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**Review Article** 

# REVIEW STUDY: EFFECT OF LIFESTYLE CHANGES ON BLOOD PRESSURE CONTROL AMONG HYPERTENSIVE PATIENTS.

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Abstract:		
Hypertension is the most common cause of global morbidity and mortality among adults. There is a new trend for		
using non-pharmacological interventions have for treatment of hypertension including modifying lifestyle. This study		
aimed at reviewing the effect of lifestyle modification on treatment of hypertension among hypertensive subjects. All		
Hypertension is the most common cause of global morbidity and mortality among adults. There is a new trend for using non-pharmacological interventions have for treatment of hypertension including modifying lifestyle. This study aimed at reviewing the effect of lifestyle modification on treatment of hypertension among hypertensive subjects. All		

available complete English studies during the last 10 years were included in the study. These studies showed that Hypertension etiology and risk factors are linked to ageing, diet pattern, alcohol and smoking. Modifying lifestyle including diet pattern, alcohol consumption, smoking cessation and physical activity could enhance the reduction of blood pressure among hypertensive patients and suggesting a new promising metabolic way for prevention and control of hypertension.

Keywords: Hypertension, lifestyle, modification, physical activity, alcohol intake, diet.

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# **INTRODUCTION:**

Hypertension is the most common cause of global morbidity and mortality among adults. It is considered as a significant risk factor for cardiovascular and kidney diseases [1]. Recently, hypertension can contribute to 40% of worldwide death and higher burden of decreasing the quality of life [2, 3].

Hypertension incidence is increased with age and related to genetic interventions as about 40% of European population are suffering fromhypertension[4].Recently, there is a new trend for using non-pharmacological interventions have for treatment of hypertension including modifying lifestyle[5]. Some studies have shown that lowering the blood pressure could decrease the risks of cardiovascular morbidity and mortality rates and showed an association between lowering the body weight and management of blood pressure levels in peoplewith hypertension[6-8].

Also, the proper management of hypertension recommend appropriate changing the lifestyle while using medications they are supposed to enhance the effect of drugs and prevent initiation of cardiovascular complications [9].

Most of the hypertension related risk factors include ageing, gender difference, eating style, smoking and alcohol consumption. These risk factors can be modified and result in better control of blood pressure[10, 11]. Thus this study aimed at evaluating the effect of lifestyle modification on treatment of hypertension.

#### **METHODS:**

#### Information sources and search strategy:

This review includes all the eligible English studies during the last ten years considering the effect of lifestyle modification on management of hypertension among hypertensive patients.

# Role of Lifestyle Modification among population:

The modification of lifestyle is confirmed as a nonpharmacological treatment not only among hypertensive patients but also among healthy individuals. It's the method of choice for hypertension treatment before initiating pharmacological therapy. Also, lifestyle modifications can enhance the drug withdrawal among hypertwnsive subjects responding to proper lifestyle changes. Furthermore, modifying lifestyle can prevent the induction of hypertension and maintain BP at recommended levels among nonhypertensive subjects thus decrease the costs and health burden related to hypertension on society and population[12]. The minimumdecrease in blood pressure can result in valuableadvantages on lessening the risk of cardiovascular complications. If generalized among the entire population, for each 3mmHg drop in systolic BP can result in 5-8% decrease in mortality rates due to coronary heart disease or stroke as well [13].

#### **Physical Activity:**

Physical activity was supposed to enhance many beneficial metabolic and dynamic effects as well as decreasing the risk factors of worldwide cardiac and metabolic death. The mechanism of its preventive effect is described by its ability to lessen the responses of the sympathetic system and affect the hormones responsible for response to psychophysical stress including lowering the cortisol levels and the cardiovascular reactivity [14, 15].

Also, it regulates the arterial wall systemic adaptation that can decline the peripheral resistance of the arteries[16]. Training and regular exercise increases the muscle fiber supply through increasing the number of pro-angiogenic factors which in turn leads to advanced number of capillaries [17]. Many studies have reported the ability of physical activity to reduce the arterial stiffness thus enriching the vascular function and refining the equilibrium between vasodilator and vasoconstrictor systems[18, 19].

Though, the role of physical activity in emolliating control on blood pressure is still a debate due to some factors including the intense and duration of physical exercise, age, other comorbidities[20].

Many studies magnified the role of physical activity in reducing the blood pressure, but the results varied according to the status of administrating medication or not, the training status and characteristics. Although, it was highly significant among those administrating hypertensive drugs[18, 21-23].

Regular physical exercise have proved a beneficial effect in moderating the blood pressure and decreasing the risk of metabolic and cardiac diseases as described in many literatures including mild to moderate regular exercise could decrease the blood pressure by about 5 and 10 mmHg for systolic and diastolic pressure among individuals of both genders and different ages[23-26]. Also, after initiation of regular physical exercise, the obtained blood pressure values can result in reducing or cessation of antihypertensive medications[27].

Other studies have reported thattypical physical exercisecould prevent the hypertension development and complications among hypertensive patients when compared to sedentary normotensive individuals[19, 28-30].

Above that, it is not only associated with modifying the blood pressure values but also can upgrade the glycemic control, enhance the lipid profile, and reduce the risk of morbidity and mortality due cardiovascular events[31-33]. The guidelines recommend a regular moderate-intensity exercise for 5-7 days per week with 30 minutes each day[34, 35].

### **Dietary Patterns:**

Modifying the dietary patterns to adequate diet is correlated with lowering blood pressure values as overweight and obesity are associated with complicated hypertension while some studies meaningfully showed that the moderate weight loss can prevent the intuition of hypertension between prehypertensive subjects and can enable decreasing the concentration of medications or even stopping it [27].

Potassium intake with lowering the sodium intake is suggested to lower the blood pressure levels among hypertensive and normal subjects [36-38].

Some studies evidenced that a low levels of calcium and magnesium intake can result in enhancing the initiation of hypertension[39, 40].

Besides, several studies have confirmed that complete dietary variations can perform a vital role in the prevention and management of hypertension. A diet that is rich of vegetables, fruits, omega 3 and fibers is operative in dropping blood pressure and its associated cardiovascular mortality and morbidity[41, 42]. As this diet can improve the arterial stiffness and enhance the endothelial role thus decrease the risk of cardiovascular events[43, 44]and lower the blood pressure levels with regular administrating of omega 3[44, 45].

Numerous studies have established the usefulness of this proper dietary system with decreased caloric intake in providing a new approach for managment and prevention of hypertension[46-49].

Also, losing about 5% of body weight or more can expressivelymaintain the blood pressure levels among obese subjects administrating antihypertensive drugs [50]. Other studies also presented a strong association between decreasing the blood pressure levels and changing the lifestyle interventions with diet to control the glycemic state [51-53].

#### Salt Intake:

There is a close relation between the arterial blood pressure and sodium intake as many studies showed that the high sodium diet can result in increasing the values of blood pressure[54]. Hence, several studies have investigated the correlation between salt intake and levels of blood pressure demonstrating that the higher the sodium intake, the higher blood pressure levels due to the increased number of circulating endothelin-1 acting as a potent vasoconstrictor[55, 56]. on the other hand, salt lesseningwas associated with advances in artery dilation thus decreasing the blood pressure [57-59].

Some recent studies have confirmed the relationship between an increasing risk of blood pressure, cardiovascular events and mortality with high dietary sodium intake and vice versa [60-63].

# **Alcohol Intake:**

Alcohol abuse has a hazardouseffect on body organs, systems, and blood pressure as well. It can result in a complex acute impact on blood pressure are complex and nonlinear, with depending on the length of alcohol administration asSubstantialand long standing drinking of alcohol is related to significant increase in blood pressure[64-66].

Also, an association between hypertension and heavy alcohol intake was demonstrated among both genders but the percentage was higher and closely related to males when compared to females [64, 67-70]

Alternatively, some studies propose that the light alcohol intake has some favorable outcomes in decreasing the risk of cardiometabolic events but the heavy alcohol consumption can induce higher blood pressure values [71, 72].

### **Cigarette's Smoking:**

Cigarette smoking is a main risk factor for cardiac diseasesdue to the heavy compounds containing carbon monoxide and nicotine activity. Also, smoke exposure can decrease the nitric oxideexpression thus damages the endothelial microvascular beds and its vasodilatory function[73, 74].

Consequently, smoking can double the vascular resistance thus impair the vasodilatation and increase vasoconstriction thus can result in increasing the blood pressure values and the risk of thrombosis [75].

Some epidemiological studies showed that the risk of hypertension can be developed among smokers when compared to non-smokers with unfavorable long term exposure [76, 77].

Other studies demonstrated a significant enhancement in systolic and diastolic pressure among subjects quitting smoking[78]. Cigarette cessation is strongly recommended among hypertensive subjects to decrease the risk of hypertension and coronary heart diseases[79, 80].

#### **CONCLUSION:**

Hypertension etiology and risk factors are linked to ageing, diet pattern, alcohol and smoking. Modifying lifestyle including diet pattern, alcohol consumption, smoking cessation and physical activity could enhance the reduction of blood pressure among hypertensive patients and suggesting a new promising metabolic way for prevention and control of hypertension.

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