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LIFESTYLE-RELATED RISK FACTORS FOR ARTERIAL HYPERTENSION IN YOUNG ADULTS: A NARRATIVE REVIEW

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Abstract: Arterial hypertension is one of the most common non-communicable diseases and remains a major public health concern worldwide. In recent years, an increasing number of cases have been reported among young adults, making early prevention and identification of risk factors especially important. This narrative review aims to examine the main factors associated with the development of arterial hypertension in young adults based on published scientific literature. The review focuses on both modifiable and non-modifiable risk factors, including obesity, physical inactivity, unhealthy diet, excessive salt intake, smoking, alcohol consumption, stress, poor sleep quality, and family history. The findings suggest that lifestyle-related factors play a significant role in the early development of hypertension and may increase the risk of future cardiovascular complications. Promoting healthy lifestyle habits, improving awareness, and encouraging regular blood pressure screening may help reduce the prevalence of hypertension among young adults and improve long-term cardiovascular health.

Keywords: arterial hypertension, young adults, risk factors, lifestyle, prevention, cardiovascular health.

Introduction: Arterial hypertension is one of the most common chronic non-communicable diseases and remains a leading cause of cardiovascular morbidity and premature mortality worldwide. According to the World Health Organization (WHO), elevated blood pressure is responsible for millions of deaths each year and significantly increases the risk of coronary artery disease, stroke, heart failure, chronic kidney disease, and other cardiovascular complications. Although hypertension has traditionally been considered a condition affecting middle-aged and older adults, recent epidemiological studies have shown a growing prevalence among young adults. This trend has become an important public health concern because hypertension that develops at an early age often remains undiagnosed for many years, allowing progressive damage to target organs before clinical symptoms become apparent.

The increasing prevalence of hypertension among young adults is closely associated with changes in lifestyle and environmental factors. Rapid urbanization, sedentary behavior, unhealthy dietary patterns, increased consumption of processed foods rich in sodium, obesity, smoking, alcohol intake, psychological stress, and inadequate sleep have all contributed to the rising incidence of elevated blood pressure in younger populations. In

Date: 13th August-2026

addition, genetic predisposition and family history continue to play an important role in the development of hypertension, particularly when combined with unfavorable lifestyle habits.

Young adulthood is a critical period for the prevention of cardiovascular diseases because many behavioral risk factors become established during these years. Despite this, hypertension in younger individuals is frequently underestimated by both patients and healthcare professionals. Many young adults do not undergo regular blood pressure screening because they consider themselves healthy and are often asymptomatic. As a result, diagnosis is delayed until hypertension has already caused vascular and organ damage. Early identification of individuals at increased risk provides an opportunity to implement lifestyle modifications and preventive interventions before irreversible cardiovascular complications develop.

Numerous studies have demonstrated that modifiable risk factors account for a substantial proportion of hypertension cases among young adults. Excess body weight, insufficient physical activity, unhealthy eating habits, excessive salt consumption, tobacco use, alcohol consumption, chronic stress, and poor sleep quality have consistently been identified as major contributors to elevated blood pressure. Because these factors are potentially preventable, understanding their role is essential for developing effective public health strategies and reducing the future burden of cardiovascular disease.

This narrative review aims to summarize current evidence regarding the major risk factors associated with arterial hypertension in young adults, with particular emphasis on lifestyle-related determinants. The review also discusses the importance of early prevention, regular blood pressure monitoring, and health education as key approaches for reducing the incidence of hypertension and improving long-term cardiovascular outcomes in young populations.

Epidemiology of Arterial Hypertension in Young Adults. Arterial hypertension continues to be one of the most significant public health challenges worldwide. Although it has historically been associated with older age, recent epidemiological studies indicate a steady increase in the prevalence of hypertension among young adults. This trend is particularly concerning because elevated blood pressure at a young age is associated with a higher lifetime risk of cardiovascular disease, stroke, chronic kidney disease, and premature mortality.

According to the World Health Organization (WHO), more than 1.2 billion adults aged 30–79 years are living with hypertension worldwide, and nearly half of them are unaware of their condition. While the overall prevalence remains highest among older populations, studies have shown that hypertension is becoming increasingly common in individuals between 18 and 39 years of age. The growing burden of obesity, sedentary lifestyles, unhealthy dietary habits, and psychological stress has contributed substantially to this increase.

The prevalence of hypertension among young adults varies considerably between countries and regions due to differences in socioeconomic conditions, dietary patterns, healthcare access, and diagnostic criteria. In high-income countries, improved awareness



Date: 13th August-2026

and routine blood pressure screening have led to earlier diagnosis and better management. In contrast, many low- and middle-income countries continue to experience low awareness rates, limited access to preventive healthcare services, and delayed diagnosis, allowing hypertension to progress unnoticed for many years.

Several epidemiological studies have also demonstrated sex-related differences in hypertension prevalence among young adults. Men generally exhibit higher blood pressure levels and a greater prevalence of hypertension during early adulthood compared with women of the same age. However, this difference gradually decreases with advancing age due to hormonal and metabolic changes.

One of the greatest concerns is that hypertension in young adults is frequently asymptomatic. Since most affected individuals do not experience noticeable clinical manifestations, routine blood pressure measurement is often neglected. Consequently, many cases remain undiagnosed until complications affecting the heart, kidneys, brain, or blood vessels become evident. This silent progression highlights the importance of regular screening and early preventive measures, even in apparently healthy young individuals.

Recent evidence suggests that the increasing prevalence of hypertension among young adults cannot be explained by genetic susceptibility alone. Lifestyle-related factors, including overweight and obesity, excessive sodium intake, physical inactivity, smoking, alcohol consumption, chronic stress, poor sleep quality, and prolonged screen time, have emerged as the primary contributors to this growing public health problem. Identifying these factors at an early stage provides an opportunity to implement effective preventive strategies and reduce the long-term burden of cardiovascular diseases.

Major Risk Factors for Arterial Hypertension. The development of arterial hypertension is a multifactorial process influenced by the interaction of genetic, environmental, behavioral, and metabolic factors. While non-modifiable factors such as age, sex, ethnicity, and family history contribute to an individual's susceptibility, modifiable lifestyle-related factors play a central role in the onset and progression of hypertension among young adults. During the past decades, changes in dietary habits, reduced physical activity, increasing rates of overweight and obesity, psychological stress, and unhealthy behaviors have significantly increased the prevalence of elevated blood pressure in younger populations. Understanding these risk factors is essential because many of them can be prevented or effectively controlled through early intervention and lifestyle modification.

Obesity and Overweight. Obesity is recognized as one of the strongest modifiable risk factors for arterial hypertension. Excess body weight contributes to increased blood pressure through several physiological mechanisms, including activation of the sympathetic nervous system, stimulation of the renin–angiotensin–aldosterone system, insulin resistance, chronic low-grade inflammation, and endothelial dysfunction. These changes promote sodium retention, increase vascular resistance, and elevate cardiac workload, ultimately leading to persistent hypertension.

The prevalence of overweight and obesity has increased markedly among young adults over the past two decades due to sedentary lifestyles, excessive consumption of



Date: 13th August-2026



energy-dense foods, and reduced physical activity. Numerous epidemiological studies have demonstrated a positive relationship between body mass index (BMI) and blood pressure levels. Even a modest increase in BMI has been associated with a higher risk of developing hypertension, while central obesity, commonly assessed by waist circumference, appears to be an even stronger predictor of cardiovascular risk.

Adipose tissue is no longer considered merely an energy storage organ but also an active endocrine tissue that secretes various adipokines and inflammatory cytokines. Excessive fat accumulation promotes chronic inflammation and impairs vascular function, resulting in reduced nitric oxide production and increased arterial stiffness. These alterations contribute to persistent elevation of blood pressure and accelerate the development of cardiovascular disease.

Importantly, obesity-related hypertension is largely preventable. Clinical evidence indicates that weight reduction through dietary modification, regular physical activity, and behavioral interventions can significantly decrease both systolic and diastolic blood pressure. Even a weight loss of 5–10% of total body weight has been shown to improve blood pressure control and reduce the risk of long-term cardiovascular complications. Therefore, maintaining a healthy body weight should be regarded as one of the primary strategies for preventing hypertension in young adults.

Physical Inactivity. Physical inactivity is one of the major modifiable risk factors contributing to the development of arterial hypertension among young adults. A sedentary lifestyle is associated with reduced cardiovascular fitness, increased body weight, impaired endothelial function, and metabolic disturbances, all of which may contribute to elevated blood pressure.

Regular physical activity improves vascular function, enhances insulin sensitivity, helps maintain healthy body weight, and reduces sympathetic nervous system activity. Studies have shown that individuals who engage in regular aerobic exercise have a lower risk of developing hypertension compared with those with low levels of physical activity. Therefore, increasing daily physical activity is an important strategy for the prevention of hypertension in young populations.

Unhealthy Diet and Excessive Salt Intake. Dietary habits play a significant role in the regulation of blood pressure. High consumption of processed foods, saturated fats, refined carbohydrates, and excessive sodium intake has been associated with an increased risk of hypertension. Excess sodium promotes water retention, increases blood volume, and contributes to vascular changes that elevate blood pressure.

In contrast, diets rich in fruits, vegetables, whole grains, and minerals such as potassium have protective effects on cardiovascular health. Improving dietary patterns and reducing salt consumption are considered effective approaches for preventing hypertension among young adults.

Smoking. Smoking is an important behavioral risk factor associated with increased cardiovascular risk. Nicotine and other substances in tobacco products stimulate the sympathetic nervous system, causing temporary increases in heart rate and blood pressure.

Date: 13th August-2026

Chronic smoking also contributes to endothelial dysfunction, inflammation, and arterial stiffness.

Although smoking prevalence has decreased in some populations, it remains a significant concern among young adults. Smoking cessation is one of the most effective interventions for reducing cardiovascular complications and improving long-term health outcomes.

Alcohol Consumption. Excessive alcohol consumption has been linked to an increased risk of arterial hypertension. Alcohol can affect blood pressure regulation by increasing sympathetic activity, altering vascular function, and contributing to weight gain.

Moderate or excessive drinking patterns among young adults may increase the likelihood of developing hypertension over time. Reducing alcohol intake and promoting responsible consumption are important components of cardiovascular disease prevention.

Psychological Stress. Chronic psychological stress has gained increasing attention as a potential contributor to hypertension in young adults. Persistent stress activates the hypothalamic–pituitary–adrenal axis and sympathetic nervous system, leading to increased levels of stress hormones that may elevate blood pressure.

Academic pressure, occupational demands, financial concerns, and social stressors are common sources of chronic stress among young individuals. Stress management strategies, including adequate rest, physical activity, and psychological support, may help reduce its negative effects on cardiovascular health.

Sleep Disorders. Insufficient sleep and poor sleep quality are increasingly recognized as risk factors for hypertension. Sleep deprivation may increase sympathetic nervous system activity, promote inflammation, and disturb hormonal regulation involved in blood pressure control.

Young adults with irregular sleep schedules or chronic sleep restriction may have a higher risk of developing elevated blood pressure. Maintaining adequate sleep duration and improving sleep hygiene are important preventive measures.

Genetic Predisposition and Family History. Genetic factors also contribute to individual susceptibility to arterial hypertension. Individuals with a family history of hypertension are more likely to develop elevated blood pressure, especially when combined with unhealthy lifestyle factors.

Although genetic predisposition cannot be modified, early identification of high-risk individuals allows timely implementation of preventive strategies, including lifestyle modification and regular blood pressure monitoring.

Discussion: The increasing prevalence of arterial hypertension among young adults is closely related to changes in lifestyle and behavioral patterns. Current evidence suggests that modifiable risk factors, including obesity, physical inactivity, unhealthy diet, stress, and poor sleep, play a major role in the early development of hypertension. Although genetic factors contribute to individual susceptibility, lifestyle modification remains the most effective approach for prevention. Early screening and health education among young adults may help reduce the future burden of cardiovascular diseases.



Date: 13th August-2026

Conclusion: Arterial hypertension is no longer considered a disease limited to older populations. The growing incidence among young adults highlights the importance of early prevention and risk factor management. Promoting healthy lifestyle habits, regular blood pressure monitoring, and increasing awareness can significantly contribute to reducing hypertension-related complications and improving long-term cardiovascular health.

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Date: 13th August-2026

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