## The Influence of Food Cooking on the Blood Formula of Man by Paul Kouchakoff (Suisse), M.D. of the Institute of Clinical Chemistry, Lausanne, Switzerland

## Proceedings: First International Congress of Microbiology, Paris 1930.

## Translation by Lee Foundation for Nutritional Research, Milwaukee 1, Wisconsin

The living organism is very sensitive to all harmful influences and reacts against them immediately.

We see this when we make an analysis of our blood during simple and infectious illnesses, when extraneous substances are introduced into our system, etc.

In such cases the number of white corpuscles changes and the correlation of percentage between them is disturbed. This is one of the indications of a pathological process going on in our system.

After every dose of food, we also observe a general augmentation of white corpuscles, and a change in the correlation of their percentage. This phenomenon has been considered, until now, a physiological one, and is called a digestive leukocytosis.

We use, for our food, *raw* foodstuffs, foodstuffs which have been altered by means of high temperature, and manufactured foodstuffs. How then does each one of these foodstuffs separately act on our blood formula?

We find that, after taking raw foodstuffs, neither the number of white corpuscles nor the correlation of their percentage has changed. Ordinary unboiled drinking water, mineral water, salt, different green foodstuffs, cereals; nuts, honey, raw eggs, raw meat, raw fish, fresh milk, sour milk, butter — in other words, foodstuffs in the state in which they exist in nature, belong to the group of those which do not call forth any infringement in our blood formula.

After the consumption of the same natural foodstuffs, altered by means of high temperature, we find that the general number of white corpuscles has changed, but the correlation of their percentage has remained the same.

After consumption of manufactured foodstuffs not only has the number of white corpuscles changed but also the correlation of percentage between them.

To this group belong sugar, wine, chocolate in tablet form, etc.

All our experiments have shown that it is not the quantity, but the quality of food which plays an important role in the alteration of our blood formula, and that 200 milligrams or even 50 milligrams of foodstuffs produce the same reaction as large doses of them. The experiments also show that the reaction in our blood takes place

at the moment the food enters the stomach, while the preliminary mastication of food in the mouth softens the reaction.

We have already said that raw foodstuffs, altered by means of high temperature only call forth an augmentation of the general number of white corpuscles.

Does this occur only when such foodstuffs are heated to boiling point, or is the same phenomenon called forth by lower temperatures?

It appears that every raw foodstuff has its own temperature which must not be surpassed in heating, otherwise it loses its original virtues and calls forth a reaction in the system.

Ordinary drinking water, heated for half an hour to a temperature of 87°(C,) does not change air blood, but this same water, heated to 88°(C,) changes it.

We have given the name "critical temperature" to the highest degree of temperature at which a particular foodstuff, can be cooked for half an hour in bain-marie, <sup>1</sup> and eaten, without changing our blood formula.

This critical temperature is not the same for all raw foodstuffs. It varies within a range of ten degrees. The lowest critical temperature for water is 87°; for milk it is 88°; for cereals, tomatoes, cabbage, bananas, 89°; for pears, meat, 90°; for butter, 91°; for apples and oranges, 92°; for potatoes, 93°; for carrots, strawberries and figs, 97°. (See last page for conversion to Fahrenheit)

Our experiments show that it is possible to paralyze the action of a foodstuff, once its critical temperature is surpassed. There exist strictly definite laws for this, and the critical temperature plays the first role here.

If a cooked foodstuff is eaten along with the same product in a raw state there is no reaction.

The raw product has neutralized the action which this same product, with its critical temperature surpassed, would have called forth. In other words, the raw product has, so to say, reestablished the virtues of the product altered by a high temperature, Such a re-establishment is also possible when two different products have been absorbed, but with one condition; their critical temperature must either be the same, or else the critical temperature of the raw product must be higher than the critical temperature of the overheated one.

If the critical temperature of a raw product is lower than that of the overheated one, the reaction is sure to take place; in this case, even the augmentation of the quantity of the raw products does not help.

<sup>&</sup>lt;sup>1</sup> Bain-Marie (Mary's bath) refers to the method of placing a pan of food in another pan with water in it to stabilize the heat reaching the food.

This law remains the same when the raw product is **mixed** with several overheated ones of the same critical temperature.

If several cooked foodstuffs are taken, each with a different critical temperature, along with raw food, reaction takes place, even if the raw product has a higher critical temperature than that of any of the cooked foodstuffs.

Now we pass on to the 3rd group of foodstuffs, such as sugar, wine, etc., obtained by complicated manufacturing processes, and producing double reaction in our organism. These products may also be consumed without calling forth any reaction, but only when they are introduced into our organism conjointly with no less than two raw foodstuffs of a different critical temperature. Even one raw product has a beneficial influence on this 3rd group, and deprives them of one of their properties, namely the power of altering the correlation of percentage of the white corpuscles.

As regards the proportions in which raw products must be added to cocked foods, there is an irreducible minimum. For water, for example, it is 50%.

## **CONCLUSIONS:**

After over 300 experiments on ten individuals of different age and sex, we have come to the following conclusions:

- 1. The augmentation of the number of white corpuscles and the alteration of the correlation of the percentage between them which takes place after every consumption of food, and which was considered until now as a physiological phenomenon, is, in reality, a pathological one, It is called forth by the introduction into the system of foodstuffs altered by means of high temperature, and by complicated treatments of ordinary products produced by nature.
- 2. After the consumption of fresh raw foodstuffs, produced by nature, our blood formula does not change in any lapse of time, nor in consequence of any combinations.
- 3. After the consumption of foodstuffs produced by nature, but altered by means of high temperature, an augmentation of the general number of white corpuscles takes place, but the correlation of percentage between them remains the same.
- 4. After the consumption of foodstuffs produced by nature, but altered by manufacturing processes, an augmentation of the general number of white corpuscles as well as a change in the correlation of their percentage takes place.
- 5. It has been proved possible to take, without changing the blood formula, every kind of foodstuff which is habitually eaten now, but only by following this rule, **viz:** that it must be taken along with raw products, according to a definite formula.

- 6. In a healthy organism, it is not possible, by the consumption of any food to alter the correlation of percentage between the white corpuscles, without augmenting their general number.
- 7. Foodstuffs do not seem to have any influence on the transitional and the Polymorphonuclear Eosincphiles and the correlation of percentage between them is not altered.
- 8. We can change our blood formula in the direction we desire by dieting accordingly.
- 9. Blood examination can only have significance as a diagnosis if it is made on an empty stomach.

Food	Critical Temperature <sup>(F)</sup>
Drinking water	191 degrees F
Milk	191 degrees F
Cereals	192 degrees F
Tomatoes	192 degrees F
Cabbage	192 degrees F
Bananas	192 degrees F
Butter	196 degrees F
Apples	197 degrees F
Oranges	197 degrees F
Potatoes	200~degrees~F
Carrots	206 degrees F
Strawberries	206 degrees F
Figs	206 degrees F

Reprint No. 101 Price 10¢ Lee Foundation for Nutritional Research Milwaukee 1, Wisconsin