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Navigating Osteoarthritis Precipitants: An Inclusive Review

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ABSTRACT

Millions of people worldwide suffer from osteoarthritis (OA), a multifactorial joint disease characterised by inflammation and cartilage breakdown. A complex combination of genetic, biomechanical, metabolic, hormonal, environmental, and inflammatory variables contributes to the development of the condition. Genome-wide association studies have revealed genetic predisposition, which has a major impact on OA risk. Joint injury and poor alignment are examples of biomechanical variables that hasten cartilage deterioration. Ageing decreases chondrocyte regenerating ability whereas metabolic variables, including as obesity and metabolic syndrome, contribute to the aetiology of OA. The progression of OA is influenced by hormones, especially oestrogen, and inflammatory diseases are directly related to the illness. Due to the cumulative effects of joint wear over time, age is a lifetime risk factor for OA. Targeted medicines may be possible as a result of genetic discoveries. Diet and exercise habits, for example, have an impact on OA prevention. Traumatic injuries and workplace risks can cause or exacerbate OA. Personalised methods to OA prevention and treatment require the integration of knowledge of these parameters. Additionally, joint stability and alignment affect the health of the musculoskeletal system and athletic performance. Oestrogen and androgens, for example, play important roles in the pathogenesis of OA. In OA, inflammatory mechanisms keep subchondral bone remodelling and cartilage deterioration going. The major goal of prevention techniques is to manage modifiable risk factors, such as keeping a healthy weight, getting regular exercise, eating a balanced diet, and taking care of joint damage and injuries. For the purpose of creating efficient preventive and management plans, it is essential to comprehend the roles that genetics, lifestyle, hormones, inflammation, and other precipitants play. The impact of OA on people and healthcare systems can be greatly reduced by integrating preventative strategies in pertinent workplaces and clinical settings. The lives of persons affected by this chronic ailment may be improved by improvements in personalised medicines and focused interventions.

KEYWORDS

Osteoarthritis, Genetic predisposition, Biomechanical factors, Metabolic factors, Hormonal factors, Environmental factors, Inflammatory conditions.

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