

The Role of Yoga on Platelet Count, Stress Reduction, and Quality of Life in Individuals with Idiopathic Thrombocytopenic Purpura (ITP): A Review Article

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Idiopathic thrombocytopenic purpura (ITP) is a haematological condition defined by decreased platelet count due to immune-mediated platelet destruction. ITP may be classified as primary ITP, which results without an underlying reason, or secondary ITP, which is associated with infections, autoimmune diseases, or malignancies. Individuals with ITP commonly report fatigue, a reduction in quality of life, and an increased risk of bleeding. Conventional treatment includes corticosteroids, immunosuppressants, and splenectomy in extreme cases. Nevertheless, holistic practices such as Yoga are becoming increasingly popular because they have the potential to increase well-being, balance the immune system, and reduce stress. Yoga has been demonstrated to stimulate the parasympathetic nervous system, thus lowering stress and immune balance. It also enhances circulation, oxygenation, and hormonal balance, factors that can help stabilize platelets. This review considers the possible advantages of Yoga in individuals with ITP, specifically its impact on platelet count, stress control, and quality of life, using both scientific data and personal information. With the growing demand for integrative medicine, knowing the role of Yoga in chronic autoimmune diseases is important. This review assesses the therapeutic benefits of Yoga on ITP, highlighting its impact on platelet count, stress levels, and quality of life.

Keywords: Yoga, Idiopathic thrombocytopenic purpura, Fatigue, Quality of Life, Stress

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Introduction

Idiopathic thrombocytopenic purpura (ITP) is a particular form of thrombocytopenia marked by a reduced platelet count without changes in bone marrow that can be detected or other causes.[1] The fall in platelets is due to impaired synthesis or augmented peripheral destruction.[2] Platelet destruction in most instances is result of antiplatelet membrane glycoprotein antibodies.[3] Primary ITP is found without known predisposing factors or underlying causes, while secondary ITP is seen with IgG-related autoimmune diseases like systemic lupus erythematosus, viral infections (especially in children), lymphoproliferative disorders, neoplasms, and other similar diseases.[4] In children, cases of ITP are particularly secondary to febrile illnesses, usually following a viral illness.[5] Various mechanisms have been associated with its pathogenesis, such as production of platelets promoting viral antigens, formation of antiviral antibodies that cross-react with antigens, formation of antibodies by IgG epitope spreading, and role of immune-binding complexes.[6] Megakaryocytes, particularly precursor cells for platelets, have a role to play in controlling intravascular coagulation, microangiopathic syndromes, and hemophagocytosis. These mechanisms can modify platelet surface, causing enhanced clearance from circulation.[7] Fatigue is a prevalent but frequently underappreciated symptom in idiopathic thrombocytopenia (ITP), chiefly due to decreased platelet numbers.[8] Patients often neglect this fatigue, whereas doctors focus on controlling bleeding, ignoring other areas like emotional distress and functional capacity.[9] Fatigue profoundly impacts health-related quality of life (HRQoL), both reflecting mental and physical health.[10] In chronic ITP, extreme bleeding requires prompt intervention; however, though platelet numbers rise with therapy, fatigue remains. Early intervention in adults can help prevent disease progression. [11]

Fatigue in immune thrombocytopenia (ITP) is mainly caused by chronic bleeding, which leads to iron deficiency and anemia.[12] Although treatments like corticosteroids, immunoglobulin, and anti-D are effective in enhancing platelet counts, they fail to restore blood volume or restore iron stores instantaneously, and hence fatigue improves gradually.[13]

Therefore, alternative therapies are essential to address these persistent challenges. *Yoga* offers a comprehensive method of alleviating fatigue with the help of asanas, pranayama, and meditation, which improve circulation, raise energy levels, and lower stress.[14] Restorative poses and deep breathing allow for oxygenation, while gentle movement and mindfulness ensure improved sleep quality and emotional hardness.[15] With the inclusion of *Yoga* in addition to standard treatments, the health-related quality of life (HRQoL) in ITP patients can be significantly improved because it deals with both the physical and emotional aspects of fatigue.[16] Moreover, *Yoga* has been found to help complement an increase in platelet counts, further favouring subjects suffering from ITP.[17] So, this review explores the therapeutic effects of *Yoga* in managing ITP, focusing on its impact on platelet count, stress reduction, and quality of life.

Methodology

A literature search was conducted using databases such as PubMed, Scopus, and Google Scholar from 2005 to 2025. Studies evaluating the effects of *Yoga* on immune modulation, stress response, and platelet function were reviewed. Keywords included "*Yoga* and autoimmune diseases," "*Yoga* and platelet count," "*Yoga* and stress reduction," and "*Yoga* and quality of life." Relevant clinical and observational studies were analysed to synthesize evidence supporting the role of *Yoga* in managing ITP-related symptoms.

Role of *Yoga* in Idiopathic Thrombocytopenia:

Yoga plays vital role in stress reduction & hormonal balance by stimulating parasympathetic nervous system with asanas, pranayama, and meditation. [18] This activation reduces cortisol and epinephrine levels, which relieves stress-induced immune dysfunction.[19] Additionally, studies show that *Yoga* reduces oxidative stress and inflammation, further benefiting overall health.[20] Apart from its stress-relief characteristics, *Yoga* enhances bone marrow activity and platelet formation by stimulating megakaryocyte differentiation and increasing platelet production through improved oxygenation & circulation.[21,22] Also, *Yoga* poses and breathing exercises enhance circulation and oxygen supply, favouring platelet formation & survival by reducing inflammatory cytokines such as IL-6 & TNF- α . [23]

Also, *Yoga* gives immune-modulating and anti-inflammatory actions by inhibiting inflammatory mediators associated with immune thrombocytopenia, in addition to reducing oxidative stress and facilitating endothelial function.[24] Psychologically, *Yoga* significantly increases emotional health by reducing anxiety, depression, and emotional distress connected with chronic disease. It also promotes resilience, self-efficacy, and quality of life overall through mindfulness activities, making it a holistic intervention for both physical and mental health.[25]

Discussion

Studies on direct effect of *Yoga* on platelet count in ITP are few; however, there is evidence that *Yoga* can enhance immune modulation and decrease systemic inflammation, potentially leading to enhanced platelet stability.[26] Some *Yoga* postures and breathing techniques are thought to improve blood circulation and facilitate hematopoietic function, which may be beneficial in low platelet counts.[27] Stress is also a recognized precipitating factor for autoimmune diseases, including ITP, as chronic stress leads to glucocorticoid release, e.g., cortisol, which can inhibit immune function and lead to disease progression.[28] *Yoga* has been extensively researched to reduce cortisol levels and stimulate parasympathetic nervous system, thus reducing stress-induced immune dysregulation.[29] Mindfulness-based stress reduction (MBSR) courses involving *Yoga* have shown marked benefits in reducing psychological distress in patients with chronic illness.[30] ITP patients also commonly present with fatigue, anxiety, and reduced physical activity due to risk of bleeding, with fatigue being particularly disabling due to chronic low platelet counts, prolonged bleeding, and iron deficiency anemia.[31] Gentle *Asanas*, *Pranayama*, and meditation have been found to increase energy levels, emotional status, and quality of life.[27] *Yoga* has also been associated with elevated serotonin & dopamine levels, enhancing mood & motivation, thus enabling individuals to cope with psychological impact of ITP.[26] In addition, *Yoga* practitioners tend to have improved sleep quality, which may counteract chronic fatigue, which is a common complaint in ITP patients. In addition to its psychological effects, *Yoga* improves cardiovascular & musculoskeletal function, which are commonly impaired in patients with chronic illness.

Some postures enhance circulation and oxygenation, lowering systemic fatigue and increasing vitality,[29] and controlled breathing patterns can contribute to autonomic nervous system balance, crucial for homeostasis in immune-compromised patients.[30]

Therefore, integrating *Yoga* as an adjunct therapy for ITP patients may provide multidimensional benefits, improving both mental and physical health outcomes.

Conclusion

Although direct studies on *Yoga*'s effect on platelet count in ITP are scarce, existing evidence supports its role in stress reduction, immune modulation, and overall well-being. As an adjunctive therapy, *Yoga* offers a promising, non-invasive approach to managing ITP symptoms. Future research should focus on randomized controlled trials to validate these findings and integrate *Yoga* into standard ITP care protocols.

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