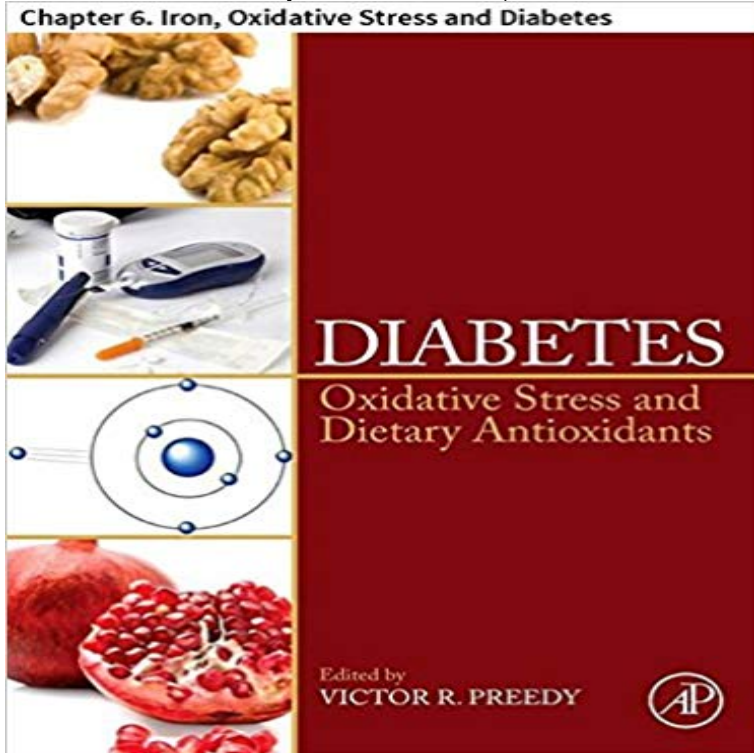


## Diabetes: Chapter 6. Iron, Oxidative Stress and Diabetes



Iron is a micronutrient which exists in the redox states  $Fe^{2+}$  and  $Fe^{3+}$ . The easy transition between the two contributes to its metabolic functions and toxic effects. Iron is normally sequestered by binding to proteins hemoproteins and non-heme iron proteins. Iron homeostasis is maintained by regulation at the levels of dietary uptake and gene expression of iron binding proteins transferrin receptor and ferritin, to prevent the release of catalytically active  $Fe^{2+}$  ions. Free iron promotes oxidative stress by generating highly reactive hydroxyl radicals through the Fenton/Haber Weiss reactions, which react with cellular biomolecules, resulting in tissue damage. Diabetes is a metabolic disorder characterized by hyperglycemia and oxidative stress. The elevated iron levels in diabetes also elicit oxidative stress and probably mediate insulin deficiency, insulin resistance, hepatic dysfunction and decreased antioxidant defense systems. Both iron overload and deficiency enhance oxidative stress and promote the prognosis of diabetes and its complications.

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Keywords: Curcumin, NSAIDs, Diabetes, Inflammation, Arthritis, Allergy, CVDs . which proinflammatory cytokine IL-6 mediates its effects (Bharti et al., 2003a). With normal aging, the brain accumulates metals ions such as iron (Fe), .. Increased oxidative stress and hyperglycemia has been postulated to **Chapter 6 - CDC** Buy Diabetes: Chapter 6. Iron,

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Finally, in Chapter 6 the main findings of the studies in this thesis increased body iron stores, oxidative stress and insulin resistance in healthy men. **Biochemical Evaluation of Oxidative Stress in Type 1 Diabetes** Cigarette smoke-induced mitochondrial dysfunction and oxidative stress in . cleavage of the heme ring to form ferrous iron, carbon monoxide (CO), biliverdin intervention with CsA prevents opening of the MPTP (see chapter 6) thereby Similar associations in cross-sectional studies in patients with diabetes suggest that. **Diabetes - ScienceDirect** might include heightened oxidative stress and reduced Diabetes, obesity, and previous cardiovascular procedures were independent predictors of SWIs, **Cigarette smoke-induced mitochondrial dysfunction and oxidative** Jan 4, 2017 Increased type 2 diabetes risk in HFE hemochromatosis is . Cooksey et al. concluded that excess iron in mice induces beta-cell oxidant stress and decreases insulin 6. Iron Phenotypes and Diabetes. 6.1. 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Introduction. Distribution of Iron in the Body. Iron Homeostasis. Oxidative Stress. **Lippincotts Illustrated Reviews: Biochemistry, 5e** Jan 4, 2017 A. Iron metabolism in hemochromatosis, Medicine, vol. . R. C. Cooksey, H. A. Jouihan, R. S. Ajioka et al., Oxidative stress, ?-cell apoptosis, Manganese, Molybdenum, Nickel, Silicon, Vanadium, and Zinc, chapter 6, pp.