

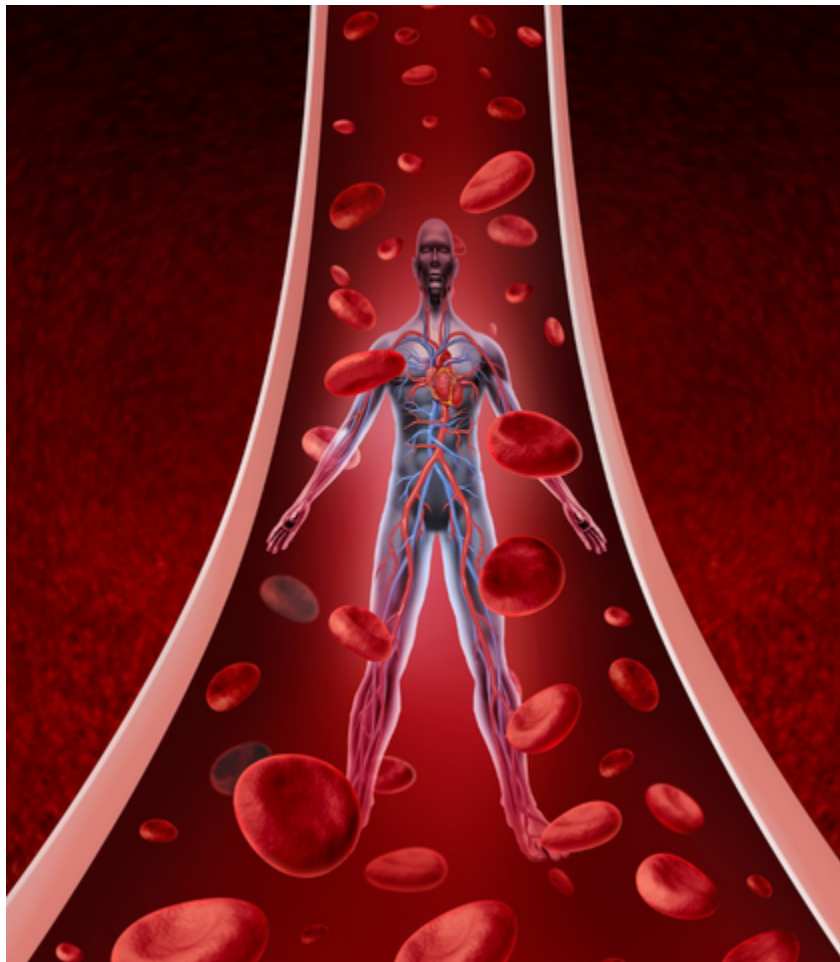
Boosting Blood Flow: How Red Light Therapy Improves Circulation

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Blood circulation is an essential physiological function for us to maintain a life. The total length of the blood vessels network in the human body is around 100,000 kilometers. Blood passes through the heart, arteries, and tiny blood vessels, from large to small, and is transported to the most peripheral tissues of the body, the places farthest from the heart, the hands, feet, and heads.

Blood circulation determines your lifespan: smooth circulation is the primary condition for fighting disease and is the foundation for maintaining good health!

Many lifestyle factors, such as physical activity, smoking, and weight gain, can affect blood circulation. In addition, certain medical conditions can cause poor circulation, including atherosclerosis, diabetes, blood clots, and Raynaud's disease¹. Slow blood circulation should not be ignored as it increases the risk of chronic diseases. Besides good living habits, red light therapy is one of the most effective options to speed up blood circulation without any side effects.



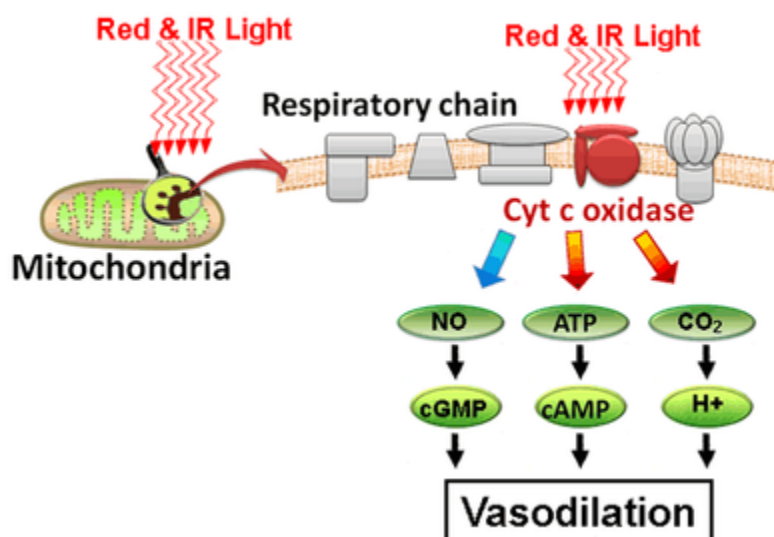
Can Red Light Therapy Improve Circulation?

Based on the biological effects of sunlight, specific wavelengths of light may positively or negatively affect blood circulation. Red light therapy is considered ideal for maintaining healthy blood flow. It is a cold light source and low-level energy therapy method that is well-known to prevent and treat diseases in the body.

Red light therapy of different durations and intensities irradiates body cells deeply through visible red (630 or 660nm) and near-infrared (850nm or 940nm) light to produce beneficial effects known as photobiomodulation (PBM). Let's first explore how red light boosts our circulation!

Vasodilation

Red and near-infrared directly stimulate nitric oxide production in blood vessels². Nitric oxide acts as a messenger molecule. When the endothelium sends relaxation instructions to muscles to facilitate blood flow, it produces nitric oxide molecules that are small enough to cross cell membranes readily. Smooth muscle cells around blood vessels receive signals and relax, causing blood vessels to dilate. It is well-established that red light therapy allows oxygen to enter the mitochondria (and prevents NO from blocking energy production), thereby enhancing mitochondrial function and improving the health of every organ and system in our body. [Red light therapy not only dilates blood vessels through external forces but also helps the blood produce a stable amount of nitric oxide and accelerates blood circulation](#), which is ideal for preventing and regulating cardiovascular and cerebrovascular diseases and protects vascular health!



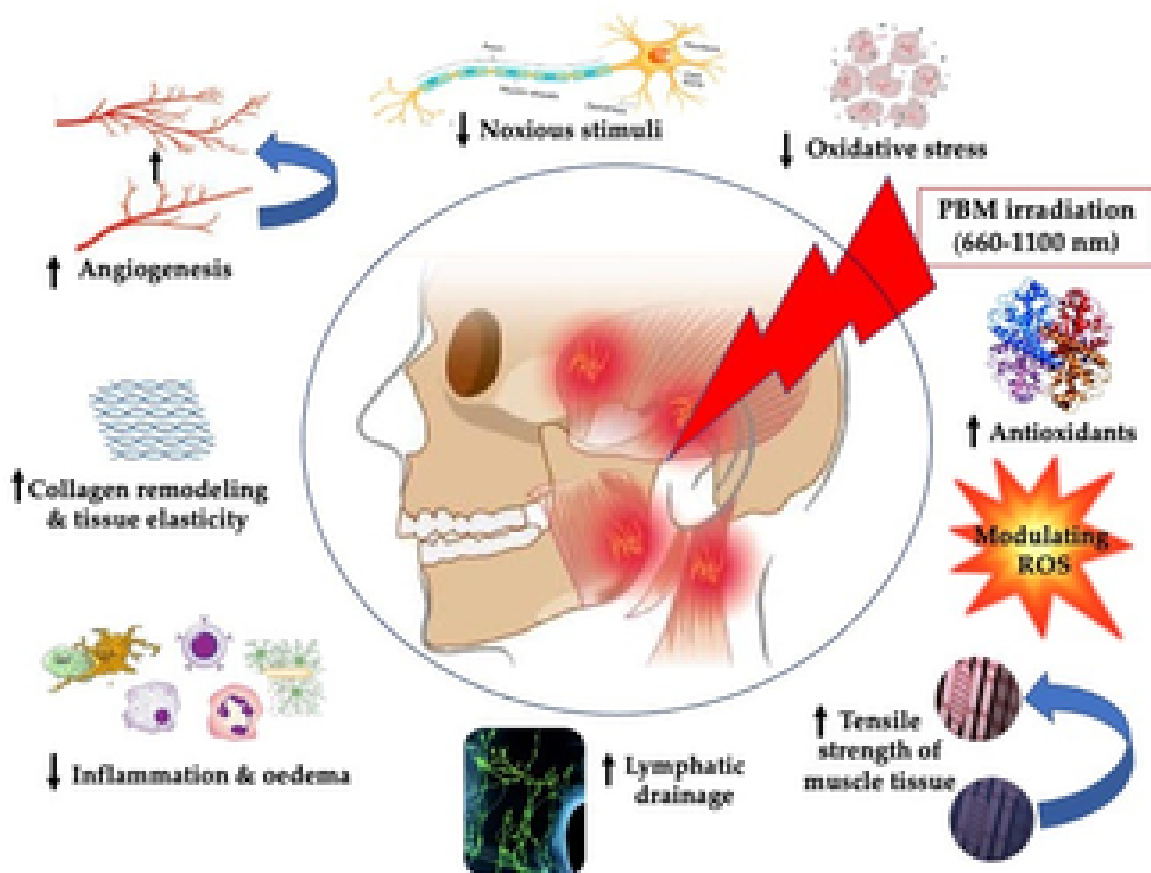
Microcirculation

Red light therapy has the potential to penetrate the small blood vessels and capillaries and improve [microcirculation](#). Capillaries play a vital role in the circulatory system to exchange

oxygen-rich blood and nutrients. When microcirculation is blocked or damaged, it leads to the accumulation of toxins. Improved microcirculation supports better blood flow.

Anti-inflammation

In addition to blood circulation, the body has another type of lymphatic circulation. The lymph node resides in the lymphatic system, protecting our body from foreign invasion. Simply put, one cycle of the body delivers nutrients to the body, and the other is to protect the body. Red light therapy removes pathogenic substances (LDL cholesterol, triglycerides, inflammatory substances, viruses, etc.) from the blood, removes coagulation factors and inflammatory substances, and can prevent blood clots and plaques. It prevents vascular infarction caused by sticky blood adhesion to blood vessels and improves vascular endothelial function. [Red light therapy promotes blood circulation and decreases inflammation by enhancing lymphatic circulation immunity.](#) When there is an infection, immune cells release nitric oxide to combat infections. Red light therapy is known to increase nitric oxide (NO), which participates in producing blood cells and increases the production of Killer T-cells in the bone marrow.



Angiogenesis

Repair and regeneration of new blood vessels (capillaries, veins, arteries) is the immediate body's response to injury. Red light therapy stimulates vascular endothelial cell production in the inner walls of blood vessels. Red light irradiation enhances nitric oxide (NO), a vasodilator molecule. Nitric oxide molecules are transferred from vascular endothelial cells to smooth muscle cells. The smooth muscle cells cause blood vessels to relax, become soft, and maintain elasticity.

Red Light Therapy Circulation Enhancing Medical Benefits

All diseases, big and small, in the body, are linked to the obstruction of blood circulation, such as human aging, tumor formation, hypertension, arteriosclerosis, diabetes, rheumatism, and other diseases with different degrees of microcirculation disorders.

- **Prevention of Cardiovascular Disease**

Cardiac disease causes the highest number of mortality worldwide. Poor microcirculation can lead to blood vessel blockage, elevated blood pressure, and other problems. Medical research has proved [red light therapy releases nitric oxide into the circulatory system, enhances perfusion, and decreases clot formation](#). Even if the NO amount is very low, it has a powerful blood pressure-lowering effect. Maintaining an excellent microcirculatory state helps prevent the occurrence of cardiovascular diseases.

- **Boosts Metabolism**

Slow microcirculation can lead to a sluggish metabolism and cause metabolic disorders such as weight gain, diabetes, thyroid, etc. Red light rays positively impact metabolism along with speedy circulation.

- **Prevent Varicose Veins**

When people sit for long periods, the circulation in the lower limbs slows down, and metabolic waste does not discharge properly, which will cause stasis in the blood vessels of the legs and feet. The longer the obstruction in blood flow, the more swollen they will become, which can easily lead to varicose veins. Red light therapy removes vascular waste from the root and directly restores the health of limbs.

- **Relief Pain**

Red light therapy has a good effect on pain caused by **low blood circulation**. Studies reported that irradiating diabetic foot ulcers with low-level light energy (LLLT) can improve [local blood circulation](#), heal ulcers by inhibiting bacterial infection, reduce pain, and enhance treatment efficiency.

Conclusion

The circulation of human blood is a surprisingly sophisticated network. Compared with conventional methods to improve circulation, red light therapy has the advantages of rapid onset of action, low cost, and high safety. Based on the above principles, red light therapy shows substantial power to penetrate deep blood vessels in the whole body, accelerate circulation, and make you healthy and live longer!

References and Citations

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