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# EVIDENCE FOR CURE OF FLU THROUGH NOSE BREATHING

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Abstract

Breathing through nose is a healthy habit approved by researchers and it is also helpful in cure of flu. Because normal nose breathing help us to use nitric oxide generated in our sinuses. And research told us that nitric oxide has confirmed function of destruction of viruses, parasitic organisms, and malignant cells in the airways and lungs by inactivating their respiratory chain
enzymes. NO inhibits the replication of influenza viruses, probably during the early steps of the viruses' replication cycle, involving the synthesis of vRNA and mRNA encoding viral proteins. Thus NO is responsible for the cure of flu by killing influenza virus.

## Introduction

Flu season typically peaks in January or February and can last as late as May [1]. Influenza is a virus that typically begins to appear in the fall and then recedes as the winter progresses (November until March). The virus is spread from person to person by sneezing, coughing and touching. Since the virus can last for a short time on objects, you can frequently become infected by touching something contaminated with the virus and then touching your mouth, nose or eyes [2]. During the winter, it can remain infectious in cold fresh water for up to a month. If you can avoid being around people sick with flu you may delay getting ill. However, if you are needed to provide care for a sick family member or friend with the virus, this strategy is not practical. Ultimately, most people are likely to be exposed to the virus. It's just a matter of time [3], [4].

Influenza virus has been classified into three types based on nucleocapsid protein: influenza A, B, and C. Humans can be infected by all types of influenza, although type C results causes only mild infection and is not associated with epidemics. All influenza viruses undergo frequent point mutations resulting in continuous antigenic changes known as antigenic drift. This allows the virus to evade immunity, although prior exposure to the same subtype provides partial immunity. An epidemic may occur with antigenic drift [5], [6], [7].

Transmission of avian influenza A to humans resulting in human infection has been documented a number of times [8], [9],[10],

## Antiviral Effect of Nitric Oxide

It has been demonstrated that nitric oxide (NO) plays an important role in defense against a wide spectrum of microbial pathogens [11]. Nevertheless, the antiviral activity of NO has not been observed until recently [12], [13]

Nitric oxide is being recognized increasingly as an important component of the host response to infection. In addition, NO and other reactive nitrogen intermediates have direct microbistatic and microbicidal activities against a variety of pathogens. Nitric oxide had inhibitory effects on protein and DNA synthesis as well as on cell replication in microbial pathogens [14].

The confirmed function of the nitric oxide is destruction of viruses, parasitic organisms, and malignant cells in the airways and lungs by inactivating their respiratory chain enzymes [15], [16].

Normal nose breathing helps us to use our own nitric oxide generated in sinuses. The main roles of NO and its effects have been discovered quite recently (last 20 years). Three scientists even received a Nobel Prize for their discovery that a common drug nitroglycerin (used by heart patients for almost a century) is transformed into nitric oxide. NO dilates blood vessels of heart patients reducing their blood pressure and heart rate. Hence, they can survive a heart attack. This substance or gas is produced in various body tissues, including nasal passages. As a gas, it is routinely measured in exhaled air coming from nasal passages. Therefore, we can't utilize own nitric oxide, an important hormone, when we start mouth breathing [17], [18], [19], [20].

The major function of the nose is to warm and humidify air before it reaches to the lungs for gas exchange. Conditioning of inspired air is achieved through evaporation of water from the epithelial surface. The continuous need to condition air leads to a hyperosmolar environment on the surface of the epithelium. As ventilation increases, the hyperosmolar surface moves more distally, covering a larger surface area of the airway, and stimulates epithelial cells to release mediators that lead to inflammation.

This inflammation is not identical to allergic inflammation, but causes both short-term and long-term changes in the epithelium. In the short-term, it increases paracellular water transport in an attempt to enhance conditioning, and it stimulates sensory nerves to initiate neural reflexes. It also disrupts channels in the cellular membrane, which might permit greater penetration of foreign proteins, such as allergens, leading to further inflammatory cascades. The longterm inflammation induced over time by the hyperosmolar milieu could worsen the ability of the nose to condition air, requiring more of the conditioning to occur in the lower airway and leading to adverse consequences for the respiratory system [21].

**Autoimmunization Effect**

In nasal breathing the thin layer of mucus moves as a long carpet from sinuses, bronchi and other internal surfaces towards the stomach. Therefore, these objects, trapped by the mucus, are discharged into the stomach where GI enzymes and hydrochloric acid make bacteria, viruses and fungi either dead or weak. Later, along the digestive conveyor, some of these pathogens (dead or weak) can penetrate from the small intestine into the blood (the intestinal permeability effect). Since these pathogens are either dead or weakened, they could not do much harm (no infections). Moreover, they can provide a lesson for the immune system. This is exactly how natural auto-immunization can work with success. Medical doctors and nurses inject vaccines with dead or weakened bacteria or viruses so that to teach and strengthen our immune response to these pathogens. Therefore, nasal breathing creates conditions for natural autoimmunization. This research study revealed that a group of healthy volunteers had an average CO2 of about 43.7 mm Hg for nose breathing and only around 40.6 mm Hg for oral breathing [17], [18], [19], [20].

Further reports pointed to NO as a first line of defense against infections in murine systems with RNA viruses (e.g., vesicular stomatitis virus [22], [23] Friend leukemia virus [24] encephalomyocarditis virus [25]; Sindbis virus [SV] [26], or Japanese encephalitis virus [27] and DNA viruses, such as HSV-1 or vaccinia virus [28], [29].

**Discussion**

Nitric oxide (NO) is a free radical gaseous molecule that is a mediator of vital physiologic functions, including host defense. Many cell types are able to produce NO through the enzymatic conversion of L-arginine to L-citrulline by nitric oxide synthetase (NOS). Neurons, endothelial cells, and macrophages are the best characterized sources of NO. From these sites of production, NO modulates neuronal function, regulates vasomotor tone, and is involved in host responses to infection [30], [31], [32], [33]. NO and related reactive nitrogen intermediates exert microbistatic and microbicidal effects against a variety of pathogens, including protozoans, flukes, fungi, and bacteria [33], [34], [35], [36], [37], [38].

Nitric oxide (NO) is produced at different sites in the human airways and may have several physiological effects. Orally-produced NO seems to contribute to the levels found in exhaled air. Autoinhalation of nasal NO increases oxygenation and reduces pulmonary artery pressure in humans.

The aim of this study was to measure the concentration and output of NO during nasal, oral and tracheal controlled exhalation and inhalation. Ten tracheotomized patients and seven healthy subjects were studied. The mean+/-SEM fraction of exhaled NO from the nose, mouth and trachea was 56+/-8, 14+/-4 and 6+/-1 parts per billion (ppb), respectively. During single-breath nasal, oral and tracheal inhalation the fraction of inhaled NO was 64+/-14, 11+/-3 and 4+/-1,

respectively. There was a marked flow dependency on nasal NO output in the healthy subjects, which was four-fold greater at the higher flow rates, during inhalation when compared to exhalation. There is a substantial contribution of nasal and oral nitric oxide during both inhalation and exhalation. Nasal nitric oxide output is markedly higher during inhalation, reaching levels similar to those that are found to have clinical effects in the trachea.

These findings have implications for the measurement of nitric oxide in exhaled air and the physiological effects of autoinhaled endogenous nitric oxide [39].

For millions of people each year, the flu can bring a fever, cough, sore throat, runny or stuffy nose, Muscle aches, fatigue, and miserable days spent in bed instead of at work or school. However, you may not realize that more than 200,000 people are hospitalized in the United States from flu complications each year.

The flu also can be deadly. Between 1976 and 2007, CDC estimates that annual flu associated deaths in the United States ranged from a low of about 3,000 people to a high of about 49,000 people [1].

The World Health Organization (WHO) has approximately 110 laboratories worldwide that monitor and tract viral mutation rates, and look for potential pandemics. The WHO looks for "antigenic shifts". When these occur the population is susceptible to major epidemics or pandemics.. Historically, a strong immune system has not been enough to fend off these mutations. Remember approximately 20 40 million healthy adults died in the 1918 influenza pandemic [40].

The antiviral activity associated with NO also could be secondary to its well-recognized cytotoxic properties [41].

Several approaches were taken to evaluate the effects of NO on cellular metabolism and viability. Nitric oxide (NO) has been shown to contribute to the pathogenesis of influenza virus-induced pneumonia in mouse models. Here we show that replication of influenza A and B viruses in Mabin Darby canine kidney cells is severely impaired by the NO donor,S-nitroso-N-acetylpenicillamine.

Reduction of productively infected cells and virus production proved to correlate with inhibition of viral RNA synthesis, indicating that NO affects an early step in the replication cycle of influenza viruses [42], [43], [44], [45], [46].

Nitric oxide (NO) has multiple biological functions. NO is catalytically generated by one of the three isoforms of NO synthase (NOS) from l-arginine. eNOS and nNOS, which are produced in endothelial cells and neuronal cells, have been shown to play a role in vasodilatation and neurotransmission, respectively, where as NO generated by iNOS (NOS2), the inducible form of NOS, has been shown to play a role in the defense against a variety of microbial pathogens, including bacteria, parasites [47] and viruses, including herpes simplex virus type 1 (HSV-1), vesicular stomatitis virus, Japanese encephalitis virus, poliovirus, murine hepatitis virus, murine leukemia virus, coxsackievirus, ectromelia virus, rhinovirus, and vaccinia virus. Taken together, the data presented demonstrate that NO inhibits the replication of influenza viruses, probably during the early steps of the virus replication cycle, involving the synthesis of vRNA and mRNA encoding viral proteins. Therefore we hypothesize that the production of NO by iNOS in airway epithelial cells, induced by cytokines which are known to be synthesized shortly after infection with influenza viruses by NK cells and macrophages [48], [49], provides an antiviral effect in these cells.

This mechanism would reduce primary replication of influenza viruses before other effector mechanisms of the immune system, such as those mediated by B and T

lymphocytes, are activated to control the infection. To be beneficial for the host, the production of NO must be tightly regulated to exert antiviral rather than harmful effects, such as cell death and tissue destruction.

Nitric oxide is being recognized increasingly as an important component of the host response to infection [33], [34], [35], [36], [37], [38]. NO modulates immune responses by mediating the regulation of lymphocyte proliferation by suppressor macrophages [50]. Furthermore, it influences local inflammatory reactions by altering adherence of neutrophils to endothelial surfaces [51], [52].

**Antiviral Drugs used commonly for treatment of Flu**

Most common antiviral drugs recommended by doctors for the treatment of flu are aspirin, iodized lime, opiates and quinine. There are two other antiviral drugs recommended by CDC are TamifluÂ® and RelenzaÂ® (The generic names for these drugs are oseltamivir and zanamivir). TamifluÂ® is available as a pill or liquid and RelenzaÂ® is a powder that is inhaled [53].

**Side Effects of Antiviral Drugs Used for the Treatment of Flu**

According to the Dewey article the use of aspirin either directly or indirectly was the cause of more loss of lives than the influenza illness itself. Frank Newton, M.D and many of the other physicians indicated that its indirect action came through the fact that aspirin was taken until it caused prostration and then the patient developed pneumonia. A principle druggist from Montreal declared that 900 patients died from influenza. They were directed to take a 5 – grain aspirin tablet every three hours, but more took than ten grains every three hours. Many of the physicians who practiced the conventional medicine of the day were using aspirin, iodized lime, opiates and quinine and they commonly spoke about losing 60% of their pneumonia cases. The homeopathic physicians avoided the use of aspirin and other drugs prescribed in material doses and subsequently had a very low death rate. Arthur Grimmer M.D declared that the development of pneumonia was a rare occurrence if a good homeopathic physician was called during the first 24 hours of an attack of influenza [54].

TamifluÂ® has been in use since 1999. The most common side effects are nausea or vomiting which usually happen in the first 2 days of treatment. Taking TamifluÂ® with food can reduce the chance of having these side effects.

RelenzaÂ® has been in use since 1999. The most common side effects are dizziness, runny or stuffy nose, cough, diarrhea, nausea, or headache. RelenzaÂ® may also cause wheezing and trouble breathing in people with lung disease, which is why those people should not take this drug. Confusion and abnormal behavior leading to injury has been observed rarely in people with the flu, mostly children, who were treated with TamifluÂ® or RelenzaÂ®. Flu can also cause these behaviors. But people taking these drugs should be watched for signs of unusual behavior. This behavior should be immediately reported to a health care provider [53].

**Conclusion**

Our nasal passages are created to humidify, clean and warm the incoming flow of air due to the layers of protective mucus. This thin layer of mucus can trap about 98-99 percent of bacteria, viruses, dust particles, and other airborne objects. In this regard the nitric oxide prepared in

sinuses of nose utilizes and influenza virus killed to cure us from flu. But use of Antiviral drugs for the treatment of flu leads less to cure but more to side effects.
Obviously, during mouth breathing it is not possible to utilize one's own nitric oxide which is produced in the sinuses. The mouth is created by Nature for eating, drinking, and speaking. At other times it should be closed. Still breathing through mouth in flu allowing these pathogens to gain access, settle and reproduce themselves in various parts of the body causing the infection. There is an easy tip to keep nasal passage open while breathing during flu, is to fill the mouth with air, the pressure creates causes the nasal passage to open and thus nose can breathe easily.

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