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Phototherapy can be used in the Diabetes treatment?

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Type 2 Diabetes Mellitus (DM) is associated with impaired functional capacity responsible for significant reduction in quality of life. Phototherapy is a resource largely utilized to treat several disorders. Cardiopulmonary fitness impaired in DM patients may be associated with macro and microvascular dysfunction and consequently limited tissue oxygenation. The light-tissue interaction may improve muscular oxygenation. Recently, some studies with healthy humans have been show improvements on muscular function, fatigue resistance and exercise. We will show why phototherapy can be a resource in the DM treatment and some of our recently findings regarding muscular pre-conditioning using phototherapy by light-emitting diodes on muscle oxygenation.

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Emerging novel targets and therapeutics for Diabetes Mellitus

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The worldwide epidemic of Type 2 Diabetes has been stimulating the search for novel molecules, drug delivery systems and targets to achieve a good clinical outcome. Increasing knowledge on the biochemical and cellular alterations occurring in NIDDM has led to the development of novel and potentially more effective therapeutic approaches to treat the disease. The prevalence of Diabetes is rising all over the world due to population growth, aging, urbanisation and an increase of obesity and physical inactivity. Diabetes is disproportionately increasing in all age groups in young to middle aged adults and geriatrics. This could have long-lasting adverse effects on a nation's health and economy, especially for developing countries. The International Diabetes Federation (IDF) estimates the total number of people with Diabetes rising to 592 million by 2035. The primary goal in the management of Diabetes Mellitus is to improvise near-normal glycaemia. More than half of patients have poor glycaemic control and have vascular complications. Therefore, there is an urgent need to develop novel therapeutic agents of Diabetes without the development and progression of complications or compromising on safety. However, even with the great success in biomedicine development with increasing knowledge and potentially effective therapeutic approaches, treatment of Diabetes is still a big challenge. To tackle this problem, scientists from various disciplines are in vigorous research for safer, yet convenient method to treat Diabetes by evaluating natural and synthetic derivatives on different novel protein targets together with, rigorous evaluation of the mechanisms of drug action of the known compounds which are also helpful for further validation of several new molecular drug targets. In contrast, with several existing synthetic medicines, natural biomolecules also contain diverse structural variability and become the great source for active agents to generate newer lead compounds in drug discovery. In modern age medicine, treatments are available for Diabetes Mellitus like Sulfonylureas, GLP-1 agonists, DPP4 inhibitors, PPAR- γ agonists, GPR119 agonists and SGLT2 inhibitors. In this study, a detailed focus is made on various promising targets with advances that materialize an effective and safe therapeutic agent discovery that throws light on next generation anti-diabetic therapy in the near future.

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