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**a11. The Food Blood Interaction Theory:**

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Some foods have red blood cell agglutination factors (lectins), that if absorbed undigested (via pinocytosis) cause altered red blood cell (RBC) heamo-dynamics. That means the blood gets messed up a little. Because the mess up is only a little bit then we tend not to notice it very much.

According to Dr. Peter D'Adamo in his book Eat Right 4 Your Type, the RBC's have fucose sugar chains all around the outsides of them that stick out like the old television aerials of old days. On the tips of these sugar chains sit antigens in blood types A, B, and AB. The A's have N-Acetyl-galactosamine and the B's have D-Galactose. O type blood has no antigens.

Foods have compounds in them called Lectins, which can interact with the antigens on the Red Blood Cell (RBC) in our blood stream. These Lectins would bind to the RBC's and if a lectin binds to more than one RBC then it would make them sticky and cause them clump together. That is, in fact the definition of a Lectin; a substance that will cause red cell clumping (agglutination).

A problem might arise if the food Lectin gets into the blood undigested. It is said that 5% of our food gets into the blood undigested via a process called pinocytosis. Pinocytosis is a well known microscopic invagination (pocket formation) of the cell wall where contents outside the cell are taken into the middle of the cell. This happens with the intestinal cells that line our intestines. When this happens a blood reaction occurs similar to a transfusion reaction when the wrong blood is transfused. The RBC's become more sticky and may clump together and may agglutinate in certain spots. This makes this food a 'poison food' for this food group.

The alteration in the fluidity of the blood may be in the form of a failure of Rouleaux formation un-packing. Rouleaux formation is when RBC's stack up like coins in a roll. If this stacking cannot come apart easily then problems may result.

Over stretching of the tiny capillaries may result temporarily, as the heart tries to push the RBC's through the capillary network. Food may cause phenomena not yet understood in blood fluid dynamics and other effects not yet accepted as significant. Rouleaux formation of RBC's is generally thought of as not being a problem. However, that is only a guess made by scientists who do not have complete knowledge.

The hypothesis is that a common food or foods may increase the likelihood of failure of RBC's to pass the capillary network in a small, local, location. If food makes the RBC's more 'sticky' to the point that the unstacking of the Rouleaux formation cannot occur, then altered gas dynamics

will result. It may be that the Rouleaux formation is not an incidental phenomena that causes no harm, as is generally accepted now days. 'Plugging' of capillaries in layman's terms may cause more hidden problems than is generally accepted. Much more research need to be done in this field.

The environment that red blood cells RBC's live in is peculiar. RBC's live about 120 days. We have RBC's that are in all stages of aging in our bodies. RBC's live in a fluid medium that has its viscosity (thickness) change daily. The physical constraints are such that tubes vary in size from many times the diameter of an RBC to slightly smaller in diameter than an RBC at the capillary level.

This means that in some locations (capillaries) the RBC may have to fold a little or elongated a little, to get through the blood vessel. This folding or elongating presses the size of the RBC up against the wall of the capillaries and thus, allows for easy exchange of gases. Oxygen goes out from the RBC and carbon dioxide goes into the RBC's. (Note that in the lung capillaries of the alveoli, it would be the reverse flow of gases.)

Anything that would impede the flow of RBC's in the capillaries would cause a decreased flow of gases and thereby, a number of symptoms of reduced oxygen and build up of CO<sub>2</sub> in the tissues. Some of the things that might impede the flow of RBC's might be:

- Capillary constriction or collapsing
- Weak pumping heart
- Unknown factors
- Anything that makes the RBC's more 'sticky'

There is a specific amount of force required to push the RBC's into the folded or elongated form. This force would come from the pressure of the heart beat. The flow of the liquid portion of the blood carries the RBC's along at the capillary level forcing the RBC's to alter shape to fit into the capillary. It is notable that exercise would increase the force of the heart beat and open up more capillaries especially in the lungs.

If plugging of capillaries is very severe then death will occur. Some food lectins that will cause a fast death like this, are known. And some lectins will cause death in minutes. Other food lectins may also be poisonous, but not to the same degree and may not cause death. It is well known that some races of humans cannot eat certain foods. In the majority of us, plugging would be only 'patchy'.

Some joints might plug and others not. Blood flow stops when the limits are reached where the force required to push the RBC's through the capillaries are too small to do the job (because of increased stickiness of RBC's). But that stoppage, at that location, increases the force at a nearby location because of the nature of the fluid medium. The body does not die, but instead is just reduced in its efficiency at that local level and at that particular time.

It may be that this phenomena causes a 'leaky' capillary wall when the tiny vessels are stretched. If reduced efficiency is sufficient to cause death or damage of local cells, then degenerative conditions like arthritis may result. (This has not been proven yet.) Specific mechanisms of damage need to be elucidated through research.

It is known that some people do well on certain foods and some people do not do well on those same foods. An explanation for this observation needs to be found.

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