

phase. However, yet another phase is required for the blood vessels to relax.

After the nitric oxide has combined with the GTP, another enzyme called cGMP starts to be produced. This newly produced substance also serves a purpose in this chain, of course, and in order to perform this it heads towards myosin & sets it in motion. Myosin is an essential agent in the contraction & expansion of muscle cells. The final stage has now been reached. When myosin goes into action the final tile falls and the muscle cells expand.

The calcium concentration inside the muscle cells falls as a result of enzyme activities, and this leads to the fibers separating and the muscle cells expanding. Thus the veins relax. In short, the messages carried by the nitric oxide molecule are of vital importance in the regulation of the pressure inside our blood vessels.

How Can The Nitric Oxide Level In The Body Be Raised?

- * By reducing saturated fat consumption
- * Through regular exercise
- * Through a healthy diet.

It is important to reduce red meat consumption, to eat plenty of fruit & vegetables, and to meet protein requirements by consuming soya in particular & eating fish at least once a week. In addition, antioxidants should be consumed for nitric oxide production. Vitamins C & E in particular must be consumed, because antioxidants preserve the nitric oxide in the body.

It is impossible for nitric oxide that regulates the tension in the blood vessel walls, to perform this complex process on its own. Nitric oxide serves as a vehicle in the relaxation of the vein wall. This relaxation emerges as the result of a chain of processes. Let us now examine all of these stages under brief headings:

- Note that the hormones & cells involved in this process act in a literally conscious manner.
- The stimulus transmitting hormones in the blood go to the site on the vein membrane that is suited to them, act on that region & initiate the process.
- The same consciousness can be observed in the subsequent processes. Every stimulus is correctly transmitted to the right destination within the darkness of the body and a successful outcome

thus achieved. How do cells, hormones & molecules perform such literally conscious behavior?

How is it that they know when to go into action or stop, right down to the very second?

How are they able to flawlessly transmit their messages to the right destination and at the right time, just as if they had received an instruction from somewhere?

Can this consciousness belong to themselves? Of course not. A cell requires intelligence & a consciousness to tell it when to produce what, to guide the hormone or molecule to the correct destination & to confirm that destination, and in short to direct all these. This infinite intelligence is that of Allah, Who creates the cell, hormones & molecules & who inspires their behavior. Allah, Who creates all things perfectly, has created this special molecule as one of the countless proofs of His creation.

Nitric Oxide by Itself Refutes the Theory of Evolution: When the Earth, the universe or the human body are examined in slightly greater depth one can easily see what a grave falsehood the theory of evolution is. Nitric oxide, just one of the molecules in the blood, acts in such a detailed & rational manner that it is impossible for this to be the result of chance. That being the case, the following question may be asked: How can chance carry out the special manufacture of nitric oxide in the blood? Which coincidences distributed their duties to the hormones, cells and enzymes that have an expanding effect on the blood vessels and set out a specific course for them? All of these coincidences would have had to add something beneficial to the mechanism, because even if a flawless & perfect system does form, one single incorrect intervention will be sufficient to do away with the system entirely. That being the case, is it really possible to refer to these entire phenomenon taking place in a conscious manner as chance? There is a consciousness observed in every part, every detail of the system. Scientists only discovered the details of this subject in recent years. It is the Sublime, Supreme & Almighty Allah Who created this system right down to the finest detail.

*“The Originator of the Heavens & Earth.
When He decides on something,
He just says to it, Be! and it is.” (2:117)*

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Nitric Oxide

The Secret Messenger in the Veins

What do air pollution, a Nobel Prize and a hormone have in common? The answer is “nitric oxide.” In chemistry textbooks, nitric oxide is defined as a colorless, poisonous gas that comes into being by the oxygenation of nitrogen. It is a “simple” molecule shown by the chemical formula, “NO” (it is a molecule made up of one nitrogen atom & one oxygen atom). Both nitrogen & oxygen are familiar elements. One of the first things we learn is that the air we breathe is composed of 78% nitrogen & 21% oxygen. When we say NO is “simple,” we only refer to the simplicity of its chemical composition. With regard to its importance to human life, intense research over the past twenty years has shown that this molecule performs a basic function in communication among cells. How is it that NO molecules that have no intelligence or consciousness know the perfect systems that **world-renowned professors can still not fathom?** And how is it that they know, to the last second, when they must begin their activity & when they must end it? How is it that, as soon as it is produced, as if it had received a command from somewhere, it is able to deliver high-speed messages to the right address, exactly on time & without fail? NO cannot perform these wonderful operations by itself. This molecule, like millions of other molecules in nature, is the work of a flawless creation, and it is a demonstration of **God’s limitless power & knowledge.**

This compound, the name of which many people will hear several times during the course of their lives but be unaware of what is actually is, is one of the most important vehicles for human survival. Nitric oxide (NO) is defined as a colorless, toxic gas obtained from the oxidation of nitrogen. It is a molecule that emerges when a nitrogen atom combines with an oxygen atom. Intense research over the last 20 years has revealed that this molecule plays a fundamental role in inter-cell communication. Nitric oxide is a hormone naturally manufactured in the human body, in other words, a chemical messenger. It plays a strategic role in the regulation of the vital functions of the nervous, circulatory, defense, respiratory & reproductive systems. One of the places where nitric oxide undertakes this important duty is in our veins.

Thanks to the perfect molecule nitric oxide, requirements that vary according to different environments in the body are met. The way the blood vessels expand during sport to meet an increasing need for blood or contract after an injury to stop bleeding is the result of the immaculate system in question.

How Was the Role of Nitric Oxide in the Veins Discovered? In 1998 three scientists who shared the Nobel Prize for Physiology and Medicine discovered that the nitric oxide (NO) molecule in the veins is a relaxant.

How Do Human Beings Benefit From This Effect? The answer to that question is very short & clear: to survive. Because nitric oxide has a regulatory role in the functioning of the brain & heart, two vital organs. It carries out this regulatory function by allowing the blood to flow easily through the veins & throughout all the organs. Since the flow of blood is regulated & facilitated the risk of stroke & heart attack is reduced. The manufacture of this molecule & its acquisition of functional properties is just one of the proofs showing that it did not come into being by chance, as maintained by some Darwinist scientists who still manage to support the theory of evolution even though it has

been demolished by scientific evidence, but that it is the work of Allah's creation.

How Do Muscles Work?

- A stimulus transmitter or hormone binds to receptors on the artery. Nitric oxide (NO) emerges in the wake of this binding.

- The NO molecules in the endothelial layer move towards the smooth muscles and set the enzyme guanylyl cyclase (GC) there in motion.

- GC converts guanosine triphosphate (GTP) into cyclic guanosine monophosphate (cGMP).

- cGMP causes calcium ions to go to the storage areas in the cell. Reduced concentrations of calcium ions (Ca⁺⁺) carry out cellular chemical reactions that permit actin and myosin to slide apart and separate from one another.

- Smooth muscle cells expand.

- Blood vessels expand.

How Is Nitric Oxide Manufactured? The production centre for nitric oxide, which is of vital importance to human life, is the endothelial cell. An amino acid known as L-arginine, nitric oxide synthesis enzyme, nicotinamide adenine dinucleotide phosphate, calmodulin, oxygen, flavin mononucleotide, flavin adenine dinucleotide, tetrahydrobiopterin...; this may well be the first time in your life you have heard these words. Yet the endothelial cell knows these microscopic substances very well and uses them to manufacture the nitric oxide molecule.

The endothelial cell knows which chemical substance & how much of it, to use in order to manufacture the nitric oxide molecule. There is no question of incorrect or flawed production. It never manufactures nitrous oxide (N₂O), better known as laughing gas, instead of nitric oxide. Very delicate balances are involved in the production of nitric oxide. The cells in question are ready to go into production at any moment of our lives. They immediately start manufacturing the minute the need arises.

The speed of the nitric oxide molecule puts one in mind of communication via modern-day Internet technology or e-mail. In fact, nitric oxide acts just like an e-mail system, directing messages to their destinations at high speed.

* There are no unwanted, harmful side products of these extraordinary factories in the depths of our veins. Bearing in mind that many problems currently occupying the agenda, such as global warming, acid rain and environmental pollution are the result of chemical wastes, one can better appreciate what a successful production plant the endothelial cell truly is. Because nitric oxide molecules perform their tasks and are broken down in as short a time frame as 10 seconds. They do not give rise to any harmful side effects by accumulating in the body. This all means that the endothelial cells employ the ideal method in the manufacture of chemical substances.

If the endothelial cells were to produce fewer messengers than required our blood vessels would contract & blood pressure would rise rapidly, leading to a heart attack. If they were to over-produce, the blood vessels would expand excessively & blood pressure would drop, leading to a state of shock. However, acting under the inspiration of Allah, the endothelial cells never make errors of a possibly fatal kind. Allah reveals that He has created all things with a specific measure: "...Allah has appointed a measure for all things." (Surat at-Talaq: 3)

How Does Nitric Oxide Relax the Veins?

In order to the blood vessels to relax various stimulus transmitting hormones first go into action. These initiate the process by binding to receptors in the vein membranes. We may compare this to the domino effect whereby the falling of the first tile causes all the others to fall over.

Once the first tile has gone into motion, in other words immediately after the stimulus transmitting hormone in the blood has bound to the receptors on the membrane, the cell membrane literally understands what it has to do and starts manufacturing nitric oxide.

Some of the nitric oxide molecules, which know what they have to do from the moment they are manufactured, rapidly approach the smooth muscle cells. Here they enter the cell and combine with an enzyme known as GTP. This is the second

Allah has appointed a **measure** for all things.

(Surat at-Talaq: 3)