria (old Hungarian recipe from the year 1490) from honey and Japanese Matscha (抹茶) green tea. We used the same Electuaria in Germany[3]. This is produced by a beekeeper master Tamás Kutasi. He keeps his bee families in a national preservation area.

Methods

For the massage we used 1-2 teaspoons (5-10 g) honey. A honey massage leads (c.a. 30 minutes) to formation of white-gray pellets (clumps) – exudate on the skin. We measured the original honey and the honey exudate after the massage.

We used two methods for measurements of elements: ICP-MS and ICP-OS. ICP-MS could not measure P, S, Si, and Ti.

The sample group was made up for 1 women (38 years old) and 1 men (49 years old). We gave the men both belly and back massages and the women only back massages. We also gave the massages to Manganese mine workers with 2, 24, and 31 years of experience.

Results

First of all, the two methods ICP-MS and ICP-OS gave significantly the same result, so the two methods validated each other.

Second, the green tea Electuaria is powerful rich in minerals compared to acacia honey. But it is not suited to cover the recommended daily intake (RDI) of minerals [4]. To cover the daily mineral needs of the body it would be necessary to intake multiple kilograms (5-93) of honey.

There are significant differences between the honey and the exudate. However there are some elements, which did not changed significantly (e.g., P, Ni).

The detoxification effects are highly variable, which is based on personal differences.

We speak about detoxification effect, if the exudate contains significantly more of a given element than the original honey. Detoxification effect is shown in the table (values= exudates content minus original honey content in mg/kg):

	lady	back	ber belly	2 yrs Manganese mine worker	24 yrs Manganese mine worker	31 yrs Manganese mine worker	mean	STD
Al	21,0	23,0	39,0	20,0	15,0	17,0	22,5	3,9
Ba	0,4	0,3	0,5	0,3	0,4	0,3	0,4	0,1
Sn	2,3	1,3	2,3	1,6	1,9	1,2	1,8	0,4
Ca	88,0	57,0	116,0	131,0	80,0	112,0	97,3	25,4
K	43,0	181,0	195,0	149,0	329,0	376,0	212,2	108,8
S	21,0	132,0	53,0	89,0	102,0	128,0	87,5	41,3
Mg	13,0	13,0	18,0	22,0	12,0	20,0	16,3	3,3
Na	20,0	70,0	50,0	330,0	210,0	370,0	175,0	119,3
Cu	0,7	0,5	0,6	0,8	0,0	0,4	0,5	0,2
Sr	0,3	0,2	0,3	0,2	0,1	0,2	0,2	0,1
Fe	15,0	18,0	30,0	16,0	15,0	17,0	18,5	2,1
Si	39	49	75,0	41,0	32,0	39,0	45,8	7,1

We would speak about absorption effect, if the exudate would contain significantly less of a given element than the original honey. Absorption effect is not shown for any of the measured elements, it means, that no absorption takes effect, or the absorption and the detoxification effects are balanced.

We measured the following elements but they were under the detection level of 0,1 mg/kg: Se, Ag, V, As, Co. Cd was bellow 0,01 mg/kg. It means that no detoxification effect could be proven for these elements.

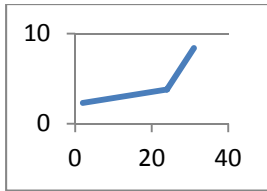
Discussion

Manganese

There are minerals which are essential but in higher doses also toxic to humans. Such an element is Manganese (Mn). Manganese is necessary for normal life (optimal daily intake is around 2-5 mg), but could be also toxic (doses over 130 mg). Manganese poisoning should have causal connection to Alzheimer's disease [1]. The storage of manganese inside the human body appears in multiple sites such as liver and hair. Skin is not a typical storage site for manganese.

We chose people who were exposed to the working conditions in the mine for over 2, 24, and 31 years. These men worked at Mn in Úrkút mining area and in the mine itself. The mine temperature is about 9 Celsius. The miners wear work clothes. Only few surfaces of the skin are coming in contact to air and dust. We found that the manganese content of the exudate of the honey massage is proportional to the years spent in the mine!

Element	Basis Honey	Non mine workers	Mine worker since 2 years	Mine worker since 24 years	Mine worker since 31 years
Mn (mg/kg)	<0,3	<0,3 – 0,6 (mean 0,3)	2,3	3,8	8,4



The maximum: 8,4 mg/kg. For one massage is max 10 g honey used.

Detoxification effect for manganese is 84 microgram/massage. Recommended daily intake (for example) is 2 mg [5]. If we have the daily adequate intake, than we lose thru honey massage 84 microgram, 4,3 % of all our intake. The honey massage is **safe** for the manganese. Toxic amount of manganese is daily intake of >130 mg. The "detox honey massage" has the detoxification coefficient for the toxic amount of manganese $130 \text{ mg} / 84 \mu\text{g} = 1548$. It means, if the skin would be able to collect and exudate the daily toxic amount of manganese, than it would be necessary to have 1548 daily detox massages. This means, honey massage is **not relevant** for manganese detoxification.

Titanium

	Basis honey	Woman 40	exudate of the Back	xudate of the beer belly	Non mine workers	Mine worker since 2 years	Mine worker since 24 years	Mine worker since 31 years
Titanium mg/kg	<0,1	19	0,9	1,3	1,44	5	1,7	2,2

The titanium exudation rate is high. The question is, why? After a questionnaire there is a hypothesis, that the contraceptive coil could be the reason. Titanium is biocompatible, non toxic. We could not speak about detoxification effect of honey massage of titanium.

Fe

The removal of Fe from beer belly is almost 2 times higher than from all other groups. The removal of Fe from the human body is not positive. However the amount of removal is maximum $30 \text{ mg/kg} * 10 \text{ g} / \text{massage} = 0,3 \text{ mg/massage}$. Suggested intake is 18 mg/day for Fe, so the massage extracts 1,6 % of the daily intake. The massage is **safe**.

Beer belly / back

We made massage with the same honey, on the same person on the back and on the beer belly. On the beer belly there is long term storage.

	BASIS HONEY	exudate of the Back	xudate of the beer belly
Al	<1	23	39
Ba	<0,3	0,3	0,5
Cink	0,5	1,8	2,8
Ca	24	81	140
S	14	146	67
Mg	10	23	28
Mn	<0,3	0,3	0,6
Na	<10	70	50
Cu	<0,3	0,5	0,6
Fe	<1	18	30
Si	2	49	75
Ti	<0,1	0,9	1,3

Two elements (S, Na) are in less amount in the exudates of the beer belly as in the exudates of the back. All other 10 elements (including all metals) are in larger amount in the exudates of the beer belly than in the exudates of the back.

There are several factors, which influence the results, which could not be evaluated in this study:

- Usage of Cosmetics. The cosmetics, like shower gel could contain a lot of metals, like Al.
- Every person has an own bacterial flora. Some of the bacteria can accumulate a certain element; even 1000 times higher than the general environment [2]. The manganese accumulating bacteria could be e.g. Thiobacillus ferrooxidans.
- Sweat duct can accumulate dust particles, bacteria, which would be released in natural way too. It would not need any massage, but the massage and the micro-pump function of the honey massage could speed up the process.
- The skin of the masseur. During the massage not only the patient, but also the skin of the hand from the masseur is coming into interaction with the honey. The masseur uses two hand surface, the massaged area of the patient is 4-5 times larger, theoretical influence factor is 17-20 %. It is dependent of the number of massages afterwards. If there are more massages, than the influence factor could be smaller (the hand becomes "cleaner").

Conclusion

For the tested situation "honey detox massage" did not showed a relevant detoxification effect. The detoxification effect is not proved, it needs further measurements with other interesting chemicals, and it is necessary to check the cross-influencing effects. However the honey massage does not extracts critical amount of essential elements, it is safe.

Manganese is accumulating in the skin of the manganese mine worker. To present more detailed results, it would require larger number of tests.

Personal changes are good to monitor with the analysis of the exudate.

Beer bally is a storage container for multiple elements, however only no very toxic elements could be “detox massaged” from the skin.

The honey is cleaning the body very nicely; helps to keep it smooth by healing micro-wounds and transfers moisture into the skin. It has very nice cosmetic effects too.

A larger number of test group, complete questionnaire, and the results of molecular studies would be necessary to answer the question; is honey massage just another smelly essential oil massage or has detox benefit?

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[3]: Körmendy-Rácz János, Pataki Zita: Honey masage, application as a cosmetic treatment. XI. German Apitherapy Conference, Passau, 2013.

[4]: FDA’s 1993 Total Diet Study dietary exposure model and the 1987–1988 U.S. Department of Agriculture (USDA) Nationwide Food Consumption Survey

[5] University of Maryland Medical Center

<http://umm.edu/health/medical/altmed/supplement/manganese#ixzz2dTsbUIQn>

The daily Adequate Intake (AI) for manganese is listed below.

Children and Infants: Infants 0 - 6 months: 0.003 mg; Infants 7 months - 1 year: 0.6 mg; Children 1 - 3 years: 1.2 mg; Children 4 - 8 years: 1.5 mg; Males 9 - 13 years: 1.9 mg; Males 14 - 18 years: 2.2 mg; Females 9 - 18 years: 1.6 mg

Adult: Males 19 years and older: 2.3 mg; Females 19 years and older: 1.8 mg; Pregnant women: 2 mg; Breastfeeding women: 2.6 mg

[6] <http://en.pytloun-city-hotel.cz/discounts/id:17746>