

## ROLE OF DETOX DIET FOR TOXIN ELIMINATION AND WEIGHT MANAGEMENT IN SAUDI ARABIA

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### ABSTRACT

It has been studied that one of the latest nutritional trends is the Detox or depurative diets, with the aim of eliminating toxins and improving one's health. This regimen has become a popular strategy for detoxifying, losing weight, and maintaining health and quality of life. They found that diets are divisive because there is not enough evidence claiming its benefit to health, and it is likely to be harmful due to a lack of minerals, vitamins, and dietary fiber, and this reason leads to stress and fatigue. Detoxification regimens were applied to a group of patients following one or most of these methods: Juice and water preparation, Aqueous shot preparation, Salads with greens, Special soup, and Kefir probiotics preparation. After following the dietox methods. It was observed that most of them were They lose weight in small deficiency, some of them kept their weight steady, and a few increased their weight. The study, which was conducted on a group of patients, to learn about the effect of detoxification diet and its role in burning fat and losing weight using probiotics, and enhancing the health image containing prebiotics is considered a tool for the prevention of complications of metabolic imbalance and weight loss.

**Key words:** Detox diet, Toxin, Saudi Arabia, Weight management, disease control

### INTRODUCTION

Detox or depurative diets are one of the newest nutritional trends, with the goal of removing toxins from the body, improving health, and assisting with weight loss, Laxatives, diuretics, vitamins, minerals, "cleansing foods" are often used [1-2]. The most common reasons cited by naturopathy physicians to prescribe detoxification therapy are environmental exposure to toxins, general cleansing / preventive medicine, gastrointestinal disease, autoimmune disorder, inflammation, fibromyalgia, Chronic fatigue syndrome and weight loss [3-5]. Detox dieting has become a common strategy for removing toxins and losing weight, thus enhancing health and quality of life. Detox diets, on the other hand, are divisive, with some claiming that there is insufficient empirical evidence to support their health benefits, and that they could even be detrimental. Nonetheless, the ability of food-based nutrients to modulate metabolic pathways involved in detoxification [1, 6-8]. Food extracts and nutrients have been shown in several preliminary studies to control the transduction and subsequent excretion of toxins [17-19]. Detox diets are usually calorie-restricted diets that include just one fruit, vegetable, or beverage (tea, vin- gear, lemon juice, salt water, or drinks mixed with micronutrients) [9-10]. Initially the detox program was well known as the lemon diet and hypocaloric Mediterranean diet. were a very low-calorie diet (LCD) that allows 500 to 100okcal per day and is effective in reducing

body weight and fat; however, this dietary intervention is difficult to maintain and may cause shortages of minerals, vitamins, and dietary fiber, similarly as raised binge feeding and stress [11-12]. Moreover, whereas fasting or LCDs might enable weight loss, they will additionally cause varied health issues, like deficiency disease, muscle weakness, nervousness, headaches, dizziness, fatigue, epithelial duct disturbances, and reduced quality of life [13-16]. In general, the result of detox diet on fat was assessed for the burden loss result in an exceedingly short term amount, however the biomarker wasn't measured for the detoxification result of harmful parts moreover, no scientific studies have investigated the effectiveness of nutritionally balanced detox diets for losing weight and toxin elimination [20-25]. In this research, a group of patients was studied to know and confirm the effectiveness of the detox diet and its role in losing weight, burning fats and excreting toxins, by using a specific diet and using probiotics to targeting gut microbiome composition like (*Lactobacillus plantarum* and *Lactobacillus rhamnosus*) or functions with prebiotics to promote a healthier profile are considered a promising tool for excessive body weight treatment and prevention of metabolic complications [26-29].

## **MATERIAL AND METHODS**

### **Juice and water preparation**

The patient was given this regimen for 10 days and it was prepared everyday in the morning and taken by the patient every morning.

Green vegetable juices, freshly squeezed Every day, 250ml of *Spinacia oleracea* (spinach), *Petroselinum crispum* (Parsley), *Coriandrum sativum* (.Coriander), *Foeniculum vulgare* (Fennel), *Ocimum basilicum* (basil), Citrus (Lemon), *Zingiber officinale* (ginger), *Cucumis sativus* (Cucumber), *Apium graveolens* (.Celery) . juice was made.

Until drinking, sterilize the water with mms1 and DMSO, then apply 250ml of this water to the drink.

### **Aqueous shot preparation:**

Green black walnut complex, lobelia, and iodine in a quantity of 2 decreases.

### **Salads with greens:**

Every day, green salads were served.

### **Special soup:**

*Allium sativum* (Garlic) without the peel, *Allium cepa* (Onion), *Apium graveolens* (Celery) *Capsicum annum* (Peppers), and *Curcuma longa* (Curcuma) in a special soup.

### **Kefir probiotics preparation:**

A quantity of 250ml coconut milk kefir was distributed.

The probiotic used in this detox is being prepared tangy, sour yogurt-like beverage is brimming with beneficial bacteria and yeast, with more probiotics than standard yogurt. Kefir is made by combining kefir culture (also known as grain) with milk from a cow, sheep, or goat, and fermenting the mixture for about 24 hours. After the dietox methods were followed by 100 women and men, It was observed that most of them experienced a slight weight loss, some of them kept their weight steady, and a few

increased their weight ,and the impact of the detox was more effective for women than for men. As shown in the figure (Table 1).

## RESULTS

**Table1: The table shows patients' ages, gender, weights, height, blood pressure, arm circumference, and pulse rate**

Female							Male					
S. No	Age	Weight (kg)	Hight (cm)	Ac (cm)	Blood pressure	Pr	Age	Weight (kg)	Height (cm)	Ac (cm)	Blood pressure	pr
1-	59	73	159	90	135/87	87	31	76	173	90	125/85	65
2-	38	50,5	176	72	90/65	89	52	101	170	101,9	130/86	78
3-	35	41	140	78	102/57	78	-	85	162	106	130/85	70
4-	32	52	157	-	130/70	53	46	116	178	118	142/86	69
5-	32	42,7	163	64,5	87/60	53	-	104	166	-	129/85	69
6-	22	54,5	148	70	114/71	86	-	95	183	-	157/84	96
7-	28	67	145	-	109/73	89	47	120	176	-	145/90	-
8-	57	78,5	157	-	181/68	87	31	76	173	89	125/85	65
9-	-	58,5	158	-	104/84	72	52	101	170	108	130/86	78
10-	-	65	163	-	114/76	67	-	85	162	108	130/85	70
11-	-	71	-	84	110/70	87	44	110	170	112	142/85	70
12-	-	57	-	83	96/67	78	-	104	166	-	129/85	69
13-	-	84	-	82	127/81	89	-	95	183	-	157/84	96
14-	32	79	162	-	122/64	84	48	125	170	-	145/90	-
15-	38	84.5	159	-	106/87	84	33	77	170	91	125/85	66
16-	41	90	158	-	144/98	77	54	105	171	103	130/86	77
17-	25	92	165	35	118/80	98	-	85	162	106	130/85	70
18-	39	53.5	158.5	29.5	104/64	65	48	115	177	119	142/86	70
19-	-	99.5	-	107	140/84	69	-	105	165	-	129/85	68
20-	-	62	160	78	106/41	82	-	96	182	-	157/84	92

21-	40	96	180	96	134/88	83	46	121	177	-	145/90	90
22	29	60	-	-	119/69	80	33	77	172	90	125/85	68
23	42	58.5	165	80	112/69	99	52	101	170	105	130/86	79
24-	-	74	-	94	118/94	98	-	85	162	106	130/85	70
25	-	85	-	102	101/76	68	48	115	177	119	142/86	70
26-	46	56	154	79	105/66	100	45	106	167	100	129/85	68
27-	14	61.5	159	77	114/54	55	44	97	186	101	157/84	95
28-	40	50.5	163	94	122/79	89	48	123	178	103	145/90	90
29-	33	58	159	81	105/65	87	31	77	173	91	125/85	67
30-	40	94.5	165	90	125/85	94	52	111	170	104	130/86	79
31-	32	76	157	93	112/90	91	56	88	162	106	130/85	73
32-	27	46	153	29	107/72	90	46	126	178	118	142/86	68
33-	28	50.5	160	28	121/77	102	54	114	166	105	129/85	66
34-	41	72	153	92	94/65	86	53	97	183	106	157/84	92
35-	32	65	157	-	124/78	93	47	119	176	100	145/90	90
36-	39	76	158.5	98	117/83	89	31	77	173	92	125/85	68
37-	28	82	160	91	112/99	-	52	106	170	108	130/86	79
38-	-	114	165	108	125/90	114	55	86	162	107	130/85	75
39-	34	88.3	161	103	120/78	82	46	119	178	118	142/86	66
40-	-	63.9	165	-	-	-	51	107	166	102	129/85	66
41-	33	100	167	-	122/75	90	52	98	183	104	157/84	98
42-	-	74	150	103	134/78	102	47	110	176	105	145/90	80
43-	-	70	161	82	117/88	84	53	86	162	109	130/85	76
44-	-	61	152	-	140/76	92	46	112	178	118	142/86	68
45-	25	89	158	104	108/79	104	49	109	166	110	129/85	72
46-	32	68	156	86	109/76	94	50	96	183	103	157/84	71
47-	-	64.4	153	96	118/71	73	47	121	176	108	145/90	90

The detox helped some patients lose weight and arm circumference and also explained that before Detox, the period of heart rate or blood pressure was unbalanced for some cases or it was high in others, but after detox, the condition was healthy for them and the pulse rate was better than it should be.while some patients' weight remained stable. As shown in the (Table 2). Approximately 52% of patients lost weight differently, between 1-13 kilograms, and most of them had lost 3 kilograms, and the largest weight loss was 13 kilograms, with no knowledge of the patients' full commitment to the diet, which may be the reason for this difference. The 20% of the patients gained their weight by about 1-4 kilograms as a maximum. As for the other part, which is 28% of the patients, their weight was stable, and this may be due to many reasons, including not following the diet, not applying detox completely, or not continuing with detox in the sense of using it. But intermittently and for long periods

Table 2: Patients' weight, blood pressure, and arm circumference before adetox and after a detox for 3-7 days, with the date they started the detox.

Before detox					After detox				
Date	Weight (kg)	Ac (cm)	Blood pressure	pr	Dat	Weigh (kg)	Ac (cm)	Blood pressure	pr
Dec.26.2016	84	82	127/81	89	Feb.6.2017	81	82	117/78	80
Dec.14.2016	73,6	90	135/87	87	Dec.21.2016	71	84	125/83	80
Feb.8.2017	50,5	72	90/62	89	March.7.2017	51	69.85	91/61	89
June.16.2015	113	-	134/76	66	July.6.2015	106.5	43.5	125.79	59
May.4.2015	78	103	97/70	66	June.2.2015	77	96.5	108/70	70
May.27.2015	80	-	110/67	73	May.8.2016	75	84	110/69	62
June.9.2015	76	84	114/74	80	Feb.7.2017	77.5	78	104/66	89
June.18.2015	62	29	90/66	81	June.25.2015	59	26	100/70	-
Oct.3.2016	56.5	72	97/60	84	Oct.25.2016	55	69	104/36	87
June.18.2015	62	30	100/60	87	June.25.2015	61	28	100/70	-
Nov.12.2015	62	81	110/60	81	Jan.16.2016	64.5	83	119/66	74
Jan.23.2016	88	94	147/75	62	Feb.6.2016	88	101	117/8	95
Apr.6.2016	80	91	132/91	94	Apr.27.2016	79.5	87.6	117/80	80
Oct.1.2016	83.5	99	114/64	98	Nov.19.2016	81	79.5	105/57	110
Jul.16.2016	105	93	120/86	86	Oct.9.2016	106	-	106/86	77
June.2.2016	83.5	105	165/71	78	June.9.2016	84	-	144/69	83
June.1.2016	57	68	114/75	86	June.5.2016	55	32	99/70	86
June.3.2016	95	-	150/84	83	Feb.4.2017	81	-	138/70	73
May.28.2016	92	93	135/85	74	Sep.8.2016	87.5	85	126/76	78
May.24.2016	92	98	179/126	89	June.5.2016	93.5	44.5	114/59	71
Feb.10.2014	50.5	28	121/77	102	June.16.2014	56	-	121/76	116
Feb.18.2014	72	92	94/65	86	May.12.2014	69.5	-	100/59	90
Feb.16.2014	65	-	124/78	93	Feb.25.2014	59.5	-	121/71	101
Feb.18.2014	76	98	117/83	89	May.23.2014	73.5	92	113/73	82
Feb.11.2014	61	-	140/76	92	May.20.2014	60	-	124/75	85
May.11.2014	89	104	108/79	104	Apr.7.2014	88.5	100	115/80	95

Some statistics were conducted to ensure the effectiveness of the diet (Table:3)

<b>Table 3 : Paired Samples Statistics</b>					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Before detox Date	09/22/2015	26	371 01:42:59.611	72 18:33:16.964
	After detox Date	12/12/2015	26	379 19:29:31.678	74 11:41:42.313
Pair 2	Before detox Weight (kg)	76.43	26	16.250	3.187
	After detox Weight (kg)	74.65	26	15.274	2.995
Pair 3	Before detox Ac (cm)	73.05	19	33.314	7.643
	After detox Ac (cm)	71.87	19	24.577	5.638
Pair 4	Before detox pr	84.63	24	10.818	2.208
	After detox pr	83.83	24	13.454	2.746

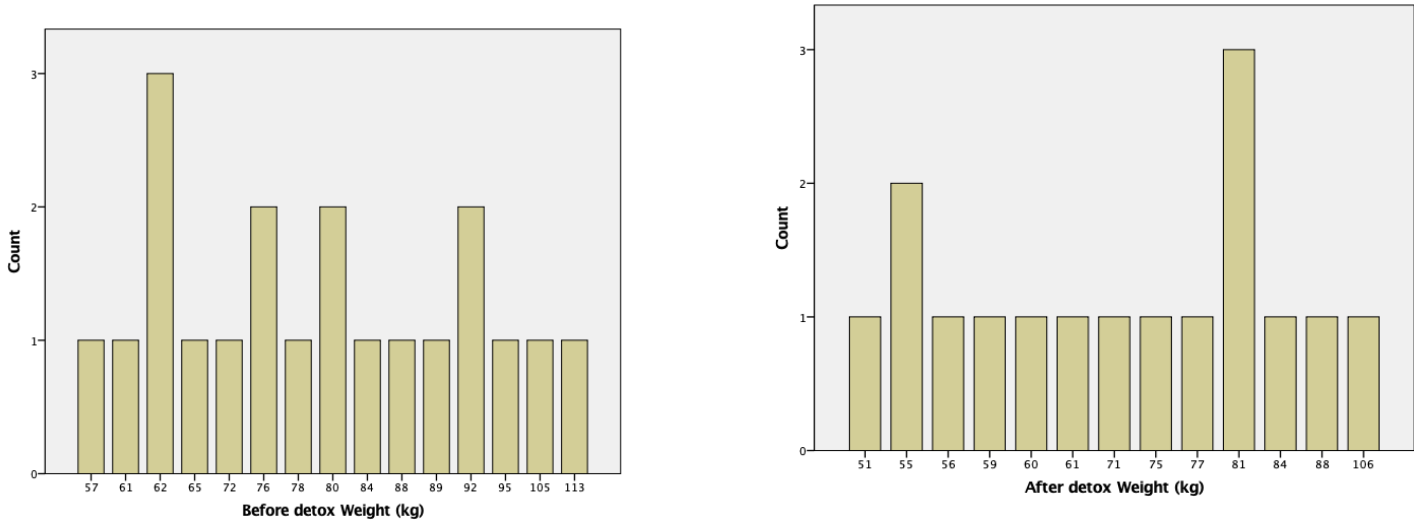


		N	Correlation	Sig.
Pair 1	Before detox Date & After detox Date	26	.936	.000
Pair 2	Before detox Weight (kg) & After detox Weight (kg)	26	.976	.000
Pair 3	Before detox Ac (cm) & After detox Ac (cm)	19	.579	.009
Pair 4	Before detox pr & After detox pr	24	.595	.002

From Table No. (4) it is clear that the correlation between weight before and after the detox procedure, we note that the correlation rate was (.976) and this means that there is a very strong correlation between weight before and after, meaning that the effect .the weight did not change significantly, or the difference was very small was **not significant** (table 5)

		Paired Differences					t	df	Sig. (2-tailed)
Pair		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Before detox Date - After detox Date	-80 17:32:18. 462	134 19:52:2 4.016	26 10:36:25. 102	-135 04:32:0 9.556	-26 06:32:27.36 7	- 3.05 3	25	.005
Pair 2	Before detox Weight (kg) - After detox Weight (kg)	1.773	3.621	.710	.311	3.236	2.49 7	25	.019
Pair 3	Before detox Ac (cm) - After detox Ac (cm)	1.187	27.670	6.348	-12.150	14.523	.187	18	.854
Pair 4	Before detox pr - After detox pr	.792	11.171	2.280	-3.925	5.509	.347	23	.732

Figure (1): Shows the difference in weights before and after detox in a graph.



**Safety and Side Effects:**

Before starting any kind of detox, it is important to be aware of the possible side effects that may occur.

Many systems recommend severely restricting calories or fasting. Long-term fasting may lead to a deficiency of minerals, vitamins and energy. Short-term fasting may lead to fatigue, muscle pain, irritability and bad breath.

In addition, some of the cleansing methods that are recommended to get rid of toxins may be the cause of dehydration, bloating, vomiting, and cramping, and the symptoms and risks vary according to the patient's condition, for example, detox may lead to a sharp drop in blood sugar level, which causes health risks for diabetics.

A physician should be consulted first before beginning any detoxification or calorie restriction regimes.

**Potential benefits:**

Some aspects of a detox diet may have health benefits

Some patients report a sense of energy and vitality and increased focus during and after detox. This improvement may be due to the elimination of

processed foods and unhealthy materials. Patients may also get vitamins and minerals that were previously lacking.

One of the benefits of detox is also to maintain a stable weight, help improve blood pressure and cholesterol, and have a positive effect on the heart.

In a few patients, detox helps relieve back and joint pain, and the results have shown that it reduces tension and relaxation, which helps in getting adequate sleep and regulating it.

## DISCUSSION

The few studies that are published suffer from significant methodological limitations including small sample sizes, sampling bias, reliance on self-report and qualitative rather than quantitative measurements. Additionally, health and fitness-related social media content keep including strict diet/exercise plans and “detoxes” that claim to possess health and weight loss benefits [30-34]. In our effective of our knowledge, no rigorous clinical investigations of detox diets are conducted. A research was conducted on patients within the kingdom of Saudi Arabia, and a similar study was conducted within the US of America entitled [35-43] ( Detox diets for toxin elimination and weight management: a review article of the evidence )by A. V. Klein<sup>1</sup> & H. Kiat<sup>2</sup> , Has been .The study confirmed our study which the Liquid-based detox diets did not have a transparent effect on weight loss. While some people may lose lots of weight quickly, this effect seems to flow from to loss of fluid and carb stores instead of fat [44-52]. This weight is sometimes regained quickly once they stopped the diet. One study in overweight Korean women examined the lemon detox diet, which limits you to a mix of organic maple or palm syrups and juice for seven days [53-60]. This diet significantly reduced weight, BMI, body fat percentage, waist-to-hip ratio, waist circumference, markers of inflammation, insulin resistance, and circulating leptin levels [61-64]

If a detox diet involves severe calorie restriction, it'll most certainly cause weight loss and enhancements in metabolic health-but it's unlikely to assist you retain weight off within the long run. Another study was conducted on a group of people in Appalachia to participate in the application of a detox regimen for a period of 21 days, and the results showed a strong desire to eat and a desire to sleep, with no statistically significant differences in lose weight [65].

Plants contains various metabolites that either provide resistance against insect pests or attract pollinators from distances [68-83]

Researchers has also shown that it's might have health risks like intense energy that winds up in protein and vitamins deficiency or loss of healthy gut bacteria and even death in rare and intractable cases [1-5]. But it had a positive and better effect, like stabilizing weight, improving general body health, and detoxing.

### **Conclusion:**

the Research, which was conducted on a group of patients, to learn about the effect of detoxification diet and its role in burning fat and losing weight using probiotics, and enhancing the health image containing prebiotics is considered a tool for the prevention of complications of metabolic imbalance and weight loss simple for some patients and not noticeable for others. This Research stated that detoxification diet has an influence on weight loss, however the effect was not significant. Detox helped lose weight in a small or unnoticeable way .but it has been proven effective in other tests and research in removing toxins from the body and improving health in general.

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